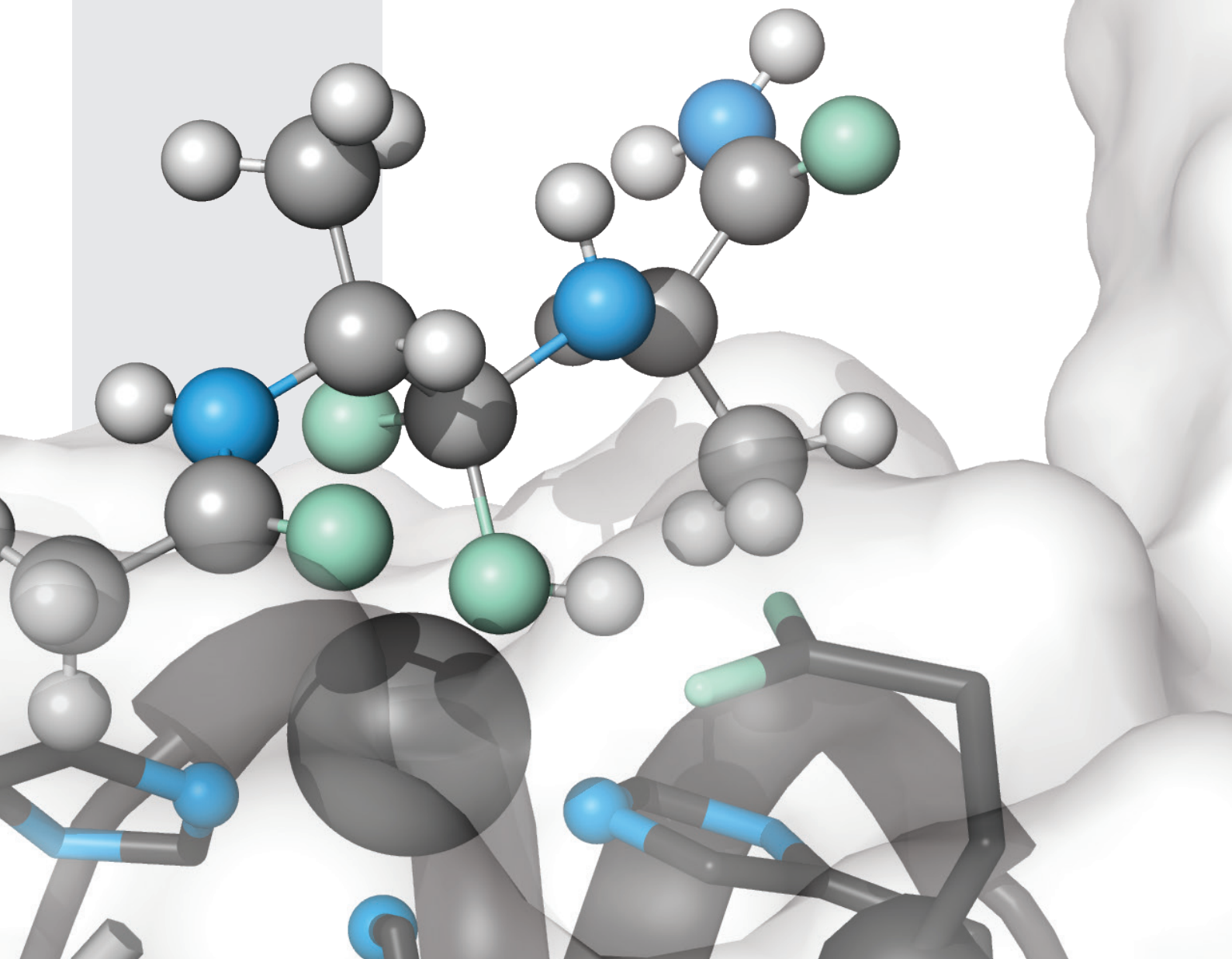




ACTIVITY REPORT 2015-2016



COVER IMAGE

Computationally designed model of a catalytic metallopeptide: detail of active site and transition-state.
(Henrique Carvalho & Ana Cecília Roque)



ACTIVITY REPORT 2015-2016

Faculdade de Ciências e Tecnologia,
Universidade Nova de Lisboa
2829-516 Caparica, Portugal
Tel: +351-212948575
E-mail: mimrc@fct.unl.pt (Isabel Rodrigues)

Universidade do Porto
R. D. Manuel II, Apartado 55142,
4051-401 Porto, Portugal
Tel : +351-226069420
E-mail: mpcunha@fc.up.pt (Maria José Cunha)

FICHA TÉCNICA

Edição: UCIBIO
Design: Bárbara Teixeira
Tiragem: 200 exemplares
Ano: 2017

INDEX

6 MESSAGE FROM THE DIRECTOR

8 1. UCIBIO AT A GLANCE

- 9 DESCRIPTION AND MISSION STATEMENT
- 10 GOVERNANCE
- 11 SCIENTIFIC ORGANIZATION
- 14 UCIBIO IN NUMBERS
- 18 SPOTLIGHTS ON 2015-2016

22 2. RESEARCH GROUPS

- 25 CHEM4OMICS
- 26 BIOANALYTICS AND PROTEOMICS LAB | JOSÉ LUÍS CAPELO
- 28 BIOTOX LAB | MÁRIO DINIZ
- 30 CHEMISTRY AND NANOSYNTHESIS LAB | CARLOS LODEIRO
- 32 FUNCTIONAL GENOMICS AND PROTEOMICS LAB | GILBERTO IGREJAS
- 34 MEDICAL MICROBIOLOGY LAB | PATRÍCIA POETA

- 37 FUNCTIONAL MOLECULES & NANOMATERIALS
- 38 BIOCHEMICAL ENGINEERING LAB | MARIA REIS
- 40 BIOMOLECULAR ENGINEERING LAB | CECÍLIA ROQUE
- 42 BIONANO LAB | RICARDO FRANCO
- 44 GAMEIRO'S LAB | PAULA GAMEIRO
- 46 HUMAN GENETICS AND CANCER THERAPEUTICS LAB | ALEXANDRA FERNANDES
- 48 NANO CHEM LAB | EULÁLIA PEREIRA
- 50 NANOMEDICINE LAB | PEDRO VIANA BAPTISTA
- 52 ORCHIDS LAB | PAULA GOMES
- 54 RANGEL'S LAB | MARIA DA CONCEIÇÃO RANGEL

- 57 STRUCTURAL & MOLECULAR BIOLOGY
- 58 BIOCHEMISTRY AND BIOENERGETICS OF HEME PROTEINS LAB | CARLOS SALGUEIRO
- 60 BIOINORGANIC LAB | JOSÉ MOURA
- 62 (BIO)MOLECULAR STRUCTURE AND INTERACTIONS BY NMR LAB | EURICO CABRITA
- 64 FLUORESCENCE MICROSCOPY AND SPECTROSCOPY LAB | FÁBIO FERNANDES
- 66 MOLECULAR BIOPHYSICS LAB | PEDRO TAVARES
- 68 XTAL - MACROMOLECULAR CRYSTALLOGRAPHY LAB | MARIA JOÃO ROMÃO

- 71 MOLECULAR MICROBIOLOGY
- 72 BACT_DRUGS LAB | LUÍSA PEIXE
- 74 BACTERIAL CELL SURFACES AND PATHOGENESIS LAB | SÉRGIO R. FILIPE
- 76 GLYCOIMMUNOLOGY LAB | PAULA VIDEIRA
- 78 INFECTION BIOLOGY LAB | JAIME MOTA
- 80 MICROBIAL GENETICS LAB | ISABEL SÁ NOGUEIRA
- 82 MOLMICRO OF BACTERIAL PATHOGENS LAB | RITA SOBRAL
- 84 YEAST GENOMICS LAB | JOSÉ PAULO SAMPAIO & PAULA GONÇALVES
- 86 PATHOGEN MOLECULAR GENETICS LAB | ILDA SANCHES

- 89 THEORETICAL & COMPUTATIONAL BIOCHEMISTRY
- 90 COMPUTATIONAL BIOCHEMISTRY LAB | MARIA JOÃO RAMOS

- 93 TOXICOLOGY
- 94 TOXICOLOGY LAB | FÉLIX DIAS CARVALHO & MARIA DE LOURDES BASTOS

- 97 DRUGS TARGETS & BIOMARKERS
- 98 BIOCHEMISTRY LAB | NATÉRCIA TEIXEIRA

- 101 BIOMODELS, BIOANALYTICS AND BIOPHYSICS
- 102 BIOMODELS, BIOANALYTICS AND BIOPHYSICS LAB | SALETTE REIS

104 3. ADVANCED TRAINING

106 4. FACILITIES AND INFRASTRUCTURES

- 107 BIOLOGICAL AND CHEMICAL ANALYSIS FACILITY
- 108 COMPUTER CLUSTER FACILITY
- 109 NUCLEAR MAGNETIC RESONANCE
- 110 PILOT INSTALLATION
- 111 PORTUGUESE YEAST CULTURE COLLECTION
- 112 SINGLE-CRYSTAL X-RAY DIFFRACTION

114 5. SCIENCE MANAGEMENT

- 115 SCIENCE MANAGEMENT OFFICE
- 116 FUNDING, TECHNOLOGY TRANSFER AND TRANSLATION TO INDUSTRY
- 117 OUTREACH AND DISSEMINATION

122 6. SEMINARS AND CONFERENCES

- 123 UCIBIO CONFERENCE CYCLE
- 124 ORGANIZATION OF OTHER SEMINARS
- 125 ORGANIZATION OF CONFERENCES, MEETINGS, COURSES AND WORKSHOPS

128 7. PHD AND MSC THESES

136 8. PUBLICATIONS

- 137 TOP 20 RESEARCH PUBLICATIONS
- 138 PEER-REVIEWED PUBLICATIONS

162 9. ACKNOWLEDGEMENTS

“
 Without UCIBIO
 researchers’s
 enthusiasm,
 hard work
 and commitment
 we could not
 have reached
 this excellent
 level of science.
 ”

MESSAGE FROM THE DIRECTOR



The Research Unit on Applied Molecular Biosciences, UCIBIO gathers a team of 119 integrated researchers who perform their work at the Universities of Porto and NOVA from Lisbon. It was created on January 2015, after a long evaluation process in 2014, carried out by the Portuguese Science Foundation (FCT) that outsourced the technical evaluation to the European Science Foundation (ESF). As a result, UCIBIO ranked with the highest mark (Exceptional) and the evaluation panel considered it to be a top performing research unit (top 3% of all Units in Portugal) and ranked as one of the 3 top performers in Biomolecular Sciences. The results of the first two years of our strategic plan for 2015-2020 are now collected in this report.

The report summarises UCIBIO’s research activities and outputs. The presented highlights and success stories demonstrate that we excelled our strategic plan and surpassed our expectations. We engaged on 8 new collaborations with Industry and launched

a new spin-off (Nano4Global), 6 researchers were awarded with FCT Investigator positions and several prizes were awarded to our researchers, such as the Honor Award L’Oreal for Women in Science to Elisabete Oliveira.

We improved our international collaborations and accordingly, we increased the funding in H2020 (4.8 M€ awarded in 2015-2016) including the highly prestigious European Research Council (ERC) Starting Grant awarded to Cecília Roque.

All our achievements were possible by the efforts of a great team of researchers, principal investigators, science and communication officers, post-docs, PhD students, technicians and administrative staff. Without their enthusiasm, hard work and commitment we could not have reached the level of excellent science that we wish to prosecute in the following years.

Maria João Romão

1

UCIBIO AT A GLANCE

DESCRIPTION AND MISSION STATEMENT

The Research Unit on Applied Molecular Biosciences, UCIBIO, is formed by the collaborative efforts of researchers from the Universities of Porto and NOVA of Lisbon. The host institution is REQUIMTE, a non-profit scientific association between the two Universities.

UCIBIO's research activities occur mainly at the campus of Faculty of Sciences and Technology of the NOVA University of Lisbon (FCT-NOVA), and at the Faculty of Sciences (FC-UP), the Faculty of Pharmacy (FF-UP) and Instituto de Ciências Biomédicas Abel Salazar (ICBAS-UP) from the University of Porto.

UCIBIO combines key expertise in Chemistry and Biological Sciences with an ambitious strategic plan to maximize its national and international impact in terms of scientific productivity, advanced training and translation to society. In the national context, UCIBIO's key strength lies on its broad scope of fundamental and applied research, standing at the interface of Chemistry, Biology and Engineering to address pertinent questions at atomic, molecular, sub-cellular and cellular levels, including cell-to-cell interactions and population evolutionary dynamics.

The UCIBIO's Strategic Scientific Plan is built around 6 general goals:

Goal 1 - Generate and disseminate high quality research;

Goal 2 - Pursue basic and applied research towards effective solutions of societal grand challenges;

Goal 3 - Foster continuous improvement in advanced training programs;

Goal 4 - Secure increased level of funding especially at an international level;

Goal 5 - Lead the way in translation from academia to industry in Biomolecular research;

Goal 6 - Develop and promote outreach activities that engage the public and the society in our research and mission.

Our Research is centred in 4 Thematic Lines (TL) that define focus areas of research and to which the Research Groups contribute with their complementary expertise:

TL1 BIOMOLECULAR INTERACTIONS

TL2 DRUG DISCOVERY

**TL3 SAFETY ASSESSMENT IN HUMAN
& ENVIRONMENTAL HEALTH**

TL4 MOLECULAR DIAGNOSIS & THERAPEUTICS

Research conducted at UCIBIO is highly interdisciplinary and integrative, organized around eight research groups (RG): Biomodels, Bioanalytics & Biophysics (BBB), Chem40mics (C40), Drugs Targets & Biomarkers (DTB), Functional Molecules & Nanomaterials (FMN), Molecular Microbiology (MM), Structural Molecular Biology (SMB), Theoretical & Computational Biochemistry (TCB), Toxicology (TOXI).

The organizational structure of UCIBIO supports its strategic plan and echoes the current research strengths and synergies within and between TLs and RGs. UCIBIO's portfolio of competences allows addressing complex problems from different but complementary angles and using both fundamental and applied perspectives.

GOVERNANCE

UCIBIO includes researchers from NOVA University of Lisbon and from the University of Porto. Its governance includes a Directive Board (DB), a Management Board (MB) and an External Advisory Board (AB).

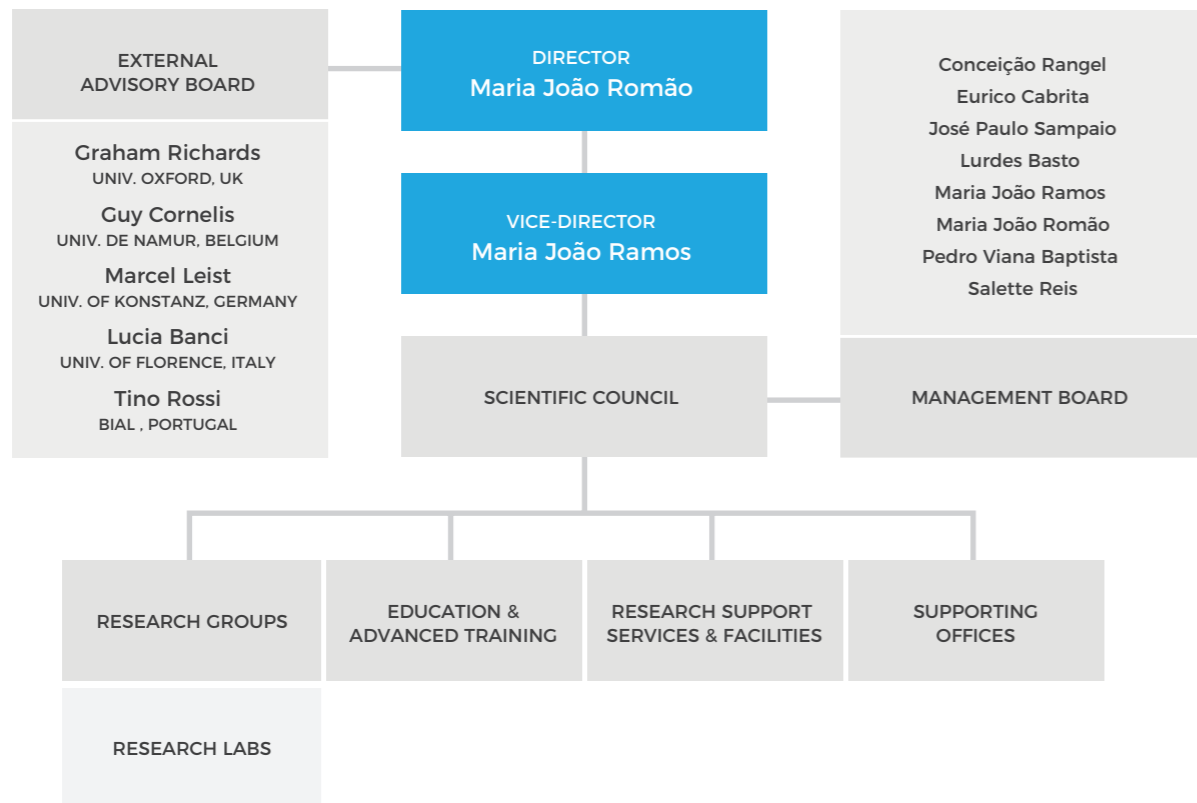
The Directive Board comprises a Director (NOVA University of Lisbon) and a vice-Director (University of Porto). The Management Board is composed by 8 representatives from both Universities, elected for a 3 years period by the Scientific Council (SC).

The SC includes all integrated members and should meet once a year to discuss the scientific strategy and plan of action proposed by the DB.

The External Advisory Board comprises 4 renowned specialists from core research areas and an Industry representative.

In our governance structure we maintain and reinforce our administrative human resources that support management, informatics and accounting.

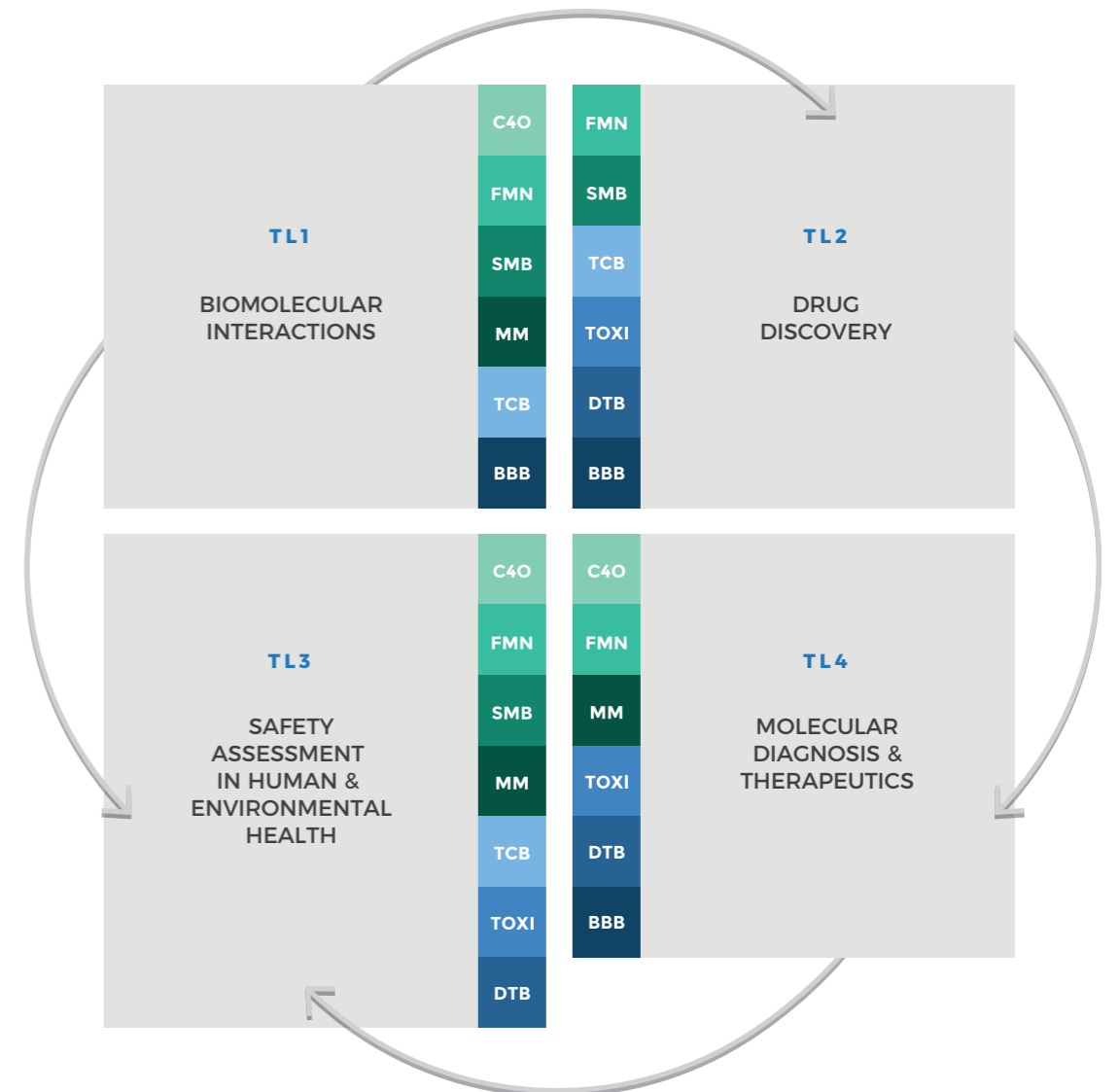
UCIBIO ORGANIZATION

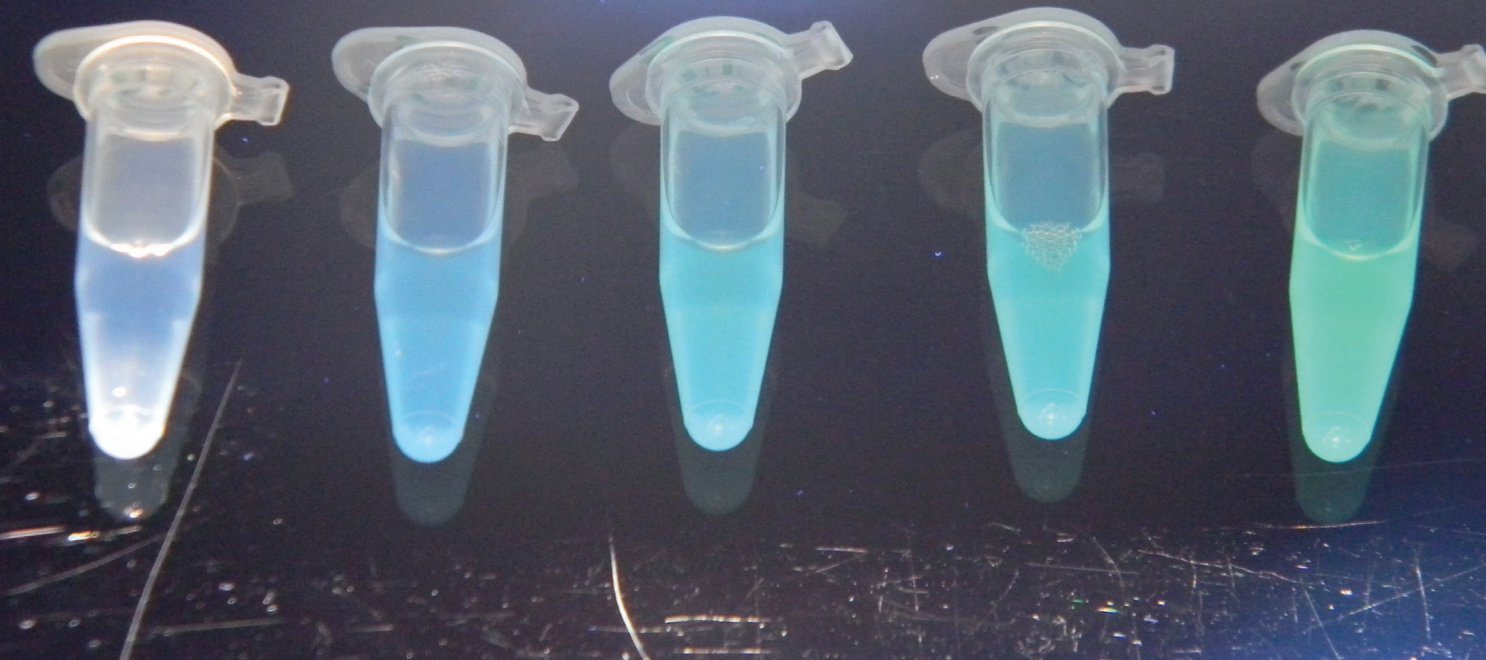


SCIENTIFIC ORGANIZATION

UCIBIO is organized in 8 RESEARCH GROUPS (RG) with different but complementary backgrounds that reflect UCIBIO's research strengths: Biomodels, Bioanalytics & Biophysics (BBB), Chem40mics (C40),

Drug Targets & Biomarkers (DTB), Functional Molecules & Nanomaterials (FMN), Molecular Microbiology (MM), Structural Molecular Biology (SMB), Theoretical & Computational Biochemistry (TCB), Toxicology (TOXI).





The expertise from each RG provides the competencies to carry out research work towards common objectives that are defined in 4 THEMATIC LINES of action:

BIOMOLECULAR INTERACTIONS

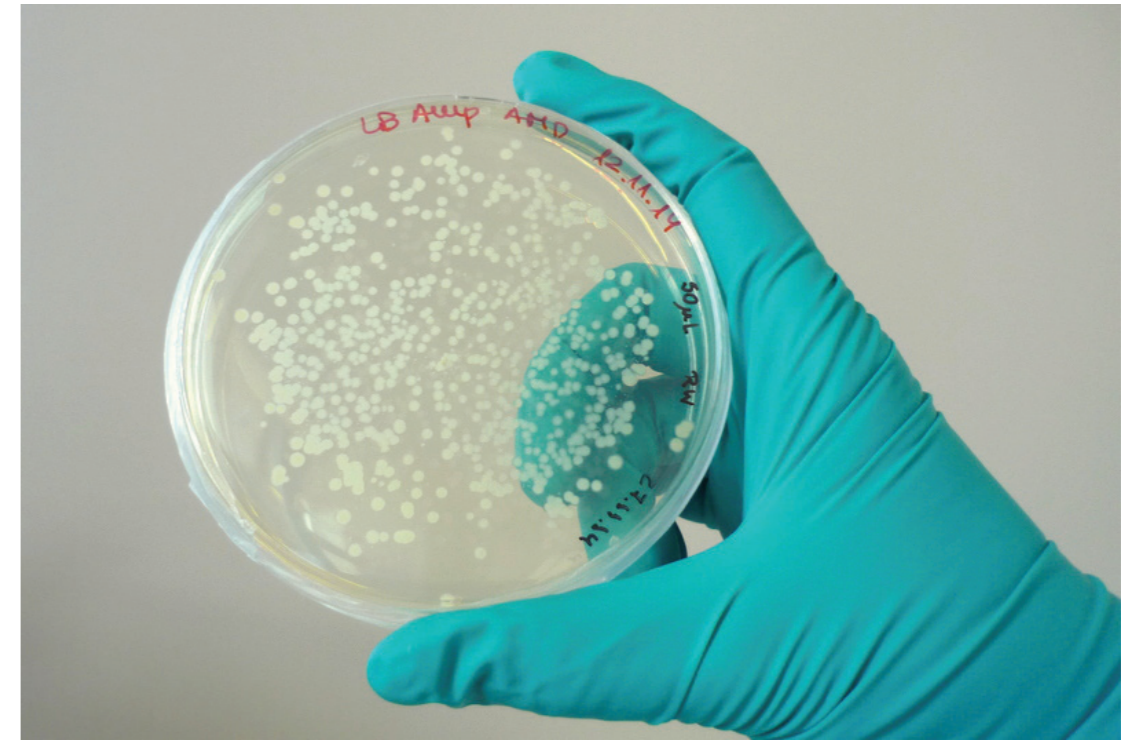
Understanding the relationship between biomolecular interactions, cellular functions and disease needs an integrated vision. One of our major goals is to understand the molecular mechanisms, from primary processes of molecular recognition to interaction networks in and between living cells, their populations and hosts. This encompasses a vast array of phenomena along the following research lines: i) protein-protein and protein-ligand interactions; ii) assembly and functioning of macromolecular machines; iii) regulation of gene expression and elucidation at the molecular level of cellular signal transduction pathways. Research is focused on Cellular Function and Molecular Mechanisms in a synergetic collaboration between the groups (SMB, TCB, MM, C40, FMN and BBB) to address fundamental questions regarding: drug (antibiotic, anti-cancer) resistance and pathogenesis; inter- and intra-cellular

processes (e.g. cancer progression, inflammation, infection, oxidative stress, host-pathogen interactions); and dynamics of cell populations in adaptation to the environment and in disease.

DRUG DISCOVERY

Focus on the discovery of new compounds effective against one or more diseases that afflict our society presently. It aims at identifying and optimizing candidate molecules to enter preclinical evaluation in a dedicated drug discovery project.

Research is pursued along the following vectors: i) molecular docking, virtual screening and QSAR studies (TCB); ii) structure-based drug design for target druggability, pharmacophore identification, hit validation and optimization (SMB); iii) design and screening of compounds that can overcome drug resistance (FMN); iv) design, synthesis and characterization of innovative nanosystems for targeted drug delivery (FMN, BBB); v) in vitro studies for pre-clinical evaluation of efficacy and safety of novel structures (TOXI); vi) in vivo evaluation of new drugs (DTB).



MOLECULAR DIAGNOSIS & THERAPEUTICS

Focus on the identification of new biomarkers, design and production of nano-devices for diagnosis, treatment and prevention of disease. Innovative health technologies will be strategic for technological development in the near future as full impact of omics becomes available and new diagnosis and therapies are needed. Research is pursued along the following vectors: i) provide novel tools for molecular diagnosis based on omics approaches as well as on target-driven approaches using molecular recognition (C40, FMN, MM, SMB, DTB); ii) develop novel platforms based on nanosystems for diagnosis (C40, FMN); iii) implement innovative therapies through nanotechnology applied to drug delivery systems (BBB, FMN); iv) test efficacy and safety of new delivery systems (BBB, TOXI).

SAFETY ASSESSMENT IN HUMAN & ENVIRONMENTAL HEALTH

Focus is given to the rational identification of efficacious and safe human drugs and the improvement of environmental conditions, which is a recognized challenge for industry, consumers, regulatory entities and academia. Safety assessment is essential and has contributions from groups TOXI, TCB, SMB, FMN, C40, MM and DTB. To cover all aspects of safety assessment, both from a human and environmental health perspective, research is pursued along the following vectors: i) synthesis of new entities for biomedical applications; ii) evaluation of safety and/or efficacy of these new entities and known agents with new pharmacological applications; iii) rationalization of experimental designs through development of in silico, in vitro, and highly rationalized in vivo models; and iv) development of new methodologies for environmental control and remediation.

UCIBIO IN NUMBERS

PEOPLE

206*

RESEARCHERS

119 87

INTEGRATED MEMBERS

COLLABORATORS

* 99 POST-DOCS

146

PHD STUDENTS

6

TECHNICIANS

358

TOTAL MEMBERS

PUBLICATIONS

2015 2016

283 365

INTERNATIONALS

2015 2016

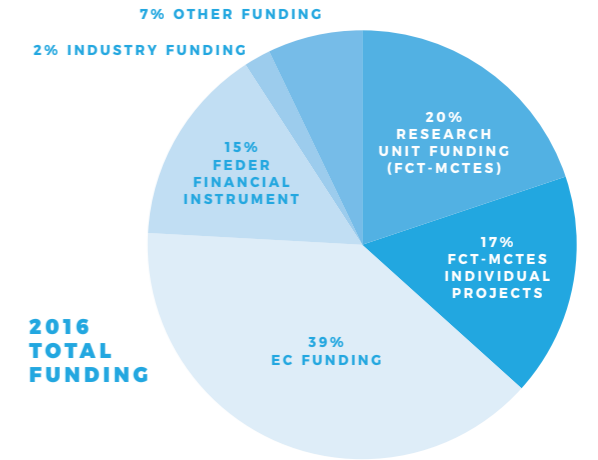
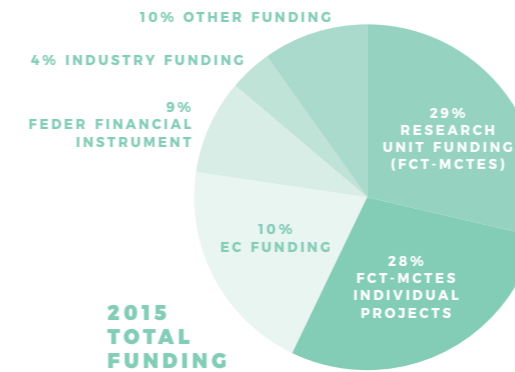
29 32

BOOKS & BOOK CHAPTERS

1143

TOTAL NUMBER OF CITATIONS (2015+2016)

FUNDING



2015 2016

€3,614,395.00 €5,08,407.00

TOTAL FUNDING

€1,035,300.00 €1,035,300.00

RESEARCH UNIT FUNDING (FCT-MCTES)

€1,022,598.00 €842,721.00

FCT-MCTES INDIVIDUAL PROJECTS

€741,777.00 €1,955,338.00

EC FUNDING

€318,194.00 €766,406.00

FEDER FINANCIAL INSTRUMENT

€151,767.00 €119,893.00

INDUSTRY FUNDING

€344,759.00 €360,749.00

OTHER FUNDING

UCIBIO IN NUMBERS

PATENTS

14

TOTAL

PROJECTS

97



NATIONAL PROJECTS
(2015+2016)

40



INTERNATIONAL PROJECTS
(2015+2016)

9

INDUSTRY CONTRACTS

AWARDS, PRIZES AND HONOURS

40

TOTAL

- 1 ERC STARTING GRANT
- 6 FCT INVESTIGATORS
- 2 ESCMID RESEARCH GRANT
- 1 HONOR AWARD L'ORÉAL 2015 FOR WOMEN IN SCIENCE
- 1 PORTUGAL ACREDITA PORTUGAL -NEW IDEAS PRIZE
- 4 SCIENTISTS HONOURED BY CIÊNCIA VIVA, "WOMEN IN SCIENCE"
- 1 FIA AWARD FOR SCIENCE

ADVANCED TRAINING



PHD THESIS



MASTER THESIS

10

COURSES
(2015+2016)

12

WORKSHOPS
(2015+2016)

SPOTLIGHTS 2015

MARCH



MARIA JOÃO RAMOS & FILIPA MARCELO APPOINTED NATIONAL DELEGATES OF THE ACTION MANAGEMENT COMMITTEE FOR A COST ACTION

Challenging organic syntheses inspired by nature - from natural products chemistry to drug discovery Cost Action CM1407

JANUARY



CECÍLIA ROQUE AWARDED WITH A EUROPEAN RESEARCH COUNCIL (ERC) STARTING GRANT

Cecília Roque will study how to detect and identify microorganisms in a faster and non-evasive way through the odours released by these microorganisms.

Media: Press, TV, Radio and other channels
FCT-NOVA



UCIBIO IN THE NEWS

CECÍLIA ROQUE IS ONE OF THE 20 PORTUGUESE TOP RESEARCHERS

Cecília Roque has been chosen by the national newspaper Expresso as one of the 20 portuguese top researchers.

Media: Press

ADA YONATH, NOBEL PRIZE

In the scope of the celebrations of the International Year of Crystallography, Ada Yonath visited FCT-NOVA



APRIL



UCIBIO IN THE NEWS

CARLOS SALGUEIRO PUBLISHED ON SCIENTIFIC REPORTS - NATURE PUBLISHING GROUP

Office paper is successfully used as a quick test for bacterial detection
Media: Press and TV

WORLD BIOTECH TOUR FESTIVAL

As partner of the international project, UCIBIO's researchers show the application of biotechnology to health, and to industry and environment Pavilion of Knowledge - Ciência Viva



JULY



RITA SOBRAL AWARDED AN ESCMID RESEARCH GRANT

Rita Sobral aims to study a new target inside an old molecule, which will help to design new antimicrobials in the future
FCT-NOVA



COURSE ON INTEGRATIVE STRUCTURAL BIOLOGY ISBIO2015

Integrative Structural Biology tools for the study of protein-ligand interactions
FCT-NOVA

JUNE



BRIAN KOBILKA, NOBEL PRIZE

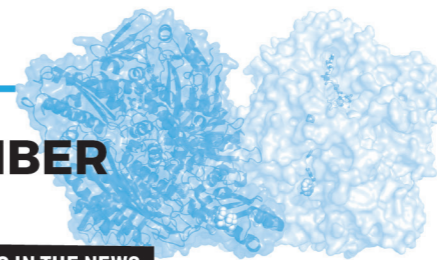
In the scope of the celebrations of the International Year of Crystallography, Brian Kobilka visited FCT-NOVA



MARCELA SEGUNDO AND LUÍS MAGALHÃES WIN ACREDITA PORTUGAL - NEW IDEAS PRIZE

Project Wjinove - it's a grape idea presents an innovative method, which is more sustainable to perform the wine analysis by the wine makers Uporto

SEPTEMBER



UCIBIO IN THE NEWS

CATARINA COELHO, TERESA SANTOS-SILVA AND MARIA JOÃO ROMÃO PUBLISHED ON NATURE CHEMICAL BIOLOGY

Discovery of the AOX enzyme 3D structure by X-ray crystallography is crucial as a guide for drug design
Media: Press

DECEMBER



ISABEL SÁ NOGUEIRA ELECTED PRESIDENT OF THE PORTUGUESE SOCIETY OF GENETICS

For the period of 2015-2018
FCT-NOVA

NOVEMBER



UCIBIO IN THE NEWS

JOSÉ PAULO SAMPAIO PUBLISHED IN MOLECULAR ECOLOGY

Identification, for the first time, of the wild population that gave rise to the domesticated wine yeasts.

Media: Press

SPOTLIGHTS 2016

FEBRUARY



UCIBIO IN THE NEWS

ELISABETE OLIVEIRA DISTINGUISHED WITH THE HONOR AWARD L'ORÉAL 2015 PORTUGAL

Elisabete Oliveira aims to develop biodegradable luminescent nanoparticles specific to cancer cells

Media: Press and TV

MARCH



UCIBIO SCIENTISTS HONoured AT THE EXHIBITION "WOMEN IN SCIENCE"

Maria João Romão, Maria João Ramos, Isabel Moura and Cecília Roque were honoured by their key contribution to the progress of national science and technology

JUNE



IRINA FRANCO AWARDED AN ESCMID RESEARCH GRANT

Irina Franco aims to identify the new virulence mechanisms of a Legionella pneumophila strain isolated from a major outbreak in Portugal

JULY

UCIBIO WORKSHOP NANOTECHNOLOGY FOR BIOAPPLICATIONS FCT-NOVA



6 H2020 PROJECTS AWARDED TO MARIA REIS

Projects in collaboration with industry with high TRL, amounting a total of 2.2 M€. FCT-NOVA



6 FCT INVESTIGATORS

6 programme-contracts have been awarded to researchers at UCIBIO, in the scope of the competitive call 2015 FCT Investigator Programme, from *Fundação para a Ciência e Tecnologia*.

OCTOBER



MARCELA SEGUNDO RECEIVES THE FIA AWARD FOR SCIENCE

This award aims to celebrate the efforts and research excellence at international level concerning the development and application of flow injection analysis

SEPTEMBER

VISIT OF ANTÓNIO COSTA, PORTUGUESE PRIME MINISTER AND MANUEL HEITOR, PORTUGUESE MINISTER FOR SCIENCE, TECHNOLOGY AND HIGHER EDUCATION OF PORTUGAL.

DECEMBER



LAUNCHING OF THE WORKSHOPS SERIES OF FUNDING APPLICATIONS & CAREER DEVELOPMENT PROGRAM

Tips & Tricks for successful funding
Hands-on session of Horizon2020 Grant writing workshop
FCT-NOVA



OPENING OF BIOLAB FACILITY
Official presentation of BioLab, a Biological and Chemical Analysis Facility, at UCIBIO, FCT-NOVA



UCIBIO IN THE NEWS

NANO4GLOBAL: SELECTED ONE OF THE WINNERS TO REPRESENT PORTUGAL AT THE WEB SUMMIT

Nano4Global, co-founded by Alexandra Fernandes and Pedro Baptista, aims to provide solutions for one step molecular identification of DNA/RNA at point-of-care.

Media: Press and TV



EUROPEAN RESEARCHERS NIGHT



INSTRUCT WORKSHOP | COMPUTATIONAL PROTEIN DESIGN FOR BIOTECH APPLICATIONS

forefront computational methodologies in use nowadays, in the field of de novo Protein Design.
FCT-NOVA

2

RESEARCH GROUPS

RESEARCH GROUPS

UCIBIO research groups mirror our current strengths and expertise structured around 8 groups:

C4O	CHEM4OMICS
FMN	FUNCTIONAL MOLECULES & NANOMATERIALS
SMB	STRUCTURAL & MOLECULAR BIOLOGY
MM	MOLECULAR MICROBIOLOGY
TCB	THEORETICAL & COMPUTATIONAL BIOCHEMISTRY
TOXI	TOXICOLOGY
DTB	DRUG TARGETS & BIOMARKERS
BBB	BIOMODELS, BIOANALYTICS & BIOPHYSICS

CHEM4OMICS C4O

RESEARCH GROUP OVERVIEW

The Chem-4-Omics group is a multidisciplinary international research group, integrated by chemists, biologist and biotechnology researchers. The group encompasses five main research lines in an integrative and cooperative approach, in cooperation with international universities, hospital settings and industry.

The group integrates five research lines: i) starting with the chemical synthesis of new emissive organic and inorganic chemosensors (NECs), nano-synthesis of functionalized materials (FNP) and new MALDI matrices for biological, environmental and medical applications, ii) application of the NECs to the medical and proteomics area has been developed to help in the diagnosis of diseases by finding new biomarkers of diagnosis and prognosis and in phosphoproteomics approach, or by classifying patients by the type of disease they suffer. Further to aforementioned works, the implementation of ultrasonic energy as a tool in the approaches using NECs has been also extensively addressed, and iii) application of the NECs and FNP to environmental studies has been done in zebra and gold fish, with the

main aim to verify if current compounds being developed worldwide are dangerous for the living organisms or not. In addition to such studies, a number of studies addressing the influence of the climate change in living organism have been also developed, iv) Genomics and Proteogenomics studies in Veterinary and Biomedical Samples, and v) application and studies of functionalized nanoparticles and nanomaterials (FNP) in antibiotic resistance fields.

There is extensive experience in Synthesis of Organic and Inorganic dyes, synthesis of multifunctional nanoparticles and functionalized quantum dots, absorption and emission spectroscopy studies, MALDI-Mass Spectrometry, ESI-TOF-Mass Spectrometry, Ultrasonic devices, Electrophoresis 1D and 2D, Elisa and Western Blot studies, DLS and TEM Characterisation, among other biophysical techniques. The group has access to all necessary infrastructures for, Synthesis, Omics and Nanomics, Nanotoxicological issues, either in-house or within the scope of National or International Networks Collaborations.

RESEARCH LABS

BIOANALYTICS AND PROTEOMICS LAB | JOSÉ LUÍS CAPELO

BIOTOX LAB | MÁRIO DINIZ

CHEMISTRY AND NANOSYNTHESIS LAB | CARLOS LODEIRO

FUNCTIONAL GENOMICS AND PROTEOMICS LAB | GILBERTO IGREJAS

MEDICAL MICROBIOLOGY LAB | PATRÍCIA POETA

20 um



BIOANALYTICS AND PROTEOMICS LAB

CHEM4OMICS
C4O

RESEARCH INTERESTS

Innovative approaches for large-scale identification, characterization and quantitation of proteins. We use mass spectrometry to identify the molecules involved in complex biological processes, characterize their structure and monitor how their abundance or structure may change during these processes, in order to gain insights into the underlying molecular mechanisms:

- NanoProteomics: Application of nanoparticles to proteomics.
- Bacterial Id. & antibiotics resistance: Unravelling biochemical mechanisms of bacterial resistance. Rapid bacterial identification based on MALDI-TOF-MS.
- Biomarker discovery & prognosis: chronic kidney disease, osteoarthritis, lymphoma and multiple myeloma.
- Analytical Mass Spectrometry: mass spectrometric characterization of organic and inorganic molecules and supramolecular structures.
- Development of mini-devices for sample treatment accomplished to mass spectrometry.
- Applications of Fluorescence to analytical inorganic and organic chemistry.

RESEARCH HIGHLIGHTS ON 2015-2016

Multiplex & multiplatform screening of liquid biopsies for early detection of pathologies

- Early diagnosis and classification of multiple myeloma (MM) and lymphoma using nanotechnology and Mass Spectrometry. HSP75 and SERPING1 have been identified as relapse biomarkers in MM. *Nano Research*, 8 (4), pp. 1189-1198, 2015
- New nanoparticle-based method to uncover diagnostic biomarkers for knee osteoarthritis in urine with increased sensitivity and 10% lower false negative rate compared with radiologic and clinical analysis. This new method attracted funding from MAPFRE. These breakthroughs have been highlighted in *Nano Research*, *Proteomics Clinical Applications* and *Journal of Proteomics*.

LAB LEADER

José Capelo-Martínez
PhD in Analytical Chemistry, 2002, University of Vigo, Spain
Habilitation in Chemistry, 2008, ANECA, Spain
Assistant Professor, FCT NOVA

LAB MEMBERS

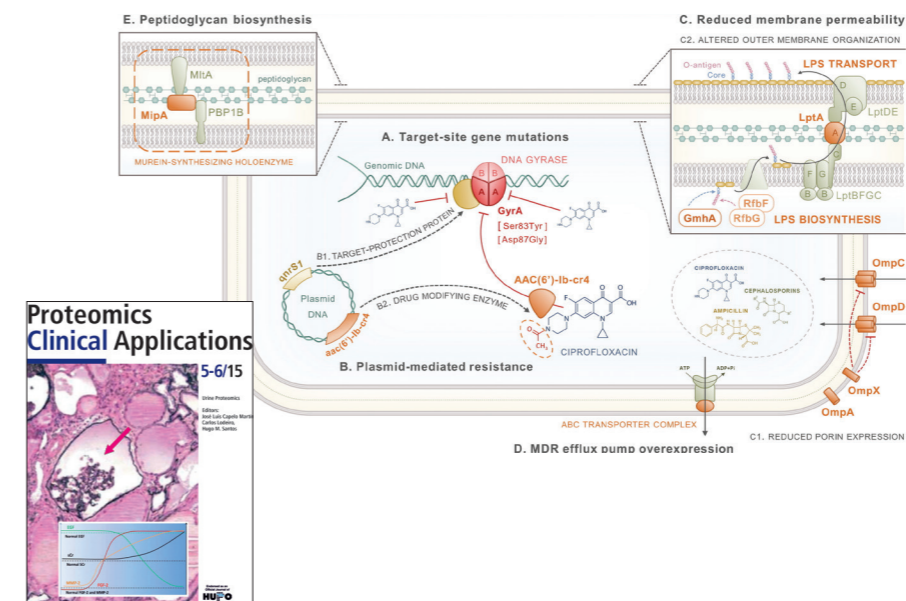
INDEPENDENT RESEARCHERS
Hugo Santos,
IF Investigator

POST-DOCS
Elisabete Oliveira Marques
Hugo López Fernández
Javier Fernández Lodeiro

PHD STUDENTS
Adrián Fernández Lodeiro
Diana Madeira,
Eduardo Araújo
Jamila Djafari
Jemmyson de Jesus
Júlio de Miranda
Luz Fernandes
Sónia Ramos
Susana Correia
Susana Jorge

Unravelling the biochemical mechanisms driving antibiotics resistance

- *Salmonella typhimurium* DT104 multiresistant strains with additional quinolone resistance are highly adaptive and have been responsible for global outbreaks and high mortality. In order to give new insights about the resistance mechanisms involved, the developed work aimed to point out subproteome changes between a DT104B clinical strain that acquired quinolone resistance after patient treatment and an in vitro induced clonally related highly-resistant mutant.



REPRESENTATIVE PROJECTS ON 2015-2016

"Application of metallomics and proteomics strategies in the identification of possible biomarkers to bipolar disorder", CAPES, Total funding: €42,262 Unit funding: €21,040, José Capelo-Martínez (PI).

"Development of new vectors based on nano-polyplexes as imaging and drug@RNA delivery in triple negative breast cancer, FCT-MCTES, Total funding: €87,511, Unit funding: €74,511, José Capelo-Martínez (Collaborator).

"Novel fluorescence probes containing selenium and/or tellurium atoms for the study of reactive oxygen species (ROS) supported in metallic nanoparticles: Towards new biomedical nano-tool", CNPq, Total funding: €67,932, Unit funding: €37,873 José Capelo-Martínez (Collaborator).

"Pinpointing absolute phosphorylation stoichiometry in human cells using new polystyrene nanoparticle-based immobilized lanthanide ion affinity chromatography and motif-targeting quantitative proteomics", FCT-MCTES, Total and Unit funding: €50,000, Hugo M. Santos (PI).

"Laboratory for biological mass spectrometry", Isabel Moura, PROTEOMASS Scientific Society, Total funding: €300,000, José Capelo-Martínez (PI), Hugo M. Santos (PI).

SELECTED PUBLICATIONS

López-Fernández, H., De S Pessôa, G., Arruda, M.A.Z., Capelo-Martínez, J.L., Fdez-Riverola, F., Glez-Peña, D., Reboiro-Jato, "LA-iMAGE: a software for elemental distribution bioimaging using LA-ICP-MS", *JOURNAL OF CHEMINFORMATICS*, 8 (1), pp. 1-10, 2016

Araújo, J.E., Jorge, S., Teixeira e Costa, F., Ramos, A., Lodeiro, C., Santos, H.M., Capelo, J., "A cost-effective method to get insight into the peritoneal dialysate effluent proteome", *JOURNAL OF PROTEOMICS*, 145, pp. 207-213, 2016

Correia, S., Hébraud, M., Chafsey, I., Chambon, C., Viala, D., Torres, C., de Toro, M., Capelo, J.L., Poeta, P., Igrejas, G., "Impacts of experimentally induced and clinically acquired quinolone resistance on the membrane and intracellular subproteomes of *Salmonella Typhimurium* DT104B", *JOURNAL OF PROTEOMICS*, 145, pp. 46-59, 2016

López-Cortés, R., Formigo, J., Reboiro-Jato, M., Fdez-Riverola, F., Blanco, F.J., Lodeiro, C., Oliveira, E., Capelo, J.L., Santos, H.M., "A methodological approach based on gold-nanoparticles followed by matrix assisted laser desorption ionization time of flight mass spectrometry for the analysis of urine profiling of knee osteoarthritis" (2016) *TALANTA*, 150, pp. 638-645

Araújo, J.E., Lodeiro, C., Capelo, J.L., Rodríguez-González, B., dos Santos, A.A., Santos, H.M., Fernández-Lodeiro, "Novel nanocomposites based on a strawberry-like gold-coated magnetite (Fe@Au) for protein separation in multiple myeloma serum", *NANO RESEARCH*, 8 (4), pp. 1189-1198, 2015

FUNDING

PROTEOMASS Scientific Society
Conselho Nacional de Desenvolvimento Científico e Tecnológico, Brazil
Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, Brazil
Instituto Português de Oncologia
Fundação de Amparo à Pesquisa do Estado de São Paulo, Brazil
Fundação para a Ciência e a Tecnologia
Universidade NOVA de Lisboa

COLLABORATIONS

Julia Ljubimova, Cedars-Sinai Hospital, Nanomedicine Research Center, USA
William LaFramboise, University of Pittsburgh Cancer Institute, USA
Alfonso Otero, Ourense Hospital, Spain
Gilberto Igrejas, Patricia Poeta, UTAD
Florentino Riverola, University of Vigo, Spain
Aura Ramos & Fernando Teixeira e Costa, Hospital Garcia de Orta
Eduardo Netto and Margarida Roldão, IPO
Francesc Aviles, Julia Lorenzo, University Autònoma de Barcelona, Spain
Marco Arruda, University of Campinas, Brazil
Carlos Lodeiro, UCIBIO, FCT NOVA
José Luis Gomez Ariza, University of Huelva, Spain

OUTREACH

Media appearances in several channels
Expo FCT, 2015 & 2016
Public talk, "How to cook a dog?", March 2016
FCT NOVA

WEBSITES

www.bioscopegroup.org



BIOTOX LAB

CHEM4OMICS
C4O

RESEARCH INTERESTS

Environmental Biochemistry and Toxicology: organisms exposed to contaminants in aquatic environments (e.g. xenoestrogens, emerging compounds, metals and other elements).
Environmental Proteomics. Biomarkers. Oxidative stress in organisms exposed to pollutants.
Climate change effects on marine biota. Immunobiology; Nanotoxicology. Food Toxicology.

We use toxicity data to study the mechanisms and effects of contaminants and other environmental stressors on animals physiology and cellular biochemical processes. Our main foci of research are: 1. Effects of xenoestrogens on organisms; 2. The use of biomarkers of response and effect (e.g. proteins, antioxidant enzymes); 3. Identification of proteins of interest, using proteomic methodologies, following exposure to environmental stressors; 4. Development of biosensors and immunoassays for food quality assessment.

RESEARCH HIGHLIGHTS ON 2015-2016

When warming hits harder: survival, cellular stress and thermal limits of *Sparus aurata* larvae under global change - we assessed the sensitivity of fish larvae toward ocean warming and heat wave events in the commercial species, *Sparus aurata*, whose habitat is likely to be affected by rising water temperatures. We estimated its critical thermal maximum (CT_{max}) and relative mortality upon warming, quantified stress biomarkers: heat shock protein 70 kDa, total ubiquitin, antioxidant enzymes (superoxide dismutase, catalase, glutathione-S-transferase), lipid peroxidation and protein carbonylation, and analyzed histopathological changes. The results suggest that slight changes in environmental stressors can have significant effects on animals physiology and biochemical processes which are involved in adaptation processes to sea warming of the marine biota. (Mar. Biol., 2016).

Single and combined effects of aluminium (Al₂O₃) and zinc (ZnO) oxide nanoparticles in a freshwater fish - we studied the effects of nanoparticles (NPs) on the health of *Carassius auratus*, showing that even very low concentrations can affect fish physiology, as shown by biomarkers data. We also showed that mixtures can have different behaviours compared to exposure to single

LAB LEADER

Mário S. Diniz

PhD in Environmental Sciences, 2005, FCT NOVA
Assistant Professor, FCT NOVA

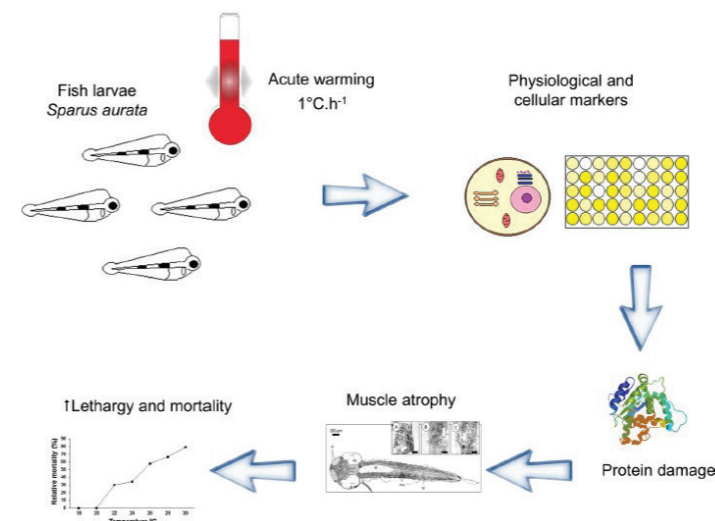
LAB MEMBERS

POST-DOCS

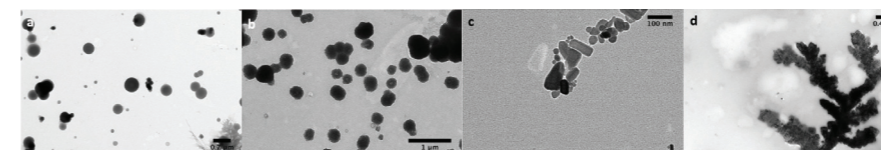
António Cid
Diana Madeira
Tiago Repolho
Marta Martins

PHD STUDENTS

Carolina Madeira
Ana Rita Lopes
Ana Luisa Maulvault



Nps. Additionally, the dissociation processes between metal NPs and the water were also analyzed. The results contribute to a better knowledge of this type of materials since the use of engineered nanomaterials is growing exponentially and their toxicity is still poorly understood (Environm. Sci. and Poll., 2016).



Representative TEM images of NPs in water: (a) mixture of Al₂O₃ and ZnO NPs (10 µg.L⁻¹); (b) Al₂O₃ NPs (10 µg.L⁻¹); (c) ZnO NPs (100 µg.L⁻¹); (d) Al₂O₃ (100 µg.L⁻¹).

REPRESENTATIVE PROJECTS ON 2015-2016

"A proteomic study on the combined effects of pCO₂ and temperature on different life stages of the marine fish *Sparus aurata*", FCT-MCTES, Total funding: €97,388, Unit funding: €46,476, Mário Diniz (PI).

"3Qs for Quality – Development of molecular sensors and technologies for seafood quality", FCT-MCTES, Total funding: €197,948, Unit funding: €90,260, Mário Diniz (PI).

"Multifunctional study of xylem-sap Portuguese olive cultivars and its relation with susceptibility to infection by *Xylella fastidiosa*", FCT-MCTES, Total funding: €199,991, Unit funding: €18,900, Mário Diniz (Collaborator).

"Of pigments and toxins an integrative approach to the biotechnological potential of a marine polychaete", FCT-MCTES, Total funding: €199,398, Unit funding: €7,500, Mário Diniz (Collaborator).

"Unveiling host specificity and host-pathogen interactions of *Streptococcus*", FCT-MCTES, Total funding: €199,782, Unit funding: €199,782, Mário Diniz (Collaborator).

SELECTED PUBLICATIONS

Maulvault, A.L., Custódio, A., Anacleto, P., Repolho, T., Pousão, P., Nunes, M.L., Diniz, M., Rosa, R. & Marques, A. "Bioaccumulation and elimination of mercury in juvenile seabass (*Dicentrarchus labrax*) under ocean warming", ENVIRON RES, 149: 77-85, 2016

Diana Madeira José E Araújo, Rui Vitorino, José L Capelo, Catarina Vinagre, Mário S Diniz, "Ocean warming alters cellular metabolism and induces mortality in fish early life stages: a proteomic approach", ENVIRON RES, 148, 164-176, 2016

Diana Madeira, Pedro M. Costa, Catarina Vinagre, Mário S. Diniz, "When warming hits harder: survival, cellular stress and thermal limits of *Sparus aurata* larvae under global change", MAR BIOL, 163(4), 2016

Vinagre, C., Leal, I., Mendonça, V., Madeira, D., Narciso, L., Diniz, M.S., Flores, A.A.V. "Vulnerability to climate warming and acclimation capacity of tropical and temperate coastal organisms", ECOL IND, 62, 317-327, 2016

A. Cid, A. Picado, J.B. Correia, R. Chaves, H. Silva, J. Caldeira, A.P Alves de Matos, M.S. Diniz, "Oxidative stress and histological changes following exposure to diamond nanoparticles in the freshwater Asian clam *Corbicula fluminea* (Müller, 1774)", J HAZARD MATERIALS, 284:27-34, 2015

FUNDING

Fundação para a Ciência e a Tecnologia

COLLABORATIONS

MECCA group, Faculdade de Ciências da ULisboa

ECCOWEBS group, Faculdade de Ciências da ULisboa

CESAM, Universidade de Aveiro

Instituto Superior Técnico

OUTREACH

"Welcome to freshman" at FCT NOVA

WEBSITES

sites.fct.unl.pt/biotoxgroup



CHEMISTRY AND NANOSYNTHESIS LAB

CHEM4OMICS
C4O

RESEARCH INTERESTS

Synthesis of new fluorescent dyes and probes, Nanoparticles and functionalized nanomaterials. Spectroscopy studies using Fluorescence Spectroscopy, absorption spectroscopy, DLS and Time dependent resolved measurements. Exploring new Chemosensors in solution and solid state, MALDI-TOF-MS studies, Nanoproteomics applied to Biomarker Discovery, Drug delivery and signalling in Cancer Research.

Nanotechnology for biomedicine, nano-proteomics and hazard control: Synthesis and functionalization of nanoparticles and composites (Au, Ag, Pt, Pd; SiO₂, Fe₂O₃, Au@Ag/SiO₂, Au@Fe₂O₃, mesoporous silica, Polymers, MSiNP).

Fluorescence dyes for detection, drug delivery and imaging and metal complexes.

Developments and validation of analytical and structural analysis techniques: UV-vis and Fluorescence Spectroscopy, Transmission Electron Microscopy, Dynamic Light Scattering, HPLC and nano-LC, Supramolecular Separations, 2D-Gel Electrophoresis, Mass Spectrometry.

RESEARCH HIGHLIGHTS ON 2015-2016

Unraveling the Organotellurium Chemistry applied to Nanoparticles. Analytical and Biochemical applications.

Long-term preservation of Gold nanoparticles properties, either in solution or as a dry powder can be difficult. We have overcome this challenge by using organotellurium derivatives as both reducing agents and stabilizers in the synthesis of gold nanoparticles. The new synthetic protocol takes advantage of the photochemical and oxidative properties of di-organic ditelluride (R₂Te₂), which so far has never been exploited in the synthesis of gold nanoparticles. A mechanism for the formation core/shell nanoparticles was also discovered. Applications in Proteomics as Protein Nanoscavengers and in the synthesis of Anisotropic nanomaterials were successfully achieved (Javier Fernández Lodeiro, et al. ACS Omega, 1(6) 1314-1325, 2016)

LAB LEADER

Carlos Lodeiro

PhD in Chemistry, 1999, University of Santiago de Compostela, Spain
Habilitation in Chemistry, 2008, ANECA, Spain
Assistant Professor, FCT NOVA

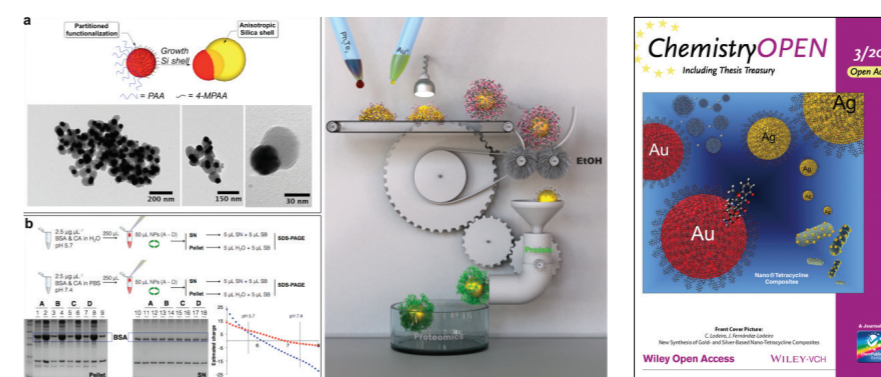
LAB MEMBERS

POST-DOCS

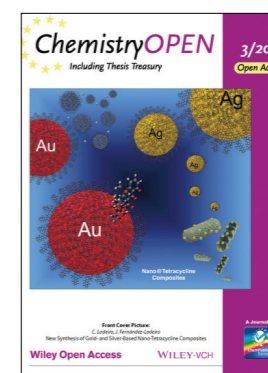
Javier Fernández-Lodeiro
Nuno Malavado Moura
Viviane Pilla
Elisabete de Jesus Oliveira

PHD STUDENTS

Adrián Fernández-Lodeiro
António Soares Paulino
Augusto César Gonçalves
Daniela Ribeiro-Pinheiro
Jamila Djafari
Luz Fernandes
Susana Jorge



ACS Omega. (a) TEM images of the Janus nanoparticles synthesised (b) 1D-SDS-PAGE of BSA and CA incubated with the Au nanoparticles. (c) Cartoon Production machinery



Cover Picture Issue
Chemistry Open March 2016

Synthesis of Antibiotic Functionalized Nanoparticles.

A new synthetic methodology of water-soluble gold and silver nanoparticles, AuNPs@TC and AgNPs@TC, using the popular antibiotic tetracycline (TC) as co-reducing and stabilizing agent was achieved. Both colloids exhibit high water stability, and the average size obtained was 15±5 nm and 25±10 nm respectively. Both composites were tested against tetracycline resistant bacteria, presenting an increasing effect in the case of AgNPs@TC. The sensing toward metal ions was also explored. An interestingly and reversible affinity of AuNPs@TC to Al(III) cations in aqueous system was also observed. (Djafari, J et al, New Synthesis of Gold and Silver Based Nano-Tetracycline Composites, Chemistry Open,5, 206-212)

REPRESENTATIVE PROJECTS ON 2015-2016

"Development of new vectors based on nano-polyplexes as imaging and drug@RNA delivery in triple negative breast cancer", FCT-MCTES, Total funding: €87,511, Unit funding: € 74,511, Carlos Lodeiro (PI).

"Novel fluorescence probes containing selenium and/or tellurium atoms for the study of reactive oxygen species (ROS) supported in metallic nanoparticles: Towards new biomedical nano-tools", CNPq, Total funding: €67,932, Unit funding: €37,873, Carlos Lodeiro (PI).

"Synthesis and characterisation of new fluorescent nanomaterials for biomedical and environmental applications", FAPEMIG, Total funding: €13,526, Unit funding: €3,005, Viviane Pilla (PI), Carlos Lodeiro (Collaborator).

"Laboratory for biological mass spectrometry", Isabel Moura, PROTEOMASS Scientific Society, Total funding: €300,000, José Martínez-Capelo (PI), Hugo M. Santos (PI), Carlos Lodeiro (Collaborator).

"Laboratory for nanomaterials characterization. PROTEOMASS Scientific Society, Total funding: €85,000, Carlos Lodeiro (PI).

SELECTED PUBLICATIONS

Javier Fernández Lodeiro, Benito Rodríguez González, Hugo M. Santos, Emilia Bértolo, Jose Luis Capelo, Alcindo A. Dos Santos, Carlos Lodeiro, "Unravelling the Organotellurium Chemistry Applied to the Synthesis of Gold Nanomaterials", ACS OMEGA, 1(6) 1314-1325, 2016

Djafari, J., Marinho, C., Santos, T., Igrejas, G., Capelo, Torres, C., Poeta, P., Capelo, J.L., Lodeiro, C. Fernandez-Lodeiro, J. "New Synthesis of Gold and Silver Based Nano-Tetracycline Composites", CHEMISTRY OPEN, 5, 206-212, 2016

Cuerva, C., Campo, J. A., Cano, M., Lodeiro, C. "Platinum(II) Metallomesogens, New External Stimuli-Responsive Photoluminescence Materials", CHEMISTRY A EUR JOURNAL, 22, 1-12, 2016

Oliveira, E., Núñez, C., Santos, H.M., Fernández-Lodeiro, J., Fernández-Lodeiro, A., Capelo, J.L., Lodeiro, C. "Revisiting the use of gold and silver functionalised nanoparticles as colorimetric and fluorometric chemosensors for metal", SENSORS AND ACT B: CHEMICAL, 212, pp. 297-328, 2015

Araújo, J.E., Lodeiro, C., Capelo, J.L., Rodríguez, B., dos Santos, A.A., Santos, H.M., Fernández-Lodeiro, "Novel nanocomposites based on a strawberry-like gold-coated magnetite (Fe@Au) for protein separation in multiple myeloma serum samples", NANORESEARCH, 8 (4), pp. 1189-1198, 2015

FUNDING

PROTEOMASS Scientific Society.
Conselho Nacional de Desenvolvimento Científico e Tecnológico, Brazil
Coordenação de Aperfeiçoamento de Pessoal de Nível Superior, Brazil
Fundação de Amparo à Pesquisa do Estado de São Paulo, Brazil
Fundação para a Ciência e a Tecnologia.
FAPEMIG, Fundação para o desenvolvimento de Minas Gerais, Brazil.

COLLABORATIONS

Mercedes Cano Lab, University Complutense of Madrid, Spain
Emilia Bertolo Lab, Canterbury Christ Church University, UK
Alcindo A. dos Santos Lab, University of Sao Paulo, Brazil
Rufina Bastida Lab, University of Santiago de Compostela, Spain
Benito Rodriguez Gonzalez Lab, University of Vigo, Spain
Graça Neves Lab, University of Aveiro
Sergio S. De Melo Lab, University of Coimbra.
Luca Prodi Lab, University of Bologna, Italy
Vito Lippolis Lab, University of Cagliari, Italy
Andrea Bencini Lab, University of Firenze, Italy
Holger Stephen Lab, University of Dresden, Germany
Daniel Ruiz, CSIC ICN2, Barcelona, Spain
Julia Lorenzo Lab, University Autonomous of Barcelona, Spain.
Julia Ljibimova, Cedars Sinai Hospital, USA.
Gilberto Igrejas, UCIBIO, UTAD
Patrícia Poeta, UCIBIO, UTAD
Viviane Pilla, University of Uberlandia, Brazil.
Ana Aguiar Ricardo, LAQV, FCT NOVA
Mário Diniz, UCIBIO, FCT NOVA
Jose Luis Capelo, UCIBIO, FCT NOVA

OUTREACH

Media appearances in several channels
Expo FCT, 2015 & 2016

WEBSITES

www.bioscopegroup.org
www.proteomass.org



FUNCTIONAL GENOMICS AND PROTEOMICS LAB

CHEM4OMICS
C4O

RESEARCH INTERESTS

The mission of this group is to promote excellent quality research and development, advanced education and technology transfer, ensuring national and international competitiveness for the benefit of the industrial, health, agricultural and environmental sectors. This unit develops research work focused on the use of omics tools, particularly genomics, transcriptomics and proteomics, at the molecular genetics and biotechnology level of various microbial, plant, and animal species. Research carried out is focused on molecular and storage proteins characterization of populations /landraces of vegetables, cereals, grain legumes, fruit trees, medicinal and aromatic species and industrial crops; recovery and breeding of Portuguese landraces of vegetables and cereals; identification of genes responsible for important economic fruit traits and antibiotic resistance in bacterial strains evaluation through genomic-transcriptomic-proteomic platform linked to health, agriculture and natural ecosystems.

RESEARCH HIGHLIGHTS ON 2015-2016

Mechanisms of multiresistant antibiotic resistance strains on an integrated and multidisciplinary scope by using genomics, transcriptomics and proteomics

Samples from more than 75 different sources have been accessed, from humans to food-producing animals, pets, and wild animals. Multi-resistant strains, some relevant to human and veterinary medicine like extended-spectrum *β*-lactamase-producing *E. coli* and vancomycin-resistant enterococci, have been repeatedly isolated even in non-synanthropic animal species. The proteomic profiling allows to obtain an overview of the proteins present under specific stress conditions while the comparative proteomics methodologies allows to investigate differences in protein expression profiles of cells grown under different stress factors (Marinho et al., *Frontiers in Microbiology*, 2016). From 32 bacterial strains 2770 protein spots were characterized, through 2-DE and MALDI-TOF MS, and 392 proteins identified by shotgun proteomics (LC-MS/MS).

LAB LEADER

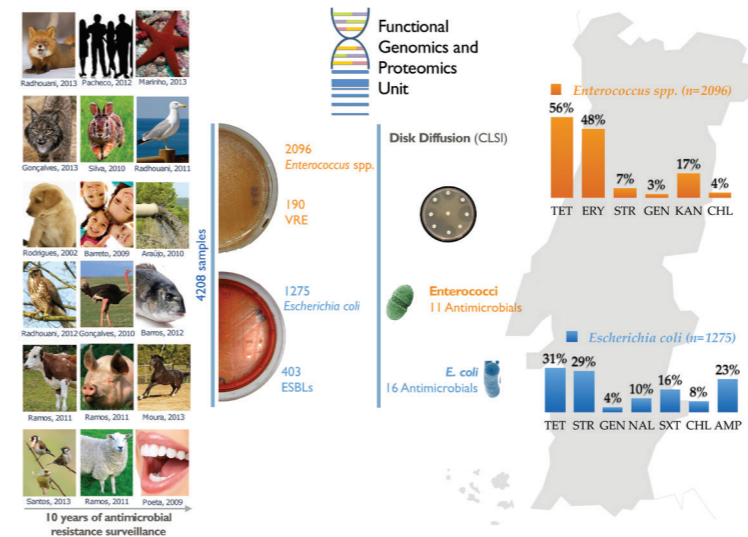
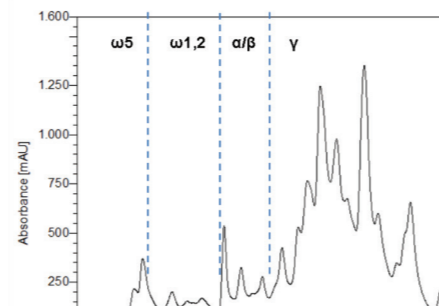
Gilberto Igrejas

PhD in Genetics and Biotechnology, 2001, UTAD
Habilitation, UTAD
Associate Professor, UTAD

LAB MEMBERS

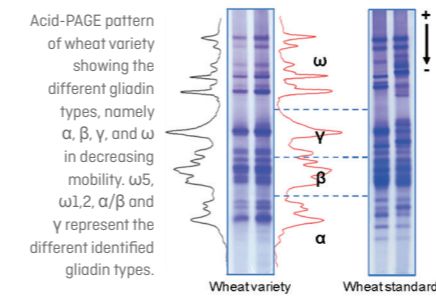
POST-DOCS
Hugo Santos

PHD STUDENTS
Carlos Araújo
José Ribeiro
Júlio Miranda
Luís Pinto
Margarida Sousa
Sónia Ramos
Susana Correia



Proteomic of new genes controlling grain functionality and allergenicity applied to wheat, rye and triticale

It has been hypothesised that modern wheat breeding practices may have contributed to the increase in celiac disease prevalence during the latter half of the 20th century. Our results do not support this hypothesis as *Triticum aestivum* spp. vulgare landraces, which were not subjected to breeding practices, presented higher amounts of potential celiac disease's immunostimulatory epitopes when compared to modern varieties. This research provides new insights regarding wheat toxicity and into the controversial idea that human practices may have conducted to an increased exposure to toxic epitopes (Ribeiro et al., *Food Chemistry*, 2016).



REPRESENTATIVE PROJECTS ON 2015-2016

"Development of novel multifunctional nano-polyplexes as imaging and delivery vectors against triple negative breast cancer", FCT-MCTES, Total funding: €87,511, Unit funding: € 6,000, Gilberto Igrejas (Collaborator).

"Expert Working Group (EWG): Improving wheat quality for processing and health of the wheat Initiative". Gilberto Igrejas (Collaborator).

"Network for evaluation of one health", EC-COST Action, Gilberto Igrejas (Collaborator).

"The quest for tolerant varieties: phenotyping at plant and cellular level", EC-COST Action, Gilberto Igrejas (Collaborator).

"Integrative research in environment, agro-chains and technology, FEDER-Norte, Total funding: €4,1M, Unit Funding: NA, Gilberto Igrejas (Collaborator).

SELECTED PUBLICATIONS

Marinho, C., Santos, T., Gonçalves, A., Poeta, P., Igrejas, G. "A decade-long commitment to antimicrobial resistance surveillance in Portugal", *FRONTIERS IN MICROBIOLOGY*, 7:1650, 2016

Ribeiro, M., Nunes, F., Guedes, S., Domingues, P., Silva, A., Carrillo, J.-M., Rodriguez-Quijano, M., Branlard, G., Igrejas, G. "Efficient chemo-enzymatic gluten detoxification: reducing toxic epitopes for celiac patients improving functional properties", *SCIENTIFIC REPORTS*, 5(18041), 2015

Portugal, C., Pinto, L., Ribeiro, L., Tenorio, C., Igrejas, G., Ruiz-Larrea, F. "Potential spoilage yeasts in winery environments: Characterization and proteomic analysis of *Trigonopsis cantarellii*", *INTERNATIONAL JOURNAL OF FOOD MICROBIOLOGY*, 210: 113-120, 2015

Santos, T., Capelo, J.L., Santos, H.M., Oliveira, I., Marinho, C., Gonçalves, A., Araújo, J.E., Poeta, P., Igrejas, G. "Use of MALDI-TOF mass spectrometry fingerprinting to characterize *Enterococcus* spp. and *Escherichia coli* isolates", *JOURNAL OF PROTEOMICS*, 127: 321-331, 2015

Araújo, C., Muñoz-Atiienza, E., Pérez-Sánchez, T., Poeta, P., Igrejas, G., Hernández, P.E., Herranz, C., Ruiz-Zarzuola, I., Cintas, L.M. "Nisin Z Production by *Lactococcus lactis* subsp. *cremoris* WA2-67 of Aquatic Origin as a Defense Mechanism to Protect Rainbow Trout (*Oncorhynchus mykiss*, Walbaum) Against *Lactococcus garvieae*", *MARINE BIOTECHNOLOGY*, 17(6):820-830, 2015

FUNDING

Fundação para a Ciência e a Tecnologia
EC-COST
FEDER-Norte 2020

COLLABORATIONS

Chemistry Department, Aveiro University
Commonwealth Scientific & Industrial Research Organisation, Australia
Complutense University of Madrid, Faculty of Pharmacy, Spain
Complutense University of Madrid, Faculty of Veterinary, Spain
French National Institute for Agricultural Research, UMR INRA/UBP, France
French National Institute for Agricultural Research, France
Medical Center of Vila Real
Department of Biotechnology, Polytechnic University of Madrid, Spain
Department of Bioinformatics, Vigo University, Spain
National Reference Laboratory of Antimicrobial Resistances, INSA

OUTREACH

Media appearances on TV, magazines, radio and other channels



MEDICAL MICROBIOLOGY LAB

CHEM4OMICS
C4O

RESEARCH INTERESTS

Quality veterinary microbiology diagnostic testing and research services to University Veterinary Hospital, government organizations, private sector, and individuals. The MML covers both bacteriology and mycology investigates as well virus analysis. The lab service a wide variety of clinical samples from companion, farm and wild animals. The main goals of our research are: 1- To clarify mechanisms of multiresistant antibiotic resistance strains on an integrated and multidisciplinary scope by using genomics and proteomics 2- To characterize by biochemical and genetic methods the presumably news bacteriocins as bio-preservatives in the industry feed. The laboratory utilizes written standard operating procedures, maintains a readily available library and has immediate internet access. The laboratory routinely conducts and maintains written records of quality control checks on equipment, reagents and organisms used in the laboratory, as well maintains an electronic database.

RESEARCH HIGHLIGHTS ON 2015-2016

1. Genomic and proteomic evaluation of antibiotic resistance in bacterial strains of animals and humans.

Studies are being done on relationships between phenotypic and genotypic profiles and proteomic patterns, in order to determine possible proteins involved in antibiotic resistance mechanisms, to evaluate the “in vitro” activities of new antibiotics against a serial of different strains already isolated and to study the application of bacteriocinogenic lactic bacteria as bio-preservatives in the industry feed. Under the food safety subject, studies on resurgence, AMR, as a pandemic threat must be included. Presently and in a near future those studies will include studies on characterization of antimicrobial peptides produced by different microorganisms and its application in human, veterinary medicine and in food conservation, as well as research on antibiotic resistance and molecular characterization of virulence factors in microbiota from different ecological niches. The group drives part of its research activities on detection of foodborne pathogens and specific spoilage organisms from food of animal origin along different

LAB LEADER

Patrícia Poeta

PhD in Veterinary
Medicine, 2006, UTAD
Habilitation in UTAD,
2010, UTAD
Full Professor, UTAD

LAB MEMBERS

POST-DOCS

Elisabete Oliveira Marques
Nuno Silva

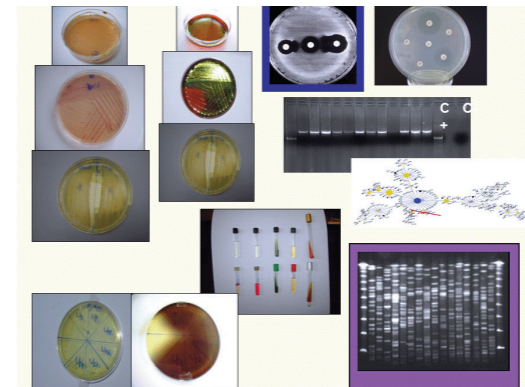
PHD STUDENTS

Carlos Araújo
Luís Pinto
Margarida Sousa
Sónia Ramos
Susana Correia
Vanessa Silva
Isabel Carvalho

TECHNICIANS

Maria de Fátima Peixoto
Maria de Fátima Ferreira
Maria de Lurdes Campos
Sónia Cristina Pereira Dias

food production chains. Under these research subjects, important microbiological hazards (*Salmonella* sp., *E. coli*, MRSA) involved in foodborne outbreaks, are analyzed. The group will still develop new approaches to analyze and interpret more complex and emerging microbial pathogen using molecular, serotyping and phylogenetic analysis. Also, research will be developed in order to improve knowledge on prevalence, definition of contamination sources, risk to public health and strategies to improve food safety and quality. Studies are being done on relationships between phenotypic and genotypic profiles and proteomic patterns, in order to determine possible proteins involved in antibiotic resistance mechanisms, to evaluate the “in vitro” activities of new antibiotics against a serial of different strains already isolated and to study the application of bacteriocinogenic lactic bacteria as bio-preservatives in the industry feed. Our investigation group is almost the unique that in Portugal performs studies in antibiotic resistance. We reported the first isolate MRSA that presented the agr-type I, from the clonal complex CC398 (spa-type t899) recovered from wild boar (*Sus scrofa*), which carried a multi-antibiotic-resistance phenotype, harbored the mecA gene. We produce higher quality research results and knowing which antimicrobial resistant bacteria variants are associated with each focus of infection, each animal species and in a particular habitat may be important to carry a greater control over the dissemination of these zoonotic bacteria and better understand its transmissibility.



Genetic characterization of antibiotic resistance

2. Probiotics in biotechnology and health

Analysis of biotechnological and probiotic potential of *Enterococcus* spp. isolated from animal, fish and cinegetical species: biochemical and genetic characterization of bacteriocins. Determination of the presence of structural genes that encode bacteriocins previously characterized by PCR. Preliminary results of two-dimensional gel electrophoresis and sequencing by MALDI-TOF of enterocin were carried out.

REPRESENTATIVE PROJECTS ON 2015-2016

“Network for Evaluation of One Health”, COST Action, Patrícia Poeta (Collaborator).

“Diseño de bacterias Lácticas (BAL) y levaduras como factorías celulares de producción de péptidos híbridos antimicrobianos y de otros péptidos bioactivos”, MINECO, Total funding: €122,850, Unit funding: €NA, Patrícia Poeta (Collaborator).

SELECTED PUBLICATIONS

Ramos, S., Chafsey, I., Hébraud, M., Sousa, M., Poeta, P., Igrejas, G., “Ciprofloxacin stress proteome of the extended-spectrum β -lactamase producing *Escherichia coli* from slaughtered pigs”, CURRENT PROTEOMICS, 13:1-5, 2016

Bordelo J., C. Viegas, C. Coelho, P. Poeta. Fernández-Lodeiro, “First report of bacteremia caused by *Elizabethkingia* eningoseptica in a dog”, CANADIAN VETERINARY JOURNAL, 57, 994, 2016

Ramos, S., Silva, N., Hébraud, M., Santos, H., Miranda, J., Pinto, L., Pereira, J., Capelo, J.L., Poeta, P., Igrejas, G., “Proteomics for Drug Resistance on the Food Chain? Multidrug Resistant *Escherichia coli* Proteomes from Slaughtered Pigs”, OMICS, A JOURNAL OF INTEGRATIVE BIOLOGY, 20(6):362-374, 2016

Sousa, M., Silva, N., Igrejas, G., Sargo, R., Benito, D., Gómez, P., Lozano, C., Manageiro, V., Torres, C., Caniça, M. Poeta, P., “Genetic Diversity and Antibiotic Resistance Among Coagulase-Negative Staphylococci Recovered from Birds of Prey in Portugal. Microbial Drug Resistance”, MICROB DRUG RESIST, 22(8):727-730, 2016

Araújo C., E. Munoz-Atienza, P. E. Hernandez, C. Herranz, L. M. Cintas, G. Igrejas, P. Poeta, “Evaluation of *Enterococcus* spp. from Rainbow Trout (*Oncorhynchus mykiss*, Walbaum), Feed, and Rearing Environment Against Fish Pathogens” FOODBORNE PATHOGENS AND DISEASE, 12(4):311-22, 2015

FUNDING

Fundação para a Ciência e a Tecnologia
Ministerio de Economía, Industria
y Competividad, Spain

COLLABORATIONS

SEGABALBP Group, Complutense University
of Madrid, Spain
National Reference Laboratory for Antimicrobial
Resistance in Animals, France
Bioquímica y Biología Molecular, Universidad
de La Rioja, Spain
INSA, Lisboa

OUTREACH

Media appearances in newspapers,
TV and other channels
Responsible for several editions of the internships
held at UTAD, under the Living Science Program
and Summer Courses

WEBSITES

www.utad.pt

FUNCTIONAL MOLECULES & NANOMATERIALS FMN

RESEARCH GROUP OVERVIEW

The Functional Molecules & Nanomaterials Group brings together a wealth of expertise from synthetic organic and inorganic chemistry of drugs and nanomaterials suitable for biofunctionalization for application in diagnostics and therapy. The Group focuses on the development of bio-inspired nanoscale functional molecules and devices for nanomedicine, whose multidisciplinary nature aims to bring fundamental research into relevant biomedical applications.

We envisage the development of strategies for diagnostics and therapeutics, namely multifunctional medical nanodevices and molecules. FMN Group members have been at the forefront of nanobiotechnology for diagnostics and therapeutics, with comprehensive national and international recognition: nanotechnology for delivery of chemotherapeutic agents for cancer and antimicrobials, development of optimized targeted delivery platforms based on nanostructured materials, biophysical characterization and toxicology portrayal of novel (nano)biomolecular assemblies for

improved therapeutics. Also, attention is devoted to the development and characterization of nanodiagnostics platforms based on nanoconjugates properties (e.g. optical, chemical, interaction with light). FMN researchers also track the effect of new molecules and nanoconjugates and their trafficking inside cells and tissues, focusing on selective action of the functional molecules and nanomaterials.

FMN Group has long been associated with Industry with a view to translational research and clinical application, such as protein-protein and protein-ligand interactions with relevance to diagnostics and therapeutics (e.g. interactions between cell targets and targeting moieties designed for active and/or passive targeting strategies of nanoconjugates), and drug resistance mechanisms (including antibiotic-resistant microorganisms and drug-resistant tumors). Other areas of study include the mechanisms of inflammatory, immune and oxidative stress response to drug/nanoconjugate exposure, as well as pathogen infection mechanisms and associated host immune response (host-pathogen interactions).

RESEARCH LABS

BIOCHEMICAL ENGINEERING LAB | MARIA REIS

BIOMOLECULAR ENGINEERING LAB | CECÍLIA ROQUE

BIONANO LAB | RICARDO FRANCO

GAMEIRO'S LAB | PAULA GAMEIRO

HUMAN GENETICS AND CANCER THERAPEUTICS LAB | ALEXANDRA FERNANDES

NANOCHEM LAB | EULÁLIA PEREIRA

NANOMEDICINE LAB | PEDRO VIANA BAPTISTA

ORCHIDS LAB | PAULA GOMES

RANGEL'S LAB | MARIA DA CONCEIÇÃO RANGEL



BIOCHEMICAL ENGINEERING LAB

FUNCTIONAL MOLECULES
& NANOMATERIALS
FMN

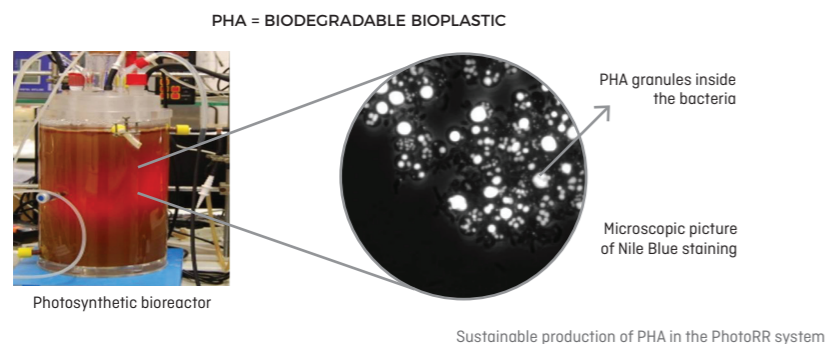
RESEARCH INTERESTS

Biochemical Engineering (BIOENG) group is devoted to develop high quality scientific research (both fundamental and applied) in the areas of Industrial and Environmental Biotechnology with main focus on: Micropollutants, Biological Nutrient Removal and Recovery; Greenhouse Gas Emissions; Production and Characterization of Polyhydroxyalkanoates (PHAs), Microbial Polysaccharides and Bulk Chemicals.

RESEARCH HIGHLIGHTS ON 2015-2016

Photosynthetic resource recovery system - PhotoRR

PhotoRR is a novel system that allows the sustainable production of biodegradable bioplastics (PHA) while promoting wastewater treatment due to removal of nutrients (carbon, phosphate and nitrogen) from the feed stream. Bioplastics with characteristics comparable to petrochemical polymers are produced using a photosynthetic mixed microbial culture, under anaerobic conditions and natural light illumination, fed by an effluent of domestic or industrial sources. Phosphate is recovered and the final effluent is suitable for discharge into the environment. [Portuguese Patent PPP 55263/16]



LAB LEADER

Maria Reis

PhD in Biochemical Engineering, 1991, FCT NOVA
Habilitation in Biochemical Engineering, 2003, FCT NOVA
Full Professor, FCT NOVA

LAB MEMBERS

INDEPENDENT RESEARCHERS

Adrian Oehmen, Assistant Professor
Gilda Carvalho, FCT Investigator
Filomena Freitas, FCT Investigator

POST-DOCS

Anouk Duque
Bárbara Almeida
Catarina Oliveira
Cristiana Torres
Joana Cassidy
Joana Fradinho
Mónica Carvalheira
Ricardo Marques

PHD STUDENTS

Inês Farinha
Jorge Santos
Mariana Matos
Nguyen Thi Phi Yen
Rafaela Cruz
Rita Valério
Sílvia Antunes
Virgínia Carvalho
Xiaofei Wang

RESEARCH ASSISTANTS

Bruno Oliveira
Catarina Rangel
Emanuel Lopes
Elisabete Freitas
Fernando Silva
Margarida Martins
João Ribeiro
José Santos
Paulo Silva
Pedro Cardoso
Sofia Pereira

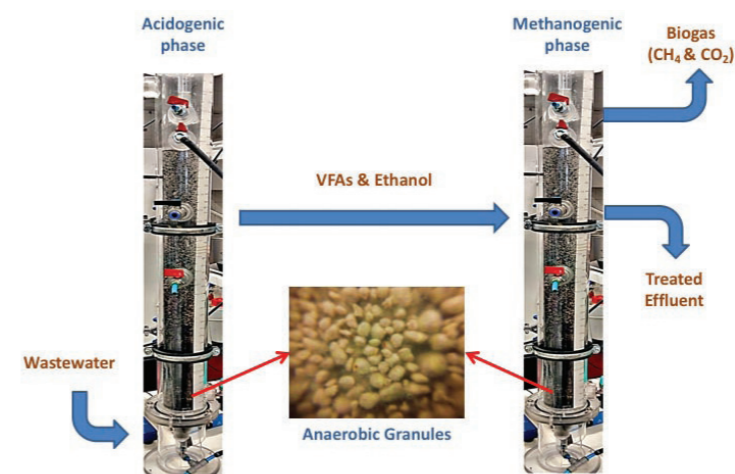
TECHNICIANS

Elsa Mora
Mónica Centeio

SaltGae - Demonstration project to prove the techno-economic feasibility of using algae to treat saline wastewater from the food industry

SaltGae will develop and demonstrate a techno-economically viable solution for the treatment of saline wastewater from Food and Beverage industry. SaltGae will be a case study to overcome the cross-cutting barriers to innovation identified in the EIP Water. The partners at UCIBIO are responsible for:

- The anaerobic digestion processes of the saline wastewater through a 2-stage acidogenic/methanogenic process and a 1-stage anaerobic digester for the solid fraction.
- Lab-scale tests to optimise the operational conditions to maximise biogas recovery and achieve an effluent suitable for the high rate algal pond.
- Separation of the methane and CO₂ present in the biogas.



Anaerobic digestion process of the wastewater through a 2-stage acidogenic/methanogenic process.

REPRESENTATIVE PROJECTS ON 2015-2016

"SALTGAIE: Demonstration project to prove the techno-economic feasibility of using algae to treat saline wastewater from the food industry", EC-H2020, Total funding: €8.2M, Unit funding: €691,000, Maria Reis [Collaborator-PI in Portugal].

"SMART-Plant: Scale-up of low-carbon footprint material recovery techniques in existing wastewater treatment plants", EC-H2020, Total funding: €7.5M, Unit funding: €314,000, Adrian Oehmen [Collaborator-PI in Portugal].

"Mermaid: Microbial resource management and engineering solutions for the urban water cycle, EC-FP7, Total funding: € 4M, Unit funding: €445,000, Maria Reis [Collaborator-PI in Portugal].

"EuroPHA: Novel technology to boost the European Bioeconomy: reducing the production costs of PHA biopolymer and expanding its applications as 100% compostable food packaging bioplastic", EC-FP7, Total funding: €2M, Unit funding: €405,000, Maria Reis [Collaborator-PI in Portugal].

"Phaseplit: Novel two-phase acid/gas anaerobic reactor for industrial wastewater of food and drink SME industries", EC-FP7, Total funding: €1,4M, Unit funding: €460,000, Maria Reis [Collaborator-PI in Portugal].

SELECTED PUBLICATIONS

Marques R, Oehmen A, Carvalho G, Reis MAM. "Modelling the biodegradation kinetics of the herbicide propanil and its metabolite 3,4-dichloroaniline". ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH 22: 6687-6695, 2015

Fradinho JC, Reis MAM, Oehmen A. "Beyond feast and famine: selecting a PHA accumulating photosynthetic mixed culture in a permanent feast regime." WATER RESEARCH 105: 421-428, 2016.

Diniz, MS, Salgado R, Pereira, VJ, Oehmen A, Reis MAM, Noronha JP and Carvalho G. "Ecotoxicity of ketoprofen, diclofenac and atenolol and their photolysis byproducts in zebrafish [Danio rerio]", SCIENCE OF THE TOTAL ENVIRONMENT, 505: 282-289, 2015

Araújo D, Alves VD, Campos J, Coelho I, Sevrin C, Grandfils C, Freitas F, Reis MAM. "Assessment of the adhesive properties of the bacterial polysaccharide FucoPol", INT J BIOLMACROMOL, 92, 383-9, 2016

Ferreira ARV, Torres CAV, Freitas F, Sevrin C, Grandfils C, Reis MAM, Alves VD. "Development and characterization of bilayer films of FucoPol and chitosan", CARBOHYDR POL, 147, 8-15, 2016

FUNDING

European Commission-ERA JPIs
European Commission-FP7
European Commission-H2020
Fundação para a Ciência e a Tecnologia

COLLABORATIONS

FE UPorto
EEUM, Universidade do Minho
DQUA, Universidade de Aveiro
Instituto Superior de Engenharia de Coimbra
IST, ULisboa
ISA, ULisboa
ITQB NOVA
Portucel
Sumol - Compal
Águas de Portugal
SIMTEJO, S.A.
EPAL, S.A.
Águas do Sado
SIMARSUL
SMAS Almada
Technical University of Munich, Germany
Aalborg University, Denmark
Institut Català de Recerca de l'Aigua, Spain
Universidad de Valencia, Spain
Technical University of Denmark, Denmark
Newcastle University, UK
Ghent University, Belgium
University of Liège, Belgium
Narut - Northern Research Institute Tromsø, Norway
inCTRL Solutions, Canada
Pharma 73 SA
73100 Ltd

OUTREACH

High School Students mentoring, 2015
Public talks at high schools, 2015
WORLD BIOTECH TOUR, 2015.
EXPO-FCT, 2016.

WEBSITES

<https://sites.fct.unl.pt/bioeng/home>



BIOMOLECULAR ENGINEERING LAB

FUNCTIONAL MOLECULES & NANOMATERIALS FMN

RESEARCH INTERESTS

Our group is dedicated to the design and discovery of peptidomimetics and to the development of functional materials, which together find applications in Bioseparation, Biocatalysis, Sensing & Diagnostics, and Nanomedicine.

The main topics of research involve:

1. Hybrid materials in gas sensing and volatolomics.
2. Functional materials towards alternative purification processes, namely magnetically triggered bioseparations and crystallization.
3. Development of biological and synthetic peptidomimetics for capture and release of biological molecules, including biopharmaceuticals.

RESEARCH HIGHLIGHTS ON 2015-2016

Gentle affinity purification of virus-like particles and biologicals

Existing purification technologies for retroviral vectors result in very low yields of infective particles, often associated with the absence or loss of the surface envelope protein. A peptide selective for amphotropic viral particles was discovered by panning a phage display peptide library, and employed to selectively capture and recover bound retroviral particles under gentle conditions. (Fernandes et al., BIOTECHNOLOGY JOURNAL, 2016; selected for inside cover). Taking a different approach to target the same problem, we combined virtual screening of a small focused library of synthetic affinity ligands, with experimental evidence, to find small affinity reagents for the selective and mild purification of retroviral particles (Fernandes et al., JOURNAL OF CHROMATOGRAPHY A, 2016). The combination of rational design with high-throughput screening of chemical combinatorial libraries, also lead to the development of affinity-based purification approaches towards other biologicals, namely reporter biomolecules (green fluorescent protein, Pina et al., JOURNAL OF CHROMATOGRAPHY A, 2015) and tagged recombinant proteins (Pina et al., JOURNAL OF CHROMATOGRAPHY A, 2016).

LAB LEADER

Cecília Roque

PhD in Biotechnology,
2004, IST
Habilitation in
Bioengineering, 2015,
FCT NOVA
Associate Professor,
FCT NOVA

LAB MEMBERS

POST-DOCS

Ana Pina
Arménio Barbosa
Ricardo Branco
Susana Palma

PHD STUDENTS

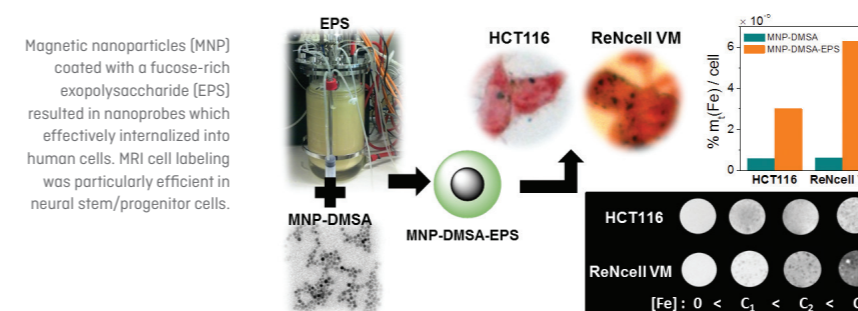
Ana Pádua
Ana Dias
Carina Esteves
Cláudia Fernandes
Henrique Carvalho
Raquel Santos
Vijaykumar Dhadge

RESEARCH ASSISTANT

Ana Porteira

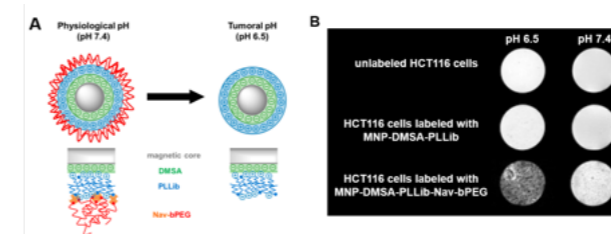
Bio-based coatings of nanoprobres for Magnetic Resonance Imaging

A fucose-containing bacterial exopolysaccharide (EPS) was employed as a new coating material for iron oxide magnetic nanoparticles (MNP). In vitro studies with two human cell lines showed that EPS promotes internalization of nanoparticles in both, specially in the neural stem/progenitor cells (Palma et al., NANOSCALE, 2015). As such, EPS coated MNPs are viable magnetic nanoprobres for stem-cell labeling. In another work, we took advantage of an existing biological interaction (avidin-biotin) to develop a pH-sensitive magnetic nanoprobe which preferentially labels tumor environments (Palma et al., RSC Advances, 2016).



A - Concept for multilayer pH-sensitive MNPs to achieve preferential interactions with tumoral cells.

B - Magnetic Resonance Images of colorectal carcinoma cells labeled with the developed pH-sensitive MNPs.



REPRESENTATIVE PROJECTS ON 2015-2016

"SCENT: Hybrid gels for rapid microbial detection", EC-ERC, Total funding: €1.5M, Unit funding: €1.5M, Cecília Roque [PI].

"Viral Capture and Purification System: Smart macroporous structures for the affinity purification of retroviral particles", FCT-MCTES, Total funding: €147,000, Unit funding: €121,200, Cecília Roque [PI].

"Chimerase - Integrated platform for de novo design and development of a chimeric enzyme for high-value chemicals", EC- ERA-IB, Total funding: €328,846, Unit funding: €99,996, Ricardo Branco [PI], Cecília Roque [Collaborator].

"Development of Multimodal Imaging Probes for Intravascular Molecular Imaging of Inflammation", FCT-MCTES, Total funding: €125,418, Unit funding: €16,480, Ricardo Branco (team member).

"Design and synthesis of small protein-based scaffolds for bioengineering applications", FCT-MCTES & CNRS, Total funding: €13,500, Unit funding: €4,500, Cecília Roque [PI].

SELECTED PUBLICATIONS

Fernandes, CSM, Barbosa I, Castro R, Pina AS, Coroadinha AS, Barbas A, Roque ACA, "Retroviral particles are effectively purified on an affinity matrix containing peptides selected by phage-display", BIOTECHNOLOGY JOURNAL, 11, 1513-1524, 2016

Fernandes, CSM, Castro, R, Coroadinha, AS, Roque, ACA, "Small synthetic ligands for the enrichment of viral particles pseudotyped with amphotropic murine leukemia virus envelope". JOURNAL OF CHROMATOGRAPHY A. 1438:160-170, 2016.

Palma, SI, Rodrigues CA, Carvalho A, Morales PM, Freitas F, Fernandes AR, Cabral JS, Roque ACA, "A value-added exopolysaccharide as a coating agent for MRI nanoprobres", NANOSCALE. (7):14272-14283, 2015

Pina, AS, Dias AMGC, Ustok FI, Khoury GE, Fernandes CSM, Branco RJF, Lowe CR, Roque ACA, "Mild and cost-effective green fluorescent protein purification employing small synthetic ligands", JOURNAL OF CHROMATOGRAPHY A. 1418:83-93, 2015

Fernandes, CSM, Gonçalves B, Sousa M, Martins DL, Barroso T, Pina AS, Peixoto C, Aguiar-Ricardo A, Roque ACA. 2015. Biobased Monoliths for Adenovirus Purification. ACS APPLIED MATERIALS & INTERFACES. 7(12):6605-6612, 2015

FUNDING

European Commission-European Research Council Grants

European Commission-ERA-Net

Fundação para a Ciência e a Tecnologia

COLLABORATIONS

Jonas Gruber, University of São Paulo, Brazil

Maria del Puerto Morales, Instituto de Ciencia de Materiales de Madrid, Spain

Rein Ulijn, City University of New York, USA

Olga Iranzo, Marseille Université, France

Frédéric Pecorari & Barbara Mouratou, Université de Nantes, France

Christopher Lowe, University of Cambridge, UK

Christian Gruber, Austrian Centre of Industrial Biotechnology, Austria

Vlada B. Urlacher, Heinrich-Heine-Universität, Germany

Helmut Schwab, TU Graz, Austria

Ana Barbas, IBET & BAYER

Ana Coroadinha, ITQB NOVA

Cristina Peixoto, ITQB

João Gonçalves, ULISBOA

Raquel Aires-Barros, IST ULISBOA

BASF SE, Germany

MBT - Molekulare Biotechnologie GmbH, Austria

OUTREACH

WORLD BIOTECH TOUR

Media appearance in Newspapers, Magazines, Radio, TV and other channels

European Researchers Night, 2015 & 2016

Public Talk "Educação Científica: desafios e perspectivas", IST, 2015

Public talk "The art to draft a proposal", Faculty of Pharmacy, 2015

Public Conference, Talent@NOVA event, Reitoria UNL, 2016

Public Talk "Engineering towards Health", IST, 2016

Public debate "Conversas com a Ciência", IBM Portugal, 2016

WEBSITES

sites.fct.unl.pt/biomolecular_eng



FUNCTIONAL MOLECULES & NANOMATERIALS FMN

BIONANO LAB

RESEARCH INTERESTS

Development of nanostructures and nanostructured materials functionalized with DNA, antibodies or proteins for application in nano-biodiagnostics and biosensors.

Surface Enhanced Raman Spectroscopy (SERS) of plasmonic and nanostructured (bio)systems for the development of highly sensitive and disposable detection platforms.

RESEARCH HIGHLIGHTS ON 2015-2016

Hemozoin is a product found on the blood of malaria patients. Hemozoin-like crystals (HLC) are a model compound that allows much easier anti-malaria drug screening. HLC were extensively characterized by Raman and IR spectroscopies.

Tempera, C, Franco, R, Caro, C, André, V, Eaton, P, Burke, P, Häscheid, T, "Characterization and optimization of the haemozoin-like crystal (HLC) assay to determine Hz inhibiting effects of anti-malarial compounds", MALARIA JOURNAL, Vol. 14, 403, 2015

To elucidate the mechanism of formation of antibody-gold nanoparticle conjugates and their antigen binding characteristics, we applied agarose gel electrophoresis and Differential Centrifugal Sedimentation to a immunoassay for malaria antigen detection. Binding constants for antibody binding to AuNP and for antigen binding to antibody-AuNP conjugates were obtained. Antigen binding was inhibited in the presence of transferrin, or of human plasma.

Cavadas, MAS, Monopoli, MP, Sá e Cunha, C, Prudêncio, M, Pereira, E, Lynch, E, Dawson, KA, Franco, R, "Unravelling Malaria Antigen Binding to Antibody-Gold Nanoparticle Conjugates", PARTICLE AND PARTICLE SYSTEMS CHARACTERIZATION, Vol. 33(12), 906-915, 2016

LAB LEADER

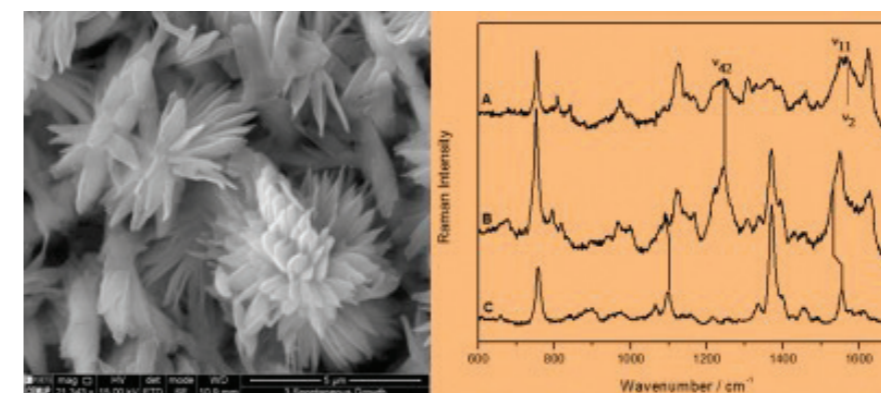
Ricardo Franco

PhD in Bioinorganic Chemistry, 1995, FCT NOVA
Habilitation in Physical Biochemistry, 2016, FCT NOVA
Assistant Professor, FCT NOVA

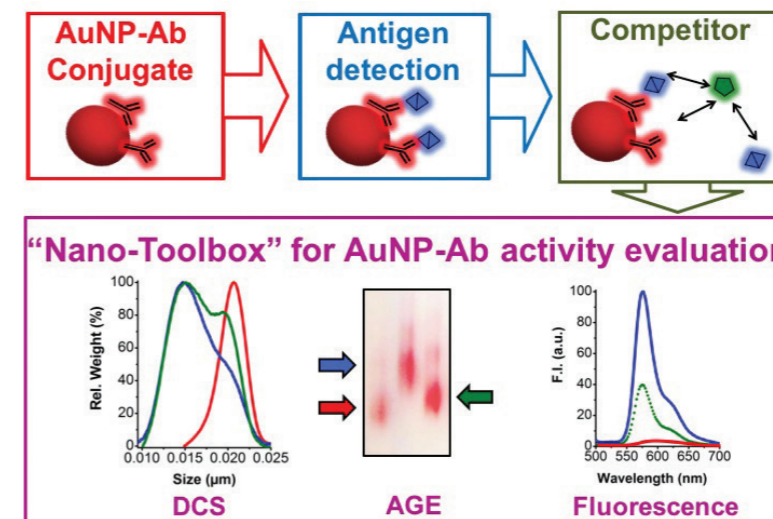
LAB MEMBERS

PHD STUDENTS

Ana Tomás
Maria João Oliveira



Microscopy image of hemozoin-like Crystals and Raman spectra of its interactions with chloroquine (an anti-malaria drug)



REPRESENTATIVE PROJECTS ON 2015-2016

"DISERTOIX - Disposable SERS microfluidic platforms for food toxin detection", FCT-MCTES, Total funding: €189,987, Unit funding: €34,560, Ricardo Franco (PI).

SELECTED PUBLICATIONS

Tempera, C, Franco, R, Caro, C, André, V, Eaton, P, Burke, P, Häscheid, T, "Characterization and optimization of the haemozoin-like crystal (HLC) assay to determine Hz inhibiting effects of anti-malarial compounds", MALARIA JOURNAL, Vol. 14, 403, 2015

Cavadas, MAS, Monopoli, MP, Sá e Cunha, C, Prudêncio, M, Pereira, E, Lynch, E, Dawson, KA, Franco, R, "Unravelling Malaria Antigen Binding to Antibody-Gold Nanoparticle Conjugates", PARTICLE AND PARTICLE SYSTEMS CHARACTERIZATION, Vol. 33(12), 906-915, 2016

FUNDING

European Comission, ERASMUS +
Fundação para a Ciência e a Tecnologia

COLLABORATIONS

Eulália Pereira, UCIBIO, Faculdade de Ciências, Universidade do Porto

Hugo Águas, CENIMAT-I3N, FCT NOVA

Olga Matos, GHMT, IHMT NOVA

Miguel Prudêncio, IMM, Universidade de Lisboa

Nicolae Leopold, Babeş-Bolyai University, Romania

OUTREACH

EXPO FCT open day, 2015 & 2016

Teaching of experimental classe on Inorganic Chemistry for High-school Students

WEBSITES

sites.fct.unl.pt/bionanolab



GAMEIRO'S LAB

FUNCTIONAL MOLECULES & NANOMATERIALS FMN

RESEARCH INTERESTS

Research interests are mainly in the understanding the behaviour of therapeutic active compounds and the structure/activity relationships that can explain their mechanism of action.

Research interest can be divided in:(1) Biological and Biophysical studies of the mechanism of action of drugs, (2) Speciation of ligands and metal complexes in biological systems, and (3) synthesis and characterization of inorganic complexes with possible therapeutic activity. The main goal is to understand, at a molecular level, the behaviour of biological systems.

Use and development of several spectroscopic and microscopic techniques to characterize biological systems.

RESEARCH HIGHLIGHTS ON 2015-2016

Clarification of the translocation pathways of different metalloantibiotics (ternary copper(II)/ phenanthroline/ fluoroquinolone complexes) was achieved based on their location in the bacterial membrane and evaluated through experiments in *E. coli* total lipid extract liposomes (Fluorescence and Surface plasmon Resonance) and through theoretical studies. Furthermore, biological studies, cell viability and cell proliferation assays, were performed to evaluate the safety of these new compounds. The chemical, microbiological and biophysical data obtained support the complexes' suitability as candidates for further biological testing in FQ-resistant microorganisms and extensive *in vivo* efficacy profiling. We aim to produce new compounds that can act as antibiotics against resistant bacteria strains (Sousa, C.F. et al, RSC Advances, in press).

Preliminary results in resistance strains show that some of the complexes have activity against these strains. Additionally, the potential of these FQ metal complexes as antimicrobial agents proposes the use of new formulations and not necessary new compounds what can be a mean to fast-track therapies with reduced trial periods.[Ferreira, M. et al, to be submitted].

LAB LEADER

Paula Gameiro

PhD in Inorganic Chemistry,
1995, FC UPorto
Habilitation in Chemistry,
2013, FC UPorto
Assistant Professor,
FC UPorto

LAB MEMBERS

INDEPENDENT RESEARCHERS
Lucinda Bessa

POST-DOCS
Sílvia Lopes

PHD STUDENTS
Carla Sousa
Mariana Ferreira

FUNDING

Fundação para a Ciência e a Tecnologia

COLLABORATIONS

Floriana Campanile, University of Catania, Italy.

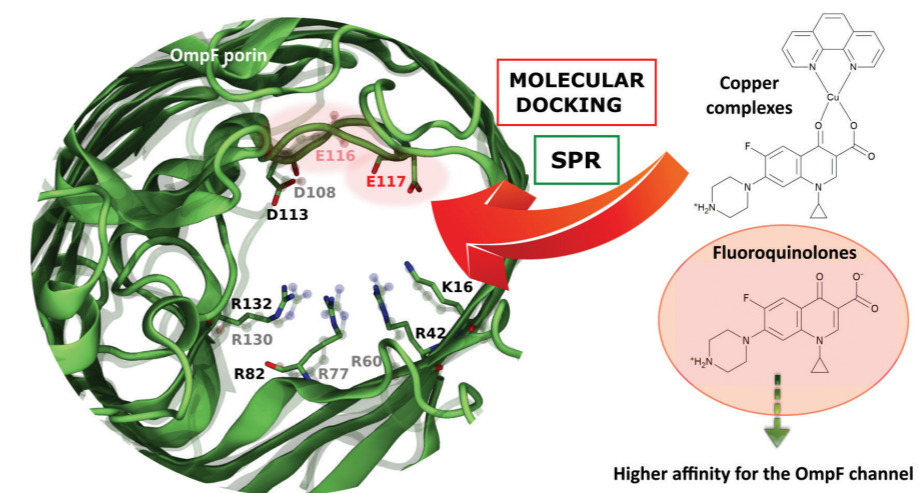
Mariano Andrea Scorciapino, Università degli Studi di Cagliari, Italia.

OUTREACH

Cost action TD1305

WEBSITES

https://sigarra.up.pt/fcup/pt/WEB_PAGE.INICIAL



Binding of copper fluoroquinolone ternary complex to OMPF porin.

SELECTED PUBLICATIONS

Ferreira, M. Gameiro, P. "Ciprofloxacin metalloantibiotic: an effective antibiotic with an influx route strongly dependent on lipid interaction?"; J MEMB BIOL, 248, 125-136, 2015

Lopes S. C., Ferreira M., Sousa C. F., Gameiro P. "A fast way to track functional OmpF reconstitution in liposomes: Escherichia coli total lipid extract"; ANAL BIOCHEM 479, 54-59, 2015

Sousa C. F., Ferreira M., Abreu B., Medfoth C.J., Gameiro P. "Interactions of a Non-Fluorescent Fluoroquinolone with Biological Membrane Models: A Multi-Technique Approach"; INT J PHARMAC. 495, 761-770, 2015



HUMAN GENETICS AND CANCER THERAPEUTICS@FCT LAB

FUNCTIONAL MOLECULES & NANOMATERIALS FMN

RESEARCH INTERESTS

Cancer diagnostics, biomarkers identification and validation using proteomic approaches. Drug screen and validation using in vitro and in vivo animal models; development of novel combinatorial cancer therapies.

RESEARCH HIGHLIGHTS ON 2015-2016

Immortalization of tumor cells lines from biopsies. Development of a novel cell line FR37-CMT with metastatic potential. Licensing Agreement between Applied Biological Materials Inc [Canada] and FCT/UNL (commercialization of FR37-CMT cell line); Raposo et al. J. Veterinary and Comparative Oncology 2016. DOI: 10.1111/vco.12235).

Validation and target delivery of novel antitumor compounds: Alexandra R. Fernandes*, João Jesus, Pedro Martins, Sara Figueiredo, Daniela Rosa, Luísa M.R.D.R.S. Martins, Maria Luísa Corvo, Manuela C. Carvalheiro, Pedro M. Costa, Pedro V. Baptista*. Multifunctional gold-nanoparticles: a nanovectorization tool for the targeted delivery of novel chemotherapeutic agents. Journal of Control Release 2016. dx.doi.org/10.1016/j.jconrel.2016.11.021; Luisa Corvo, Ana Soraia Mendo, Sara Figueiredo, Miguel Larginho, Rogério Gaspar, Pedro V. Baptista* and Alexandra R. Fernandes*. Liposomes as delivery system of a Sn(IV) compound for cancer therapy. Pharm Res. 2016 Jun;33(6):1351-8. doi: 10.1007/s11095-016-1876-6.

Startup in the nanodiagnostic field - Nano4 Global Lda. Co-founder with Pedro Viana Baptista (FCT/UNL) and Filipe Assoreira. Since December 2015.

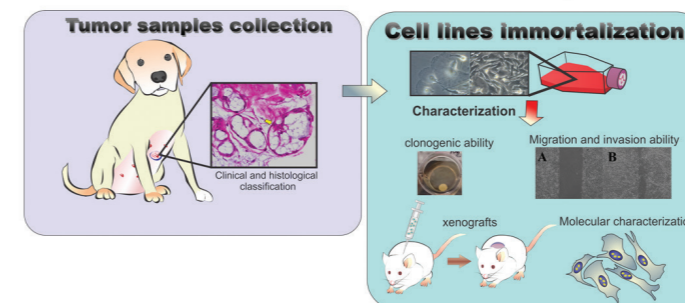
LAB LEADER

Alexandra R Fernandes
PhD in Biotechnology,
2000, IST
Assistant Professor,
FCT NOVA

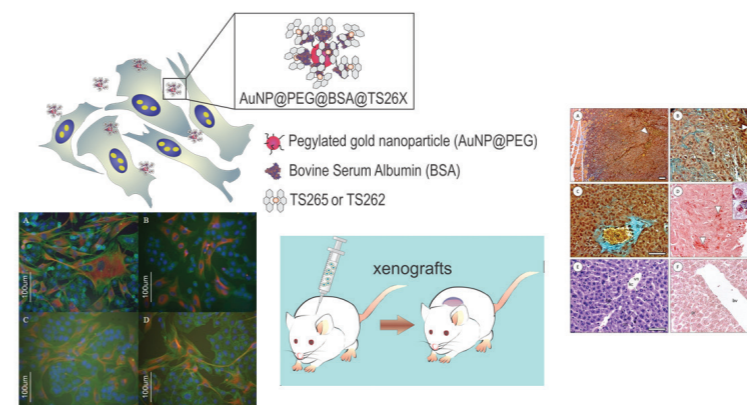
LAB MEMBERS

POST-DOCS
Beatriz Nobre
Catarina Roma-Rodrigues
Luís Raposo
Natesan Balasubramanian

PHD STUDENTS
Ana Rodrigo
Cinthia Barroco
Pedro Pedrosa
Raquel Vinhas



Immortalization of tumor cell lines from biopsies



Validation and Target delivery of novel antitumor compounds

REPRESENTATIVE PROJECTS ON 2015-2016

"Cytotoxicity and photo-cytotoxicity of nitrosyl ruthenium anticancer drug in aqueous solution or incorporated in a drug delivery system. An innovative purpose for metal based drug", FAPESP, Alexandra Fernandes (PI-FCT NOVA).

"Gold multifunctional nanoparticles for targeting cancer – Cetuximab", Merck-Serono, Total and Unit funding: €72,000, Alexandra Fernandes (PI).

"Validation of the antitumor/antiinflammatory potential of novel plant extracts", VITROBIO SA, Total and Unit funding: €5,400, Alexandra Fernandes (PI).

"RA Detect: One Platform- multiple biomarker detection of rheumatoid arthritis", EC-H2020, Total Funding: €137,000. Unit Funding: €22,000, Alexandra Fernandes (Collaborator).

"Unveiling host specificity and host-pathogen interactions of Streptococcus", FCT-MCTES, Total funding: €199,000, Unit funding: €99,700. Alexandra Fernandes (Collaborator).

SELECTED PUBLICATIONS

Alexandra R. Fernandes*, João Jesus, Pedro Martins, Sara Figueiredo, Daniela Rosa, Luísa M.R.D.R.S. Martins, Maria Luísa Corvo, Manuela C. Carvalheiro, Pedro M. Costa, Pedro V. Baptista, "Multifunctional gold-nanoparticles: a nanovectorization tool for the targeted delivery of novel chemotherapeutic agents", JOURNAL OF CONTROL RELEASE, 10;245:52-61, 2016

O. A. Lenis-Rojas, A.R. Fernandes*, C. Rodrigues, P. V. Baptista, F. M. Marques, D. Pérez-Fernández, J. Guerra, L. E. Sanchez, D. Vazquez-Garcia, M. Lopez-Torres, A. Fernández and J. J. Fernández Sánchez, "Heteroleptic mononuclear compounds of ruthenium(II): synthesis, structural analyses, in vitro antitumor activity and in vivo toxicity on zebrafish embryos", DALTON TRANS, 45, 19127-19140, 2016

C. Roma-Rodrigues, A. Heuer-Jungemann, A. R. Fernandes, A. G. Kanaras and P. V. Baptista, "Peptide coated gold nanoparticles for in vivo targeting of angiogenesis", INT J NANOMEDICINE, 11: 2633-2639, 2016

Marta Martins, Pedro V. Baptista, Ana Soraia Mendo, Claudia Correia, Paula Videira, António S. Rodrigues, J. Muthukumaran, Teresa Santos-Silva, Ana Silva, M. Fátima C. Guedes da Silva, Joana Gigante, António Duarte, Armando J. L. Pombeiro, Alexandra R. Fernandes*, "In vitro and in vivo biological characterization of the anti-proliferative potential of a cyclic trinuclear organotin(IV) complex", MOL BIOSYST, Mar,12(3):1015-23, 2016

Mariana Silva, Zélia Silva, Graça Marques, Tiago Ferro, Márcia Gonçalves, Mauro Monteiro, Sandra J. van Vliet, Elodie Mohr, Andreia C. Lino, Alexandra R. Fernandes, Flávia A. Lima, Yvette van Kooyk, Teresa Matos, Carlos E. Tadokoro and Paula A. Videira, "Sialic acid removal from dendritic cells improves antigen cross-presentation and boosts anti-tumor immune responses", ONCOTARGET. May 17, 2016

FUNDING

EC-H2020
Fundação para a Ciência e a Tecnologia
Merck-Serono
Vitrobio S.A.

COLLABORATIONS

Roberto Silva, Universidade São Paulo, Brazil
Barbara Machura, University of Silesia, Poland
Jesús José Fernández Sánchez, Universidade da Coruña, Spain
Ravi SHRIVASTAVA, Vitrobio, France
Amitabha Datta Lab, Academia Sinica, Taiwan
Marta Martins, Trinity College, Dublin, Ireland
Subhabrata Sen, School of Natural Science, Shiv Nadar University, India

OUTREACH

EXPO FCT, 2015
Media appearance in Newspapers, Magazines, Radio, TV and other channels

TRANSLATION

Founder of NANO4 Global, a Nanodiagnostics Start-up

WEBSITES

sites.fct.unl.pt/
human-genetics-and-cancer-therapeutics-at-fct



NANOCHEM LAB

FUNCTIONAL MOLECULES & NANOMATERIALS FMN

RESEARCH INTERESTS

Preparation, characterization and functionalization of nanomaterials for applications in biotechnology. Study of the interaction of nanomaterials with biological materials.

Morphological characterization by Atomic Force Microscopy, Scanning Electron Microscopy of nanotechnology and natural products.

Synthesis, characterization and applications of porphyrin-based nanomaterials prepared by ionic self-assembly. Influence of nonplanar deformations on the properties of porphyrins and the biological significance of these deformations in heme and chlorophyll containing proteins. Porphyrin-based oxidation catalysts that mimic the activity of cytochrome-P450, and the development of new porphyrin-based heterogeneous catalysts and green catalytic methods.

RESEARCH HIGHLIGHTS ON 2015-2016

Epiisopiloturine, an imidazole alkaloid extracted from the leaves of *Pilocarpus microphyllus*, was found to have in vivo activity against *S. mansoni*, a worm responsible for schistosomiasis, one of the most widespread neglected tropical diseases. The results were published in PLOS: Neglected Tropical Diseases.

Peptides from the skin secretion of the frog *Leptodactylus pustulatus* were found to have an antibacterial effect. The peptides were isolated and characterized, and their effect on the bacterial membrane was studied by AFM. The results were published in Journal of Natural Products.

LAB LEADER

Eulália Pereira

PhD in Chemistry, 1996,
FC UPorto
Assistant Professor,
FC UPorto

LAB MEMBERS

INDEPENDENT RESEARCHERS

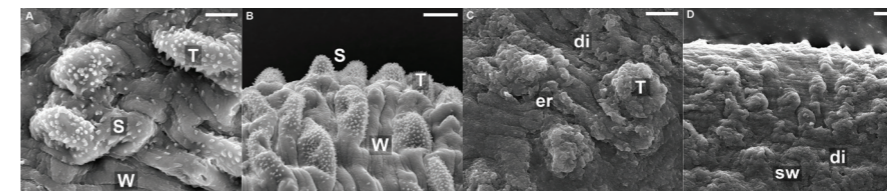
Craig Medforth,
FCT Investigator
Peter Eaton,
FCT Investigator

POST-DOCS

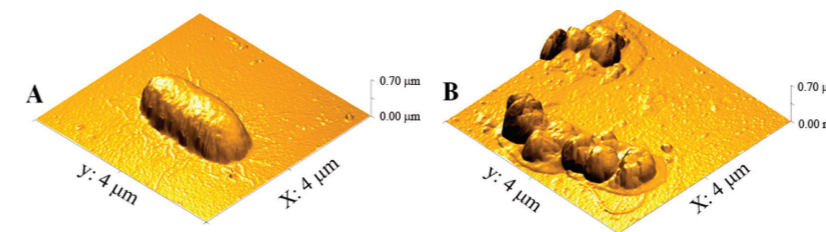
Inês Gomes
Isabel Prata
Susana Sousa

PHD STUDENTS

Leonor Soares
Mária Enea
Miguel Almeida



Scanning electron microscopy of the mid-body dorsal region of male *S. mansoni* worms recovered from a mouse 45 days post-infection by portal perfusion. A and B: Untreated (control) worms. C and D: worms from rodents treated with 40 mg/kg EPI. Reproduced with permission from M. A. Guimarães, R. N. de Oliveira, L. M. C. Vêras, D. F. Lima, Y. D. M. Campelo, S. A. Campos, S. Kuckelhaus, P. L. S. Pinto, P. Eaton, A. C. Mafud, Y. P. Mascarenhas, S. M. Allegretti, J. de Moraes, A. Lolic, T. Verbic, J. R. S. A. Leite, PLOS NEGLECTED TROPICAL DISEASES, 9(3): e0003656, 2015



Representative AFM height images of the antimicrobial effect of one peptide from the frog *Leptodactylus pustulatus* on *E. coli* ATCC 25922: (A) untreated; (B) after 24 h of treatment at the MIC. Reproduced with permission from M. M. Marani, F. S. Dourado, P. V. Quelemes, A. R. de Araujo, M. L. G. Perfeito, E. A. Barbosa, L. M. C. Vêras, A. L. R. Coelho, E. B. Andrade, P. Eaton, J. P. F. Longo, R. B. Azevedo, C. Delerue-Matos and J. R. S. A. Leite, JOURNAL OF NATURAL PRODUCTS, 78(7): 1495-1504, 2015. Copyright 2015 American Chemical Society.

REPRESENTATIVE PROJECTS ON 2015-2016

"Disposable SERS microfluidic platforms for food toxin detection", FCT-MCTES, Total funding: € 189,987, Unit funding: €26,400, Eulália Pereira [Collaborator].

"Binary ionic porphyrin nanostructures for alternative energy and other applications", FCT-MCTES, Total and Unit funding: €50,000, Craig Medforth (PI).

"Estudo do efeito destrutivo da desinfecção com peróxido de hidrogénio na estrutura superficial dos esporos de *Bacillus subtilis* por microscopia de força atómica", MCETS and DAAD, Total and Unit funding: €4,000, Peter Eaton (PI).

SELECTED PUBLICATIONS

C. F. Sousa, M. Ferreira, B. Abreu, C. J. Medforth, and P. Gameiro, "Interactions of a Non-fluorescent Fluoroquinolone with Biological Membrane Models: A Multi-technique Approach.", INTERNATIONAL JOURNAL OF PHARMACEUTICS, Vol.495, 761-770, 2015

Carla Costa, Fátima Brandão, Maria João Bessa, Solange Costa, Vanessa Valdiglesias, Gözde Kiliç, Natalia Fernández-Bertólez, Pedro Quaresma, Eulália Pereira, Eduardo Pásaro, Bianca Laffon and João Paulo Teixeira, "In vitro cytotoxicity of superparamagnetic iron oxide nanoparticles on neuronal and glial cells. Evaluation of nanoparticle interference with viability tests", JOURNAL OF APPLIED TOXICOLOGY, Vol 36, 361-372, 2016

M. A. Guimarães, R. N. de Oliveira, L. M. C. Vêras, D. F. Lima, Y. D. M. Campelo, S. A. Campos, S. Kuckelhaus, P. L. S. Pinto, P. Eaton, A. C. Mafud, Y. P. Mascarenhas, S. M. Allegretti, J. de Moraes, A. Lolic, T. Verbic, J. R. S. A. Leite, "Activity In Vivo of Epiisopiloturine against Juvenile and Adult Worms of *Schistosoma mansoni*", PLOS NEGLECTED TROPICAL DISEASES, 9(3): e0003656, 2015

M. M. Marani, F. S. Dourado, P. V. Quelemes, A. R. de Araujo, M. L. G. Perfeito, E. A. Barbosa, L. M. C. Vêras, A. L. R. Coelho, E. B. Andrade, P. Eaton, J. P. F. Longo, R. B. Azevedo, C. Delerue-Matos and J. R. S. A. Leite, "Characterization and Biological Activities of Ocellatin Peptides from the Skin Secretion of the Frog *Leptodactylus pustulatus*", JOURNAL OF NATURAL PRODUCTS, 78(7): 1495-1504, 2015

Cavadas, MAS, Monopoli, MP, Sá e Cunha, C, Prudêncio, M, Pereira, E, Lynch, E, Dawson, KA, Franco, R, "Unravelling Malaria Antigen Binding to Antibody-Gold Nanoparticle Conjugates", PARTICLE AND PARTICLE SYSTEMS CHARACTERIZATION, Vol. 33(12), 906-915, 2016

FUNDING

Fundação para a Ciência e a Tecnologia
German Academic Exchange Service

COLLABORATIONS

Ricardo Franco, UCIBIO, FCT NOVA

Hugo Águas, CENIMAT, FCT NOVA

Maria de Lourdes Basto e Helena Carmo, UCIBIO, UPorto

Nicolae Leopold, Babeş-Bolyai University, Cluj-Napoca, Romania

Jim Fetting, University of California, USA

Sergei Vinogradov, University of Pennsylvania, USA

Francis D'Souza, University of North Texas, USA

Mariana Hamer, University of Buenos Aires, Argentina

Luis Silva, UPorto

Nuno Cerqueira, UPorto

Susana Rebelo, UPorto

Mariela Mariani, CONICET; Argentina

José Roberto Leite, University of Brasília, Brazil

Paul West, AFM WoOrkshop

Olga Matos, GHMT, IHMT/UNL

OUTREACH

Open day at Faculdade de Ciências, UPorto

Public talks in high schools about nanotechnology

WEBSITES

www.fc.up.pt/pessoas/peter.eaton



NANOMEDICINE@FCT LAB

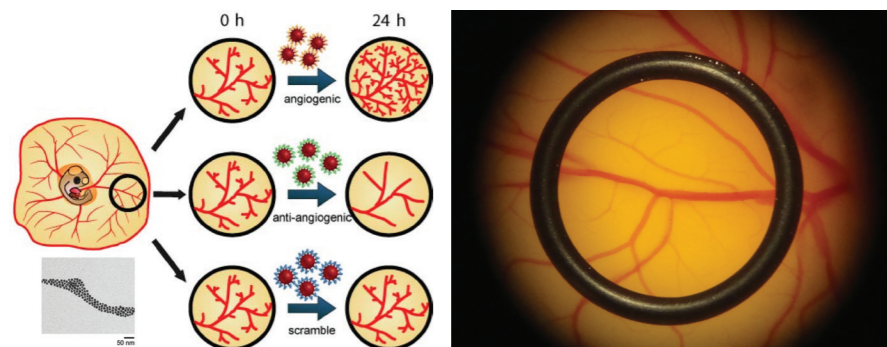
FUNCTIONAL MOLECULES
& NANOMATERIALS
FMN

RESEARCH INTERESTS

The group of Nanomedicine@FCT - created and developed by Dr. Pedro V Baptista in 2003 - in the field of biofunctionalization of nanoparticles with targeting and silencing moieties and their application in drug delivery and/or gene silencing, in the assessment of toxicology of nanoparticles in in vivo models, in the development of nanobiosensors and microfluidic devices for diagnostic applications, and DNA/RNA biomolecular recognition studies. At the intersection of Molecular Genetics and Nanotechnology, we have focused our research on the use of noble metal nanoparticles (mainly gold and silver) for new diagnostics and therapeutics platforms.

RESEARCH HIGHLIGHTS ON 2015-2016

The Nanomedicine@FCT Group demonstrated for the first time the effect of specific decorated gold nanoparticle system to control the formation of blood vessels in vivo. Also, the group has created a new vectorization platform based on gold nanoparticles for the targeted delivery of chemical compounds to tumor cells [Int. J. Nanomed., (2016) 11:2633-2639].



Peptide coated gold nanoparticles for in vivo targeting of angiogenesis

LAB LEADER

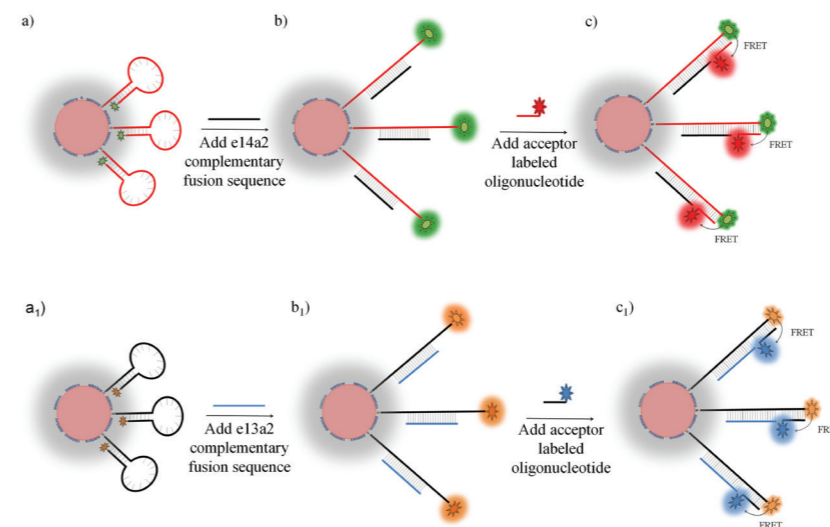
Pedro Viana Baptista
PhD in Human Molecular Genetics, 2000, University of London
Habilitation in Nanobiotechnology, 2012, FCT NOVA
Associate Professor, FCT NOVA

LAB MEMBERS

POST-DOCS
Bruno Veigas
Catarina Roma-Rodrigues
Fábio Carlos
Leticia Giestas
Miguel Larginho
Rita Cabral
Sara Figueiredo

PHD STUDENTS
Iwona Bernacka-Wojcik
Mafalda Nascimento Costa
Milton Cordeiro
Pedro Pedrosa
Raquel Vinhas

Additionally, the group has created a multi layer detection platform based on gold nanobeacon technology - BioCode - suitable to discriminate allelic differences. [J. Nanobiotechnol., (2016) 14:38].



BioCode - nanoparticle based detection of oncogenic transcripts via spectral codification

REPRESENTATIVE PROJECTS ON 2015-2016

"RA Detect: One Platform-multiple biomarker detection of rheumatoid arthritis", EC-H2020, Total funding: €433,175, Unit funding: €137,600, Pedro Baptista (PI).

"TRACE: tracking and assessing the risk from antibiotic resistant genes using chip technology in surface water ecosystems", EC-ERA-Net, Total funding: €1.4M, Unit funding: €149,000, Pedro Baptista (PI).

"Cytotoxicity and photo-cytotoxicity of nitrosyl ruthenium anticancer drug in aqueous solution or incorporated in a drug delivery system. An innovative purpose for metal based drug", FCT-MCTES and FAPESP, Total funding: €43,790, Unit funding: €43,790, Pedro Baptista [Collaborator].

"Silence is golden (siAu) - silencing the silencers via multifunctional gold nanoconjugates towards cancer therapy", FCT-MCTES, Total funding: €188,922, Unit funding: €188,922, Pedro Baptista (PI).

"Lung Card - Point-of-care blood device for fast and reliable prediction of drug response in non-small-cell lung carcinoma patients from blood samples", EC-H2020, Total funding: €1.4M, Unit funding: €260,400, Pedro Baptista [Collaborator - PI in Portugal].

SELECTED PUBLICATIONS

Catarina Roma-Rodrigues, Amelie Heuer-Jungemann, Alexandra R. Fernandes, Antonios G. Kanaras and Pedro V. Baptista, "Peptide coated gold nanoparticles for in vivo modulation of angiogenesis", INT J NANOMED, 11:2633-2639, 2016

Milton Cordeiro, Leticia Giestas, João C. Lima and Pedro Baptista, "BioCode Gold-Nanobeacon for the detection of fusion transcripts causing chronic myeloid leukemia", J. NANOBIOTECHNOL, 14:38, 2016

Luisa Corvo, Ana Soraia Mendo, Sara Figueiredo, Miguel Larginho, Rogério Gaspar, Pedro V. Baptista and Alexandra R. Fernandes, "Liposomes as delivery system of a Sn(IV) compound for cancer therapy", PHARM RES, 33:1351-1358, 2016

João Conde, Alfredo Ambrósio, Yulán Hernandez, Furong Tian, Mark MacCully, Catherine C. Berry, Pedro V. Baptista, Claudia Tortiglione, Jesus M. de la Fuente, "15 years on siRNA delivery: beyond the State-of-the-Art on inorganic nanoparticles for RNAi therapeutics" NANOTODAY, 10(4): 421-450, 2015

M. McCully, Yulan Hernandez, João Conde, Pedro V. Baptista, Jesus M. de la Fuente, Andrew Hursthouse, David Stirling, C.C. Berry, "The significance of the balance between intracellular glutathione and polyethylene glycol (PEG) for successful siRNA release from gold nanoparticles", NANO RESEARCH, 8(10): 3281-3292, 2015

FUNDING

Conselho Nacional de Desenvolvimento Científico e Tecnológico, Brazil
EC-H2020
EC-ERA-Net
Fundação de Amparo à Pesquisa do Estado de São Paulo, Brazil
Fundação para a Ciência e a Tecnologia

COLLABORATIONS

Jesus de la Fuente, University of Zaragoza, Spain
Catherine Berry, University of Glasgow, UK
Antonio Kanaras, University of Southampton, UK
Wolfgang Fritzsche, Institute of Photonics, Jena Germany

OUTREACH

World Biotech Tour - Coaching of National Ambassador of Biotechnology.
EXPO FCT 2015 & 2016
Media appearance in Newspapers, Magazines, Radio, TV and other channels

TRANSLATION

Founder of NANO4 Global, a Nanodiagnosics Start-up

WEBSITES

sites.fct.unl.pt/nanotheranostics



ORCHIDS LAB

FUNCTIONAL MOLECULES
& NANOMATERIALS
FMN

RESEARCH INTERESTS

Organic and Peptide Synthesis are our main tools to work at the interface between Synthetic Organic Chemistry, Life Sciences and Biomedical Engineering, with intervention in three major research areas:

- Strategies for drug modification and targeted delivery
- Asymmetric synthesis of chiral compounds inspired by Nature
- Bioactive peptides synthesis and applications

RESEARCH HIGHLIGHTS ON 2015-2016

Antimicrobial coatings for biomedical engineering (Figure 1)

We have used chemoselective methods for tethering potent wide-spectrum antimicrobial peptides onto chitosan, a natural biopolymer with multiple medical applications. The materials are being explored as antimicrobial coatings for bone implants [Costa et al., *BIOMATERIALS* 2015; Barbosa et al., *CARBOHYDRATE POLYMERS* 2017 | Media: "90 segundos de Ciência", Antena 1 radio broadcasting station]

Amino acid-based gemini surfactants for gene delivery (Figure 2)

We have produced amino acid-based gemini surfactants whose ability to form vesicles, biocompatibility, and capacity to compact DNA for intracellular gene delivery has been established [Silva et al. *CHEMISTRY, A EUROPEAN JOURNAL* 2015; Cardoso et al., *MOLECULAR PHARMACEUTICS* 2015; Cardoso et al., *EUROPEAN JOURNAL OF PHARMACEUTICS AND BIOPHARMACEUTICS* 2016]

LAB LEADER

Paula Gomes

PhD in Chemistry, 2000,
University of Barcelona
Habilitation in Chemistry,
2011, University of Porto
Associate Professor,
FC UPorto

LAB MEMBERS

INDEPENDENT RESEARCHERS

José Borges,
Assistant Professor
Mária do Vale,
Assistant Professor
Mário Araújo,
Assistant Professor
Ricardo Ferraz,
Adjunct Professor
Nuno Vale,
FCT Investigator

PHD STUDENTS

Ivo Dias
Luísa Silva
Mariana Barbosa

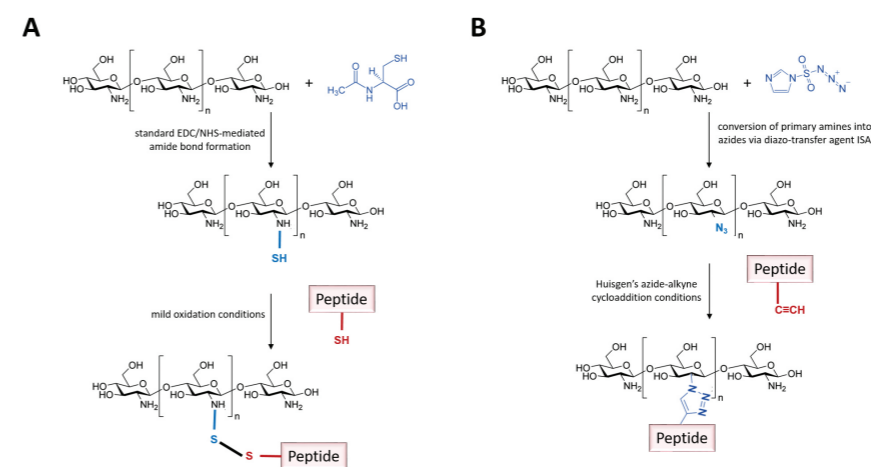


Figure 1. Chemoselective peptide tethering onto chitosan, to produce antimicrobial coatings for biomedical engineering applications.

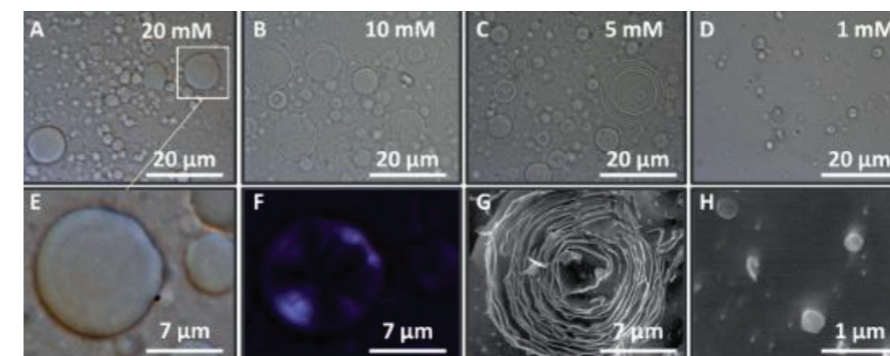


Figure 2. Self-assembled vesicles derived from in-house serine-based gemini surfactants.

REPRESENTATIVE PROJECTS ON 2015-2016

"New advance in biomedicine: peptide-mediated target drug delivery", FCT-MCTES, Total and Unit funding: €50,000, Nuno Vale [P1].

SELECTED PUBLICATIONS

Gonçalves I. C., et al., "Bacteria-targeted biomaterials: glycancoated microspheres to bind *Helicobacter pylori*", *ACTA BIOMATERIALIA*, Vol. 33, 40-50, 2016

Sousa C. A. D., et al. "On the scope of oxidation of tertiary amines: Meisenheimer rearrangements versus Cope elimination in 2-(cyanoethyl)-2-azanorbornanes", *ORGANIC CHEMISTRY FRONTIERS*, Vol. 3, 1624-1634, 2016

Ornelas M., et al., "Acyated-naproxen as the surface-active template in the preparation of micro- and nanospherical imprinted xerogels by emulsion techniques", *JOURNAL OF CHROMATOGRAPHY A*, Vol. 1437, 107-115, 2016

Silva S. G., et al., "Size, Charge, and Stability of Fully Serine-Based Catanionic Vesicles: Towards Versatile Biocompatible Nanocarriers", *CHEMISTRY, A EUROPEAN JOURNAL*, Vol. 21, 4092-4101, 2015

Costa F., et al., "Dhvar5 antimicrobial peptide [AMP] chemoselective covalent immobilization results on higher antiadherence effect than simple physical adsorption", *BIOMATERIALS*, Vol. 52, 531-538, 2015

FUNDING

Fundação para a Ciência e a Tecnologia

COLLABORATIONS

Maria Helena Machado, INIAV

Paula Sá Pereira, INIAV

Miguel Prudêncio, IMM

Miguel Castanho, IMM

Fátima Nogueira, IHMT

Salette Reis, UCIBIO, UPorto

Maria Martins, i3S, UPorto/INEB Porto

Pedro Pereira, i3S - UPorto / IBMC, Porto

Eduardo Marques, Centro de Investigação em Química, UPorto

António Silva, Centro de Investigação em Química, UPorto

Paula Gameiro, UCIBIO, UPorto

Maria Conceição Pedrosa de Lima, CNBC, Universidade de Coimbra

João Paulo Noronha, LAQV, FCT NOVA

Cecília Roque, UCIBIO, FCT NOVA

Pedro Baptista, UCIBIO, FCT NOVA

Alexandra Fernandes, UCIBIO, FCT NOVA

Victor de Freitas, LAQV, UPorto

Ana Freire, LAQV, UPorto

Xerardo García Mera, University of Santiago de Compostela, Spain

Antonio Mauriño Mosquera, University of Santiago de Compostela, Spain

David Andreu, University

Pompeu Fabra, Spain

Philip J. Rosenthal, University of California, USA

Melanie T. Cushion, University of Cincinnati, Ohio, USA

Silvia Parapini, University of Milan, Italy

François Maurel, Université Paris Diderot, France

Christophe Pannecouque, University of Leuven, Belgium

Hélder A. Santos, University of Helsinki, Finland

Paul Brindley, George Washington University, USA

Tiago Fleming Outeiro, University of Göttingen, Germany

Louis Maes, University of Antwerp, Belgium

Roland Pieters, Utrecht University, the Netherlands

Hanne Tønnesen ("PharmaLuxLab"), University of Oslo, Norway

Christian Sköld and Anja Sandström, University of Uppsala, Sweden

OUTREACH

European Researchers Nights

PubhD Porto

FCUP Open Day for secondary schools

UPorto Open Fair for the general public

Lectures in secondary schools

WEBSITES

<https://www.fc.up.pt/orchids>

<https://www.fc.up.pt/pessoas/pgomes>



RANGEL'S LAB

FUNCTIONAL MOLECULES & NANOMATERIALS FMN

RESEARCH INTERESTS

The present research interests are centred in Bioinorganic Chemistry and the research focus is on the design of molecules that may be of use in novel therapeutic strategies to fight Infection, Iron Overload and Diabetes. The first two are related with a particular interest in Iron Biology and the third with the potential insulin-like effect of Zinc and Vanadium complexes. The design of metal ion chelators is the common factor, in the first two diseases the drug is the ligand itself and in the third is a metal ion complex. The labelling of chelators with molecules that allow visualization of their pathways within the cell and the study of their interaction with biological membranes by means of spectroscopic methods is a fascinating and relevant area for the development of new drugs.

More recently the interest in Fe Biology has been extended to Plant Nutrition and to the development of Fe sensing methods.

RESEARCH HIGHLIGHTS ON 2015-2016

Development of iron chelators with antimycobacterial activity: The activity of the chelators was assessed per se and in combination with a commonly used antibiotic. The results are indicative that a combination of the chelators with antibiotics is a promising strategy to fight *M. avium* infections. (Med. Chem. Commun., 2015, 6, 2194–2203)

Colorimetric and fluorescent ligands with clinical and environmental applications. The coordination chemistry of two catechol-modified rosamines containing differently oriented amide linkages with iron centers was rationalized by using mass spectrometry and semi-empirical calculations. (Chem. Eur. J. 2015, 21, 15692–15704).

LAB LEADER

Maria Rangel

PhD in Biomedical Sciences, 1989, UPorto
Habilitation in Biomedical Sciences, 2011, UPorto
Associate Professor, ICBAS UPorto

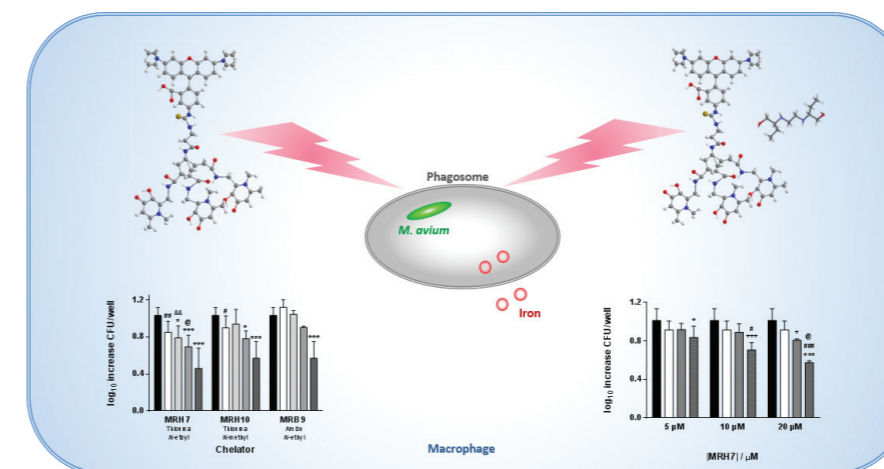
LAB MEMBERS

INDEPENDENT RESEARCHERS

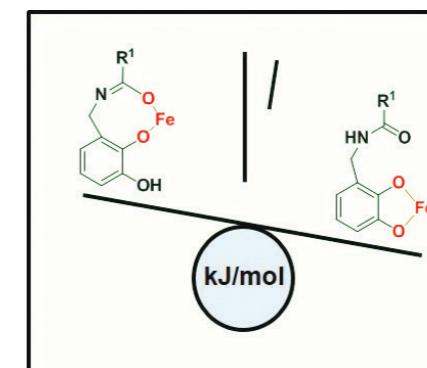
Ana Silva, UCIBIO Researcher
André Silva, UCIBIO Researcher
Galya Ivanova, UCIBIO Researcher

POST-DOCS

Andreia Leite
Tânia Moniz



Iron(III)-binding preference: Two catechol modified rosamines containing different oriented amide linkages were designed. The coordination chemistry of both ligands with Fe(III) has been rationalized by mass spectrometry and semiempirical calculations, showing that a "salicylate-type" mode of coordination is taking place. Interestingly, the unconventional amide imposes the formation of an eight-membered ring to the chelate complex.



REPRESENTATIVE PROJECTS ON 2015-2016

"[Fe]rrying plants to prevent chlorosis", FCT-MCTES, Total funding: €199,721, Unit funding €103,122, Maria Rangel (PI).

"Chelators for novel therapeutic strategies", FEDER-ON.2, Total Funding €978,647, Unit funding: € 978,647, Maria Rangel (PI).

"EnVIROnsensing - novel iron sensing systems for biogeochemical applications", FCT-MCTES, Total funding: € 115,312, Unit funding: € 41,800, Maria Rangel (Collaborator).

"MOFsENS - synthesis of metal-organic frameworks as optical gas sensors", EC-ERA Net, Total funding: €290,216, Unit funding: €165,216, Ana Silva (PI).

SELECTED PUBLICATIONS

Santos, C, Carvalho, S, Leite, A, Moniz, T, Roriz, M, Rangel, Antonio, Rangel, M, Vasconcelos, M, "Effect of tris(3-hydroxy-4-pyridinonate) iron(III) complexes on iron uptake and storage in soybean (Glycine max L.)", PLANT PHYSIOLOGY AND BIOCHEMISTRY, 106, 91-100, 2016

Moniz, T, de Castro, B, Rangel, M, Ivanova, G, "NMR study of the interaction of fluorescent 3-hydroxy-4-pyridinone chelators with DMPC liposomes", PHYSICAL CHEMISTRY CHEMICAL PHYSICS, 2016, 18, 5027-5033, 2016

Miranda, J L, Nunes, A, Rangel, M, Rangel, A, Mesquita, R B R, "Use of an hexadentate 3,4-hydroxypyridinone chelator as a novel chromogenic agent for the sequential injection iron speciation in waters", TALANTA, 148, 633-640, 2016

Moniz, T, Silva, D, Silva, T, Gomes, M S, and Rangel, M, "Antimycobacterial activity of rhodamine 3,4-HPO iron chelators against Mycobacterium avium: analysis of the contribution of functional groups and of chelator's combination with ethambutol", MEDCHEMCOMM, 6, 2194-2203, 2015

Queirós, C, Leite, A., Couto, M G M, Cunha-Silva, L, Barone, G, de Castro, B, Rangel, M, Silva, A M N and Silva, A M G, "The influence of the amide linkage in the iron(III)-binding properties of catechol modified rosamine derivatives", CHEMISTRY - A EUROPEAN JOURNAL, 21, 15692-15704, 2015

FUNDING

European Commission ERA-Net

FEDER-ON.2

Fundação para a Ciência e a Tecnologia

COLLABORATIONS

Graça Porto, I3S, HGSA, ICBAS, UPorto

António Rangel, ESB, Universidade Católica, Porto

Marta Vasconcelos, ESB, Universidade Católica, Porto

Giampaolo Barone, University of Palermo, Italy

Tomás Torroba Pérez, University of Burgos, Spain

Jose María Pedrosa, University of Pablo de Olavide, Spain

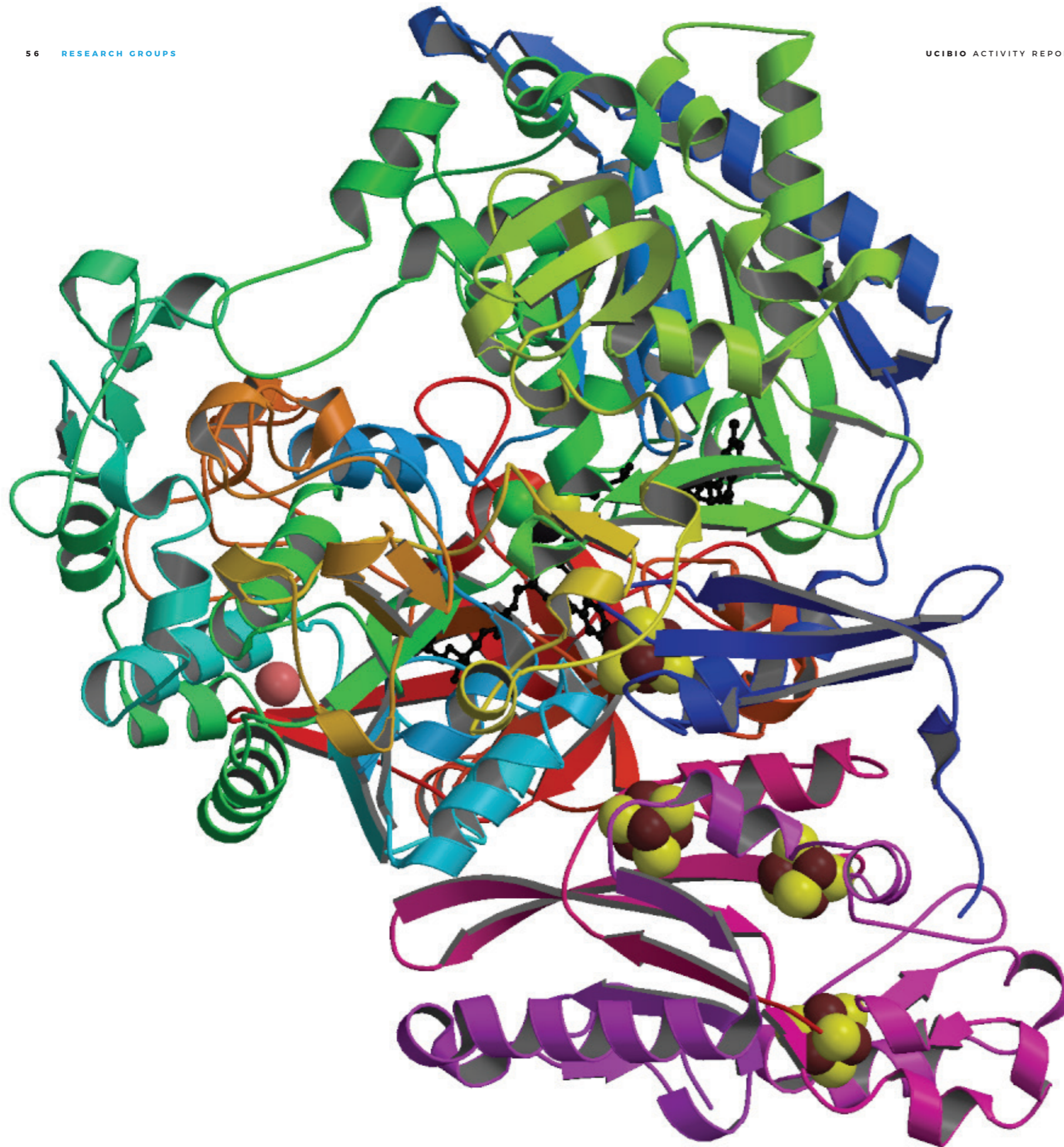
Juan Cabanillas-Gonzalez, Madrid Institute for Advanced Studies, Spain

OUTREACH

Mostra UP, 2015 e 2016

WEBSITES

www.fc.up.pt/dmn/index.php/maria-rangel-group



STRUCTURAL AND MOLECULAR BIOLOGY SMB

RESEARCH GROUP OVERVIEW

The Structural & Molecular Biology group gathers a team with complementary expertise ranging from protein expression and purification to biochemical, structural and functional characterization. There is extensive experience in X-ray Crystallography, NMR, EPR, Moessbauer, Glycan Microarrays, Fast Kinetics, (Bio)Electrochemistry, Fluorescence Microscopy and Spectroscopy, among other biophysical techniques. The group has access to all necessary infrastructures for Structural Biology either in-house or within the scope of National or International Networks (PT NMR Network, INSTRUCT, ESRF and other SR labs (X-ray and SAXS)).

Researchers of the SMB Group have a long-standing interest in a variety of topics that can be grouped in two broad areas: environment impact and health & disease.

In several joint projects, the different methodologies available provide a complementary Systems Biology view and characterization of different biomolecular research topics: Protein structures, spectroscopic, biophysical and biochemical characterization; Enzyme structures and catalytic mechanisms; Structural and functional analysis of protein-protein, protein-ligand and protein-glycan interactions. These topics range from bioremediation and oxidative stress to drug action and design and are of central importance for a successful achievement of the strategic goals defined for all four Thematic Lines.

RESEARCH LABS

BIOCHEMISTRY AND BIOENERGETICS OF HEME PROTEINS LAB | CARLOS SALGUEIRO

BIOINORGANIC LAB | JOSÉ MOURA

(BIO)MOLECULAR STRUCTURE AND INTERACTIONS BY NMR LAB | EURICO CABRITA

FLUORESCENCE MICROSCOPY AND SPECTROSCOPY LAB | FÁBIO FERNANDES

MOLECULAR BIOPHYSICS LAB | PEDRO TAVARES

XTAL - MACROMOLECULAR CRYSTALLOGRAPHY LAB | MARIA JOÃO ROMÃO



BIOCHEMISTRY AND BIOENERGETICS OF HEME PROTEINS LAB

STRUCTURAL AND MOLECULAR BIOLOGY
SMB

RESEARCH INTERESTS

The main research lines of our group aim to contribute to the optimization of extracellular electron transfer processes in exoelectrogens using the bacteria *Geobacter* as a model. The rationale for this choice is based on the ubiquitous presence of these bacteria in the environment and their high current densities output in microbial fuel devices. We are developing new methodologies to assist the structural and functional characterization of electron transfer components of *Geobacter* cells. This information will contribute to the rational engineering of exoelectrogens electron transfer components and to optimize the *Geobacter*-based biotechnological applications (bioremediation, microbial electrosynthesis and bioenergy).

RESEARCH HIGHLIGHTS ON 2015-2016

Structure and thermodynamic characterization of a periplasmic cytochrome PccH that is crucial in microbial electrosynthesis by *G. sulfurreducens*

The cytochrome *c* PccH from *G. sulfurreducens* plays a crucial role in current-consuming fumarate-reducing biofilms. Deletion of *pccH* gene inhibited completely electron transfer from electrodes towards *G. sulfurreducens* cells. The structure of PccH was determined at a resolution of 2.0 Å and is unique among the monoheme cytochromes. The structural fold of PccH can be described as forming two lobes with the heme sandwiched in a cleft between them. PccH has a low reduction potential of -24 mV at pH 7, which is unusual for monoheme cytochromes. Based on difference in structure, together with sequence phylogenetic analysis, it was proposed that PccH can be regarded as a first characterized example of a new subclass of class I monoheme cytochromes (BBA - Bioenergetics, Vol. 1847,1113, 2015; FEBS Journal, Vol. 282, 2215, 2015).

LAB LEADER

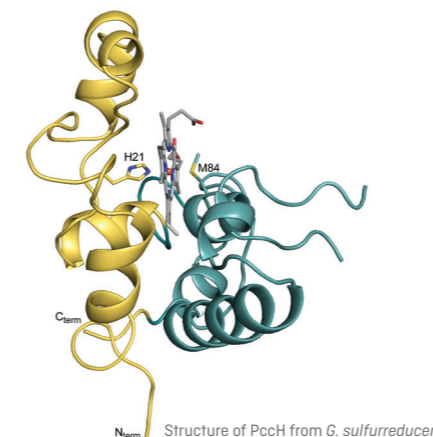
Carlos Salgueiro

PhD in Biochemistry, 1998,
FCT NOVA
Habilitation in
Biochemistry, 2016,
FCT NOVA
Assistant Professor,
FCT NOVA

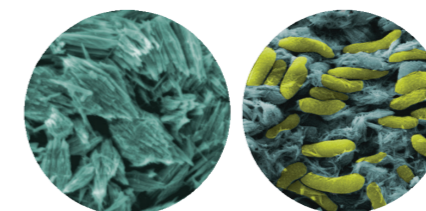
LAB MEMBERS

POST-DOCS
Marta Silva

PHD STUDENTS
Ana Fernandes
Joana Dantas
Liliana Teixeira



Structure of PccH from *G. sulfurreducens*



Paper-based sensor with tungsten trioxide nanoparticles (*G. sulfurreducens* cells in yellow and nanoparticles in blue)

Development of an office paper platform for bioelectrochromic detection of electrochemically active bacteria using tungsten trioxide nanoprob

Electrochemically active bacteria (EAB) have the capability to transfer electrons to cell exterior, a feature that is currently explored for important applications in biotechnology. The number of isolated and characterized EAB species is still very limited regarding their abundance in nature. Trioxide tungsten nanoparticles were synthesized by microwave assisted hydrothermal synthesis and used to impregnate non-treated regular office paper substrates. This allowed the production of a paper-based colorimetric sensor able to detect EAB in a simple, rapid, reliable, inexpensive and eco-friendly method (Scientific Reports (Nature) Vol. 5, 9910, 2015; Media Appearance: Press).

REPRESENTATIVE PROJECTS ON 2015-2016

"The way forward: optimization of respiratory electron transfer chains toward sustainable microbial electricity production", FCT-MCTES, Total and Unit funding: €166,862, Carlos Salgueiro (PI).

"Structural studies on a new family of heme-containing sensor proteins: a crucial step for revealing heme-driving signal transduction", FCT-MCTES, Total and Unit funding: €121,138, Carlos Salgueiro (PI).

"The difference a cell wall makes: optimization of bioelectrochemical systems by exploring the paradigm of extracellular electron transfer in Gram positive bacteria", FCT-MCTES, Total funding: €196,926, Unit funding: €24,000, Carlos Salgueiro (Collaborator).

"Type-II NADH-menaquinone oxidoreductase (NDH-2) and the respiratory chain of *Mycobacterium tuberculosis*: new therapeutic targets to fight tuberculosis", FCT-MCTES, Total funding: €158,961, Unit funding: €24,000, Carlos Salgueiro (Collaborator).

"Redox necklaces: functional characterization of a multidomain polyheme cytochrome", FCT-MCTES, Total funding: €98,656, Unit funding: €44,812, Carlos Salgueiro (Collaborator).

SELECTED PUBLICATIONS

Dantas JM, Simões T, Morgado L, Caciones C, Fernandes AP, Silva MA, Bruix M, Pokkuluri PR, Salgueiro CA, "Unveiling the structural basis that regulates the energy transduction properties within a family of triheme cytochromes from *Geobacter sulfurreducens*", THE JOURNAL OF PHYSICAL CHEMISTRY B, Vol.120, 10221-233, 2016

Dantas JM, Kokhan O, Pokkuluri PR, Salgueiro CA, "Molecular interaction studies revealed the bifunctional behavior of triheme cytochrome PpcA from *Geobacter sulfurreducens* toward the redox active analog of humic substances", BBA - BIOENERGETICS, Vol. 1847,1129-38, 2015

Santos TC, de Oliveira AR, Dantas JM, Salgueiro CA, Cordas CM, "Thermodynamic and kinetic characterization of PccH, a key protein in microbial electrosynthesis processes in *Geobacter sulfurreducens*", BBA - BIOENERGETICS, Vol. 1847, 1113-8, 2015

Marques AC, Santos L, Costa MN, Dantas JM, Duarte P, Gonçalves A, Martins R, Salgueiro CA, Fortunato E, "Office Paper Platform for Bioelectrochromic Detection of Electrochemically Active Bacteria using Tungsten Trioxide Nanoprob", SCIENTIFIC REPORTS - NATURE, Vol. 5, 9910, 2015

Dantas JM, Campelo LM, Duke NEC, Salgueiro CA, Pokkuluri PR The structure of PccH from *Geobacter sulfurreducens*: a novel low reduction potential monoheme cytochrome essential for accepting electrons from an electrode", FEBS JOURNAL, Vol. 282, 2215-31, 2015

FUNDING

Fundação para a Ciência e a Tecnologia

COLLABORATIONS

Turner Lab, ITQB NOVA

Louro Lab, ITQB NOVA

Fortunato Lab, FCT NOVA

Schiffer and Pokkuluri Lab, University of Chicago, USA

Bruix Lab, Instituto de Química-Física "Rocasolano", CSIC, Spain

Lovley Lab, University of Massachusetts, USA

Einsle Lab, University of Freiburg, Germany

OUTREACH

Media appearance in Newspapers, Magazines, TV and other channels

Lab visit for students, JORTEC 2015 & 2016.

EXPO FCT open day, (coordinator for the area of Biochemistry), 2015 & 2016

WEBSITES

<https://sites.fct.unl.pt/hemeproteins>



BIOINORGANIC LAB

STRUCTURAL AND MOLECULAR BIOLOGY SMB

RESEARCH INTERESTS

Mechanistic characterization of (metallo)enzymes involved in several biogeochemical cycles, in particular all enzymes of the denitrification pathway, as well as, molybdenum enzymes. In addition, identification and characterization of new molecular systems involved in detoxification of metals and reactive oxygen species in pathogenic bacteria, degradation of hydrocarbons, biocorrosion, and biosynthesis of iron-sulphur centres have also been carried out in the Lab. Furthermore, novel pathways involved in the formation/consumption of signalling molecules in humans, as well as, the metabolism of reactive oxygen and nitrogen species in humans have been thoroughly studied in the Lab. The development of bioinorganic models of metalloenzymes (and metal-containing centres) have also been comprehensively explored. The biophysical and structural characterization of electron transfer complexes has been of interest and led to the development and implementation of protein docking protocols (BiGGER).

RESEARCH HIGHLIGHTS ON 2015-2016

Novel human signalling pathways: nitrite as a source of nitric oxide

Comprehensive kinetic characterisation of NO-forming nitrite reductase activity of the human molybdenum-containing enzymes xanthine dehydrogenase (XD), xanthine oxidase (XO) and aldehyde oxidase (AO) - kinetic parameters, pH profile and O₂ inhibition; comparison with NO synthases. Establishment of the reaction mechanism of nitrite reduction by molybdoenzymes: the oxygen atom abstraction from the nitrite molecule to yield NO is carried out by the reduced molybdenum cores (Mo⁴⁺, Mo⁵⁺) and is dependent on a protonation step assisted by a key glutamate residue. The mechanism proposed explains the nitrite reductase activity of both eukaryotic and prokaryotic molybdoenzymes, (Maia et al., *BIOCHEMISTRY*, 2015; Maia et al., *J BIOL INORG CHEM*, 2015)

LAB LEADER

José Moura

PhD in Bioinorganic Chemistry, 1979, FCT NOVA
Habilitation in Inorganic Chemistry, 1994, FCT NOVA
Full Professor, FCT NOVA

LAB MEMBERS

INDEPENDENT RESEARCHERS

Isabel Moura, Full Professor
Sofia Pauleta, FCT Investigator
Carla Carneiro
Cristina Costa, Assistant Professor
Jorge Lampreia, Assistant Professor
Stephane Besson

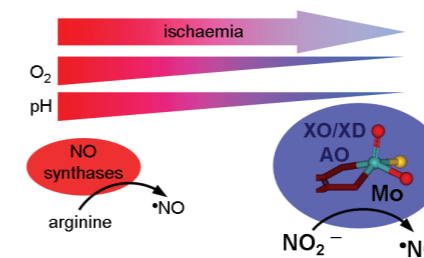
POST-DOCS

Alejandro Samhan-Arias
Biplab Maiti
Cristina Cordas
Luísa Maia
Marta Carepo
Olga Mestre
Rui Almeida
Susana Ramos

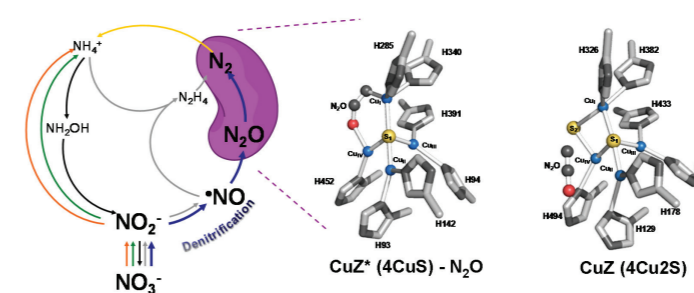
PHD STUDENTS

Catarina Nunes
Cintia Carreira
Cláudia Nóbrega
Filipa Gomes

Human XD, XO and AO catalyse the nitrite reduction to NO under hypoxic and acidic conditions, thus sustaining the NO formation when the NO synthase activity is hampered.



Nitrous oxide reductase catalyzes the last step of denitrification. Its catalytic center, CuZ can be isolated as either CuZ* or CuZ, but only CuZ* is catalytically active.



Understanding the detoxification of N₂O, a potent greenhouse gas

Nitrous oxide reductase catalyzes the last step of the denitrification pathway, reducing N₂O to dinitrogen. This enzyme has two copper centers, a binuclear Cu₂ and a tetranuclear Cu₄, bridge by a sulfur, the catalytic center, which can exist either as CuZ(4Cu₂S) or CuZ*(4Cu₂S). Recently, nitrous oxide reductase with CuZ center as CuZ(4Cu₂S) was spectroscopically characterised in the possible two redox states (1-hole and 2-hole). We have identified the protonation states of CuZ(4Cu₂S) centre and established that the enzyme harbouring this centre has very low catalytic activity and cannot be part of the catalytic cycle, as hypothesized up-to-now. (Johnston et al., *CHEM SCI*, 2015)

REPRESENTATIVE PROJECTS ON 2015-2016

"Denitrification - How to deal with NO and N₂O", FCT-MCTES, Total and Unit funding: €199,956, Isabel Moura [PI].

"Functional and structural characterization of unknown function conserved metalloproteins in anaerobes: a putative role in the control of cell division?", FCT-MCTES, Total and Unit funding: €225,280, Sofia Pauleta [PI].

"The metalloproteins involved in cell division - functional and structural characterization", FCT-MCTES, Exchange Programme, Total and Unit funding: €2,000, Sofia Pauleta [PI].

"Multifunctional luminescent spin labile hybrid materials", FCT-MCTES, Total funding: €191,879, Luísa Maia [Collaborator].

SELECTED PUBLICATIONS

Cerqueira, N, Gonzalez, P, Fernandes, PA, Moura, JGG, Ramos, MJ, "Periplasmic nitrate reductase and formate dehydrogenase: similar molecular architectures with very different enzymatic activities", *ACC CHEM RES*, Vol. 48, 2875-2884, 2015

Johnston, EM, Dell'Acqua, S, Pauleta, SR, Moura, I, Solomon, EI, "Protonation state of the 4Cu₂S CuZ site in nitrous oxide reductase: redox dependence and insight into reactivity", *CHEMICAL SCIENCE*, Vol. 6, 5670-5679, 2015

Maia, LB, Fonseca, L, Moura, I, Moura, JGG, "Reduction of carbon dioxide by a molybdenum-containing formate dehydrogenase: a kinetic and mechanistic study", *J AM CHEM SOC*, Vol. 138, 8834-8846, 2016

Maiti, BK, Moura, I, Moura, JGG, Pauleta, SR, "Putative iron-sulfur protein from the ORP complex: cluster reconstitution and spectroscopic characterization", *BIOCHIM BIOPHYS ACTA*, Vol. 1857, 1422-1429, 2016

Nóbrega, CS, Saraiva, IH, Carreira, C, Matzapetakis, M, Pauleta, SR, "The solution structure of the soluble form of the lipid-modified azurin from *Neisseria gonorrhoeae*, the electron donor of cytochrome c peroxidase", *BIOCHIM BIOPHYS ACTA*, Vol. 1857, 169-76, 2016

FUNDING

EC-COST
Fundação para a Ciência e Tecnologia
Programa Pessoa-Exchange Programme
iNext MX/SAXS

COLLABORATIONS

Corinne Aubert, CNRS, France
Lucia Banci, CERM, Florence University, Italy
Carlos Brandino, Universidad Nacional del Litoral, Argentina
Juan Cavet, Valencia University, Spain
Simone Dell'Acqua, University of Pavia, Italy
Bart Devreese, Lab, Ghent University, Belgium
Alain Dolla, CNRS, France
Oliver Einsle, Freiburg University, Germany
Pablo Gonzalez, Universidad Nacional del Litoral, Argentina
Luiz G. Lopes, U. Federal do Ceará, Brazil
Marcelino Maneiro, U. Santiago de Compostela, Spain
Gabriela Rivas, Universidad Nacional del Litoral, Argentina
Edward Solomon, Stanford University, USA
Eduardo Sousa, U. Federal do Ceará, Brazil
Vonstantinos Varotsis and Eftychia Pinakoulaki, University of Cyprus, Cyprus
Anthony Wedd, University of Melbourne, Australia
Alexander Wentzel, SINTEF, Trondheim, Norway
Frederico Almada, MARE, ISPA-IU
João P. Gomes, Instituto Nacional de Saúde
Paulo Martinho, FC UL
Manolis Matzapetakis, ITQB NOVA
Simone B. Morais, Instituto Superior de Engenharia, Instituto Politécnico do Porto
Smilja Tudorovic, ITQB NOVA
Francisco Girio, LNEG

OUTREACH

EXPO FCT open day, 2015 & 2016
Exhibition "Cartoons, Chemistry, Art and Society", Spain, 2016
Exhibition for prospective university students, Futurália, 2016
Welcome to Freshers, 2016
European Researchers Night, 2016

WEBSITES

sites.fct.unl.pt/biologicalchemistryatfctunl
docentes.fct.unl.pt/srp



(BIO)MOLECULAR STRUCTURE AND INTERACTIONS BY NMR LAB

STRUCTURAL AND MOLECULAR BIOLOGY SMB

RESEARCH INTERESTS

Our main research interests are related to the application and development of solution state nuclear magnetic resonance (NMR) spectroscopy for structural analysis and the study of intermolecular interactions in biological and chemical systems. In the context of the functional analysis of catalytic systems and the understanding of molecular recognition processes we explore: (i) protein-ligand interactions in drug discovery; (ii) solute-solvent interactions; (iii) protein structure and dynamics (iv) new techniques in NMR.

RESEARCH HIGHLIGHTS ON 2015-2016

A combined strategy relevant for the development of glycan-based anticancer vaccines

An innovative project devoted to decipher the minimal structural requirements that modulate tumor-associated carbohydrate antigens (TACAs) by specific receptors (lectins & antibodies) was launched (EXPL/QEQ-MED/0799/2012). In this context, a combined strategy to study glycan antigen-antibody interactions, crucial for the structure-based design of a multivalent glycan-based anticancer vaccine, was developed (J. AM. CHEM. SOC. 2015, 137, 12438-12441).

Enhancing ionic-liquids for CO₂ sequestration

We have developed a High Pressure (HP) NMR methodology to investigate the mechanism of CO₂ solubility in ionic liquids (IL). By combining HP-NMR measurements with molecular dynamics simulations, a full description of the molecular interactions that take place in IL-CO₂ mixtures was obtained. These studies allowed us to develop new imidazolium based sponge-like ILs with enhanced capabilities for CO₂ capture and with potential lower toxicity due to the introduction of branched alkyl chains attached to the aromatic ring. (MC Corvo et al. CHEMSUSCHEM, 2015).

LAB LEADER

Eurico J Cabrita

PhD in Organic Chemistry, 1994, FCT NOVA
Habilitation in Physical Chemistry, 2016, FCT NOVA
Assistant Professor, FCT NOVA

LAB MEMBERS

INDEPENDENT RESEARCHERS

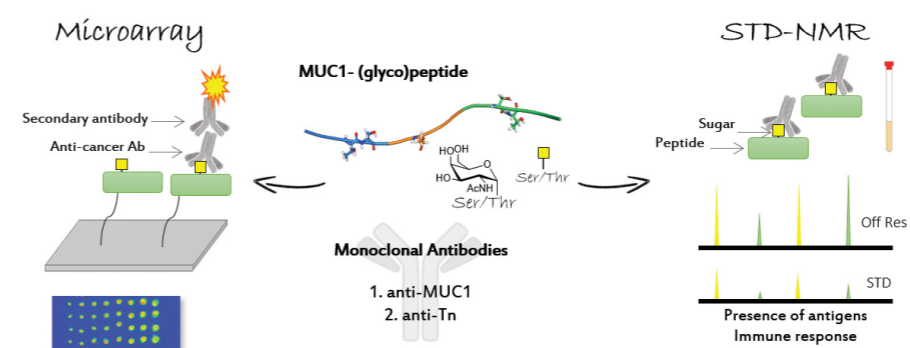
Filipa Marcelo, FCT Investigator
Isabel Coutinho, Assistant Professor
Maria dos Anjos Macedo, Assistant Professor

POST-DOCS

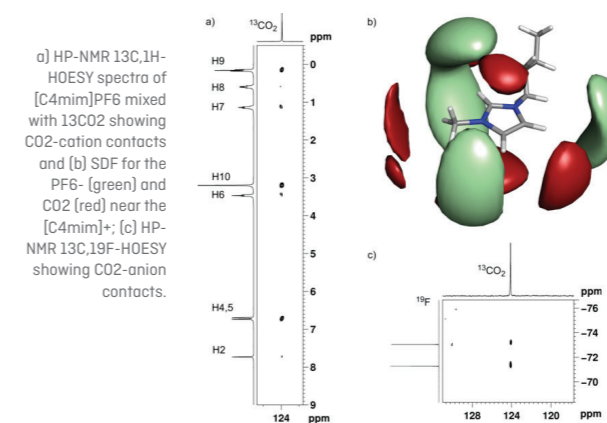
Ana Ferreira,
Angelo Figueiredo
Jorge Dias
Marta Corvo

PHD STUDENTS

Carmen Montoya
Helena Coelho
Leonardo Moreira
Micael Silva
Silvia Sequeira
Wagner Menezes



Combined structural based strategy to decode antigen-antibody interactions



REPRESENTATIVE PROJECTS ON 2015-2016

"Challenging organic synthesis inspired by nature - from natural products chemistry to drug discovery", CM1407, EC-COST Action, Filipa Marcelo (MC member).

"Understanding movement and mechanism in molecular machines", CM1306 EC-COST Action, Eurico Cabrita (MC member).

"NMR Net - national facility for nuclear magnetic resonance: from molecular structure and dynamics to protein function, cell physiology, and metabolomics", FCT-MCTES, Total funding: € 499,572, Unit funding: €200,000. Eurico Cabrita (PI at FCT NOVA).

"Evaluation of ionic liquids for CO₂ capture in exhaust gases", PETROBRAS SA., Total and Unit funding: €110,000, Eurico Cabrita (PI).

"Specific interaction of tumour-associated muc1 peptides and antibodies: 3D view by NMR and modeling", FCT-MCTES, Total and Unit funding: €49,774, Filipa Marcelo (PI).

SELECTED PUBLICATIONS

H Coelho, T Matsushita, G Artigas, H Hinou, FJ Cañada, R Lo-Man, C Leclerc, EJ Cabrita, J Jiménez-Barbero, S-I Nishimura, F Garcia-Martín, F Marcelo, "The Quest for Anticancer Vaccines: Deciphering the Fine-Epitope Specificity of Cancer-Related Monoclonal Antibodies by Combining Microarray Screening and Saturation Transfer Difference NMR", J AM CHEM SOC, Vol. 137, 12438-12441, 2015

MC Corvo, J Sardinha, T Casimiro, G Marin, M Seferin, S Einloft, SC Menezes, J Dupont, EJ Cabrita "A rational approach to sustainable CO₂-capture by imidazolium ionic liquids: tuning CO₂ solubility by cation alkyl branching" CHEM SUS CHEM, Vol. 8, 1935-1946, 2015

FV Sena, AP Batista, T Catarino, JA Brito, M Archer, M Viertler, T Madl, EJ Cabrita, MM Pereira "Type-II NADH:quinone oxidoreductase from Staphylococcus aureus has two distinct binding sites and is rate limited by quinone reduction" MOL MICROBIOL, Vol. 98, 272-288, 2015

D Madariaga, N Martínez-Sáez, VJ Somovilla, H Coelho, J Valero-González, J Castro-López, JL Asensio, J Jiménez-Barbero, JH Busto, A Avenzoza, F Marcelo, R Hurtado-Guerrero, F Corzana, JM Peregrina, "Detection of Tumor-Associated Glycopeptides by Lectins: The Peptide Context Modulates Carbohydrate Recognition", ACS CHEM BIOL, Vol. 10, 747-756, 2015

FUNDING

European Commission-COST Action
Fundação para a Ciência e a Tecnologia
Petrobras

COLLABORATIONS

Amelia Rauter, FCUL, Portugal
Fraser MacMillan, University of East Anglia, United Kingdom
Jairton Dupont, University of Nottingham, United Kingdom
Jesus Jimenez-Barbero, CICBioGUNE, Bilbao, Spain
Maria João Romão, FCT NOVA
Maria Manuel Marques, FCT NOVA
Manuela M. Pereira, FCT NOVA
Shin-Ichiro Nishimura, University of Hokkaido, Japan
Thomas Stockner, Medical University of Vienna, Austria

OUTREACH

EJ Cabrita was the Chemistry mentor of the gold medal winning Portuguese team in the European Science Olympiads (EUSO 2016)

WEBSITES

sites.fct.unl.pt/mint_nmr



FLUORESCENCE MICROSCOPY AND SPECTROSCOPY LAB

STRUCTURAL AND MOLECULAR BIOLOGY
SMB

RESEARCH INTERESTS

In our group we implement advanced fluorescence Microscopy/Spectroscopy techniques to obtain quantified information on the structure and dynamics of biological systems, at the molecular scale and within cellular environments. Our research focus on: i) Quantification of molecular interactions between biologically relevant macromolecules; ii) Membrane compartmentalization of bioactive lipids; iii) Novel membrane-based drug delivery platforms.

RESEARCH HIGHLIGHTS ON 2015-2016

Mechanism of action of the cytotoxic bile acid DCA

Intrahepatic cholestasis is associated with the accumulation of abnormally high levels of hydrophobic bile acids such as DCA in the liver, with elevated cytotoxic effects in hepatocytes and bile duct cells, although the mechanism of toxicity is unknown. We show that while both toxic (DCA) and cytoprotective bile acids (UDCA, TUDCA) induce an increase in the average membrane fluidity of hepatocytes, these effects are transient and not correlated with apoptosis. On the other hand, mitochondrial outer membrane (MOM) structure is shown to be heavily perturbed in the presence of DCA, while only marginally sensitive to the presence of nontoxic concentrations of UDCA/TUDCA. MOM perturbation by DCA also precedes the onset of mitochondrial permeability transition (MPT), suggesting a possible link between the two processes (Sousa et al. JLR 2015).

LAB LEADER

Fábio Fernandes

PhD in Chemistry, 2007,
Instituto Superior Técnico
FCT Investigator, 2016

Centro de Química-Física
Molecular and Institute
of Nanoscience and
Nanotechnology, Instituto
Superior Técnico,
Universidade de Lisboa

LAB MEMBERS

PHD STUDENTS

Maria João Martins Sarmento
Thi Phuong Tuyen Dao
Tânia Marques de Sousa

FUNDING

Fundação para a Ciência e a Tecnologia

COLLABORATIONS

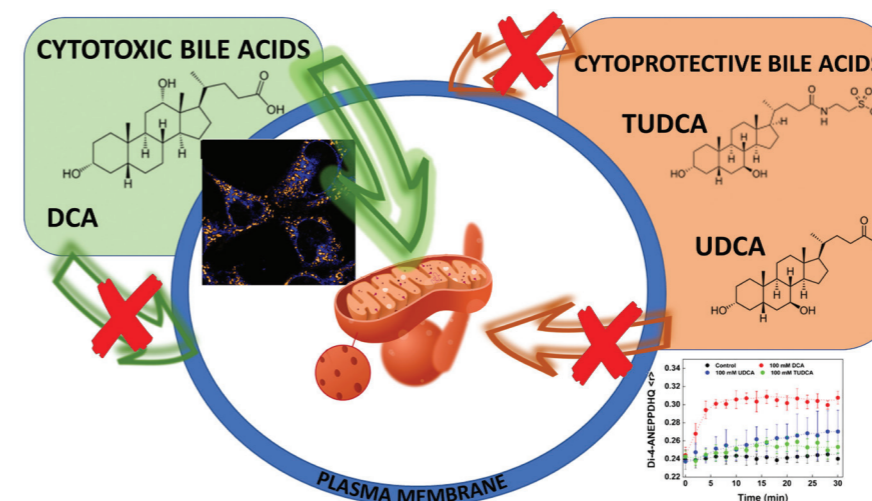
J.F. LeMeins Group, LCPO, Bordeaux, France

M. Hof Group, JH Institute of Physical Chemistry,
Prague, Czech Republic

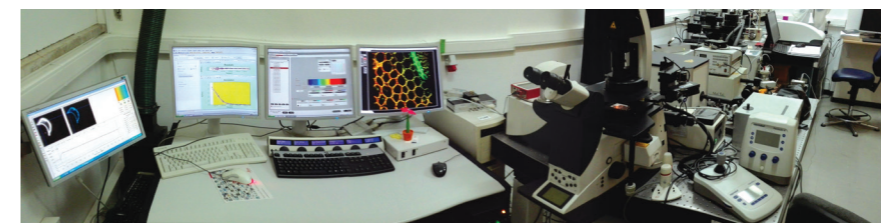
R.J. Youle Group, NINDS-NIH, Bethesda, US

OUTREACH

European Researchers Night 2015



The mechanism of action of the cytotoxic bile acid DCA is likely associated with changes in MOM structure.



Confocal microscope (partnership with CQFM-IN, Instituto Superior Técnico, ULisboa)

SELECTED PUBLICATIONS

Sousa T, Castro RE, Pinto SN, Coutinho A, Lucas SD, Moreira R, Rodrigues CMP, Prieto M, Fernandes F. "Deoxycholic acid modulates cell death signaling through changes in mitochondrial membrane properties", J LIPID RES, 56: 2158-2171 (2015).

Dao TPT, Fernandes F, Salva R, Schmutz M, Prieto M, Sandre O. "Phase separation and nanodomain formation in hybrid polymer/lipid vesicles", ACS MACRO LETT, 4: 182-186 (2015).

Bernardes N, Abreu S, Carvalho FA, Fernandes F, Santos NC, Fialho AM. "Modulation of membrane properties of lung cancer cells by azurin enhances the sensitivity to EGFR-targeted therapy and decreased β 1 integrin-mediated adhesion", CELL CYCLE, 15(11):1415-24 (2016).



MOLECULAR BIOPHYSICS LAB

STRUCTURAL AND MOLECULAR BIOLOGY SMB

RESEARCH INTERESTS

The Molecular Biophysics Lab uses a combination of biochemical and biophysical methods to study enzyme mechanisms and characterize active centers and reaction intermediates. Enzymes studied include iron storage and detoxification enzymes of the ferritin family as well as other carboxylate-bridged di-iron containing proteins and cage proteins.

Additionally, the biologic effect of ionizing radiation in macromolecules, particularly metalloenzymes, has been under study. Correlation between radiation effects and metabolites resulting from oxidative stress has been under focus.

The lab is also always interested in the continuous development of different techniques applied on such characterizations, namely biochemical techniques, molecular biology methods and various spectroscopies (UV/visible, CD, EPR and Mössbauer) in conjunction with fast kinetic techniques (stopped-flow and rapid-freeze quench).

Recently, collaborative efforts with industrial partners resulted in new applied research in *Moringa oleifera* plant system.

RESEARCH HIGHLIGHTS ON 2015-2016

Radiation effects on a DNA repair enzyme

Organisms are often exposed to different types of ionizing radiation that, directly or not, will promote damage to DNA molecules and/or other cellular structures. Because of that, organisms developed a wide range of response mechanisms to deal with these threats. Endonuclease III is one of the enzymes responsible to detect and repair oxidized pyrimidine base lesions. However, the effect of radiation on the structure/function of these enzymes is not clear yet. In this work, we demonstrate the effect of UV-C radiation on *E. coli* endonuclease III through several techniques, namely UV-visible, fluorescence and Mössbauer spectroscopies, as well as SDS-PAGE and

LAB LEADER

Pedro Tavares

PhD in Physical
Biochemistry, 1994,
FCT NOVA
Assistant Professor,
FCT NOVA

LAB MEMBERS

INDEPENDENT RESEARCHERS
Alice S. Pereira,
Assistant Professor

POST-DOCS
Cristina Timóteo

PHD STUDENTS
Alexandra Guerreiro
Alexandra Loupas
Daniela Penas
Nídia Almeida
Mafalda Teixeira Ribeiro

electrophoretic mobility shift assay. It was demonstrated that irradiation with a UV-C source has dramatic consequences on the absorption, fluorescence, structure and functionality of the protein, affecting its [4Fe-4S] cluster and its DNA-binding ability, which results in its inactivation. An UV-C radiation-induced conversion of the [4Fe-4S]²⁺ into a [2Fe-2S]²⁺ was observed for the first time and proven by Mössbauer and UV-visible analysis. The work also shown that the DNA-binding capability of endonuclease III is highly dependent of the nuclearity of the endogenous iron-sulfur cluster. Thus, in a cellular context, these results strengthen the argument that cellular sensitivity to radiation can also be due to loss of radiation-induced damage repair ability.

Moringa oleifera

Moringa oleifera tree (all parts, from roots to leaves, seeds and flowers) contains many nutrients such as essential vitamins and minerals, amino acids, beta-carotene, anti-oxidants, anti-inflammatory nutrients, phytochemicals and both omega-3 and omega-6 fatty acids. Well known in Asia and Africa it is used locally to cure many diseases and/or to provide nutrients. Besides, its pharmaceutical and biotechnological potential is recognized worldwide, including by the WHO. More, the development of the concepts green chemistry/green chemicals prompt for the search for new bio-sourced products that justify the current interest. Our lab, in partnership with the Laboratório de Bromatologia e Hidrologia, Departamento de Ciências Químicas, Faculdade de Farmácia da Universidade do Porto (LAQV/REQUIMTE) and the Portuguese-owned company Naturinga, established a research project to explore the development of sustainable methodologies for valorization of proteins extracted from *Moringa oleifera* seed-cake, a by-product of the oil (an essential oil rich in phytonutrients with great impact in overall health) extraction process, to produce bioactive protein hydrolysates to be used as an additive of supplements for sportspeople and elderly, using an array of techniques. The consortium was established taking into account the adequacy to successful accomplish the proposed aims but also a unique solid background on biochemical and biophysics, nutrition and occupational medicine, as well as to, valorization of industry by-products through recovery of added value compounds and study of its beneficial properties by in vitro studies.

REPRESENTATIVE PROJECTS ON 2015-2016

"Biologic building blocks and relevant electron transfer processes: an atom-collision study", FCT-MCTES, Total funding: €145,162, Unit funding: €21,774, Alice Pereira (Collaborator).

"Peptide production", Hovione Farmaciência, €6,157 (total funding and funding awarded), Isabel Cristina Timóteo.

SELECTED PUBLICATIONS

Graca, I, Liang, JS, Guilherme, M, Tavares, P, Ferreira-Pinto, MM, Melo, AMP, Ribeiro-Barros, AI, Pereira, AS, "Cloning, overexpression and functional characterization of a class III chitinase from *Casuarina glauca* nodules", SYMBIOSIS, Vol. 70, 139-148, 2016

Folgosa, F, Camacho, I, Penas, D, Guilherme, M, Frois, J, Ribeiro, PA, Tavares, P, Pereira, AS, "UV radiation effects on a DNA repair enzyme: Conversion of a [4Fe-4S]²⁺ cluster into a [2Fe-2S]²⁺", RADIATION AND ENVIRONMENTAL BIOPHYSICS, Vol. 54, 111-121, 2015

Folgosa, F, Tavares, P, Pereira, AS, "Iron management and production of electricity by microorganisms", APPLIED MICROBIOLOGY AND BIOTECHNOLOGY, Vol. 99, 8329-8336, 2015

FUNDING

Fundação para a Ciência e a Tecnologia
Hovione

COLLABORATIONS

David Norman, University of Dundee, UK

Susana L. A. Andrade, University of Freiburg, Germany

Ana I. F. Ribeiro, IICT

Giulia di Rocco, UNIMORE, Italy

Sunil G. Naik, Central University of Rajasthan, India

Søren Vrønning Hoffmann, Centre for Storage Ring Facilities (ISA), Denmark

Paulo Limão Vieira, UNL

Carsten Krebs, PennState University, USA

João Seco, Deutsches Krebsforschungszentrum (DKFZ), Germany

Bai Hanh Huynh, Emory University, USA

OUTREACH

EXPO FCT open day, 2015 & 2016

Exhibition for prospective university students, Futurália, 2016

Public talks & practical classes for high school students, 2015 & 2016

Educational programs for high school teachers, 2015 & 2016

Workshops for high school students, 2015 & 2016

FCT Ambassadors

WEBSITES

sites.fct.unl.pt/molecular-biophysics

<https://sites.fct.unl.pt/rabbit>



XTAL - MACROMOLECULAR CRYSTALLOGRAPHY LAB

STRUCTURAL AND MOLECULAR BIOLOGY
SMB

RESEARCH INTERESTS

We use X-ray diffraction data to study proteins and protein-ligand complexes using X-ray Crystallography and SAXS methods as well as novel methodologies applied to glycomics, such as glycan microarrays. Our main foci of research are:

1. Mechanistic studies and identification of ligands, at atomic level (metalloenzymes, in particular those containing Mo and Fe centers)
2. Drug design and ligand discovery
3. Glycan function, Glycan-protein and protein-protein interactions
4. Novel strategies for improved protein crystallization

RESEARCH HIGHLIGHTS ON 2015-2016

Molecular determinants into drug metabolism – structure and function of the human aldehyde oxidase

We have crystallized and solved the first structure of the human aldehyde oxidase (AOX), in its free form and in complex with a substrate (phthalazine) and an inhibitor (thioridazine). The models provided detailed information on the overall structure of the enzyme, the electron transport chain and the geometry of the active site. A new and unexpected inhibition site was found at the surface of the protein, highly conserved with other members of this family of enzymes. AOX, a Mo-containing enzyme from the xanthine oxidase family, is implicated in the metabolism of drugs and xenobiotics and is responsible for the failure of many clinical trials, representing an important pitfall in the development of new drugs. We aim to use a structure-based approach to elucidate the reaction mechanism of this enzyme and predict the metabolism of different classes of compounds, contributing to more efficient drug design methodologies (Coelho et al, NAT CHEM BIOL, 2015 | Media appearance: Press).

LAB LEADER

Maria João Romão

PhD in Chemistry, 1989, Instituto Superior Técnico Habilitation in Biochemistry, 2001, FCT NOVA Full Professor, FCT NOVA.

INSTITUTIONAL ROLES AT UCIBIO
Director

LAB MEMBERS

INDEPENDENT RESEARCHERS

Ana Luísa Carvalho, UCIBIO Researcher
Angelina Sá Palma, FCT Investigator
Teresa Santos-Silva, FCT Investigator

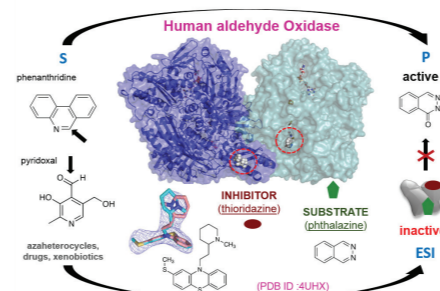
POST-DOCS

Benedita Pinheiro
Catarina Coelho
Jayaraman Muthukumar
Márcia Correia
Ramesh Pandian
Marino Santos
Filipe Freire

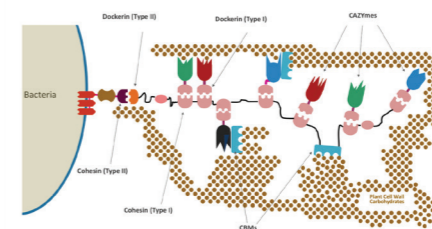
PHD STUDENTS

Ana Rita Cardoso
Diana Ribeiro
Francisco Leisico
Viviana Correia
Raquel Santos

UCIBIO ACTIVITY REPORT 2015-2016



Structure-based study of the metabolism of drugs by human AOX



Schematic representation of the Cellulosomes' action and cellular location.

Unravelling the function of the bacterial Cellulosome

Cellulolytic anaerobic bacteria were found to use unique molecular mechanisms for cellular attachment of cellulosomes, through dynamic interaction of cohesin and dockerin modules. The structures of five cohesin-dockerin complexes from two bacteria were solved by X-ray Crystallography to reveal the functional complexity of cellulosome recruitment to the cell envelope (Brás et al, SCIENTIFIC REPORTS, 2016). The first sequence-defined glycome-scale microarray was developed as a high-throughput tool to screen cellulosomal protein-glycan interactions. This proof-of-concept work showed the versatility of the microarray to study diverse recognition systems of biotechnological and biomedical impact. (Palma et al., MOL CELL PROTEOMICS, 2015 | highlighted by the Editor).

REPRESENTATIVE PROJECTS ON 2015-2016

"B.EST.CBM: an integrative structural biology approach to characterise the protein-carbohydrate microbial recognition", FCT-MCTES, Total funding: €199,884, Unit funding: €120,684 Ana Luísa Carvalho (PI).

"Carbon monoxide guided shuttles (COGSs) to fight rheumatoid arthritis", FCT-MCTES, Total funding: €199,996, Unit funding: €117,996, Teresa Santos-Silva (PI).

"Aldehyde oxidases in drug metabolism and biocatalysis: searching for the substrate specificity and catalytic mechanism", FCT-MCTES, Total funding: €198,996, Unit funding: €162,792, Maria João Romão (PI).

"Reduction of CO2 for sustainable biofuel production", FCT-MCTES, Total funding: €172,369, Unit funding: €31,771, Maria João Romão (Collaborator with ITQB).

"Modern structural biology: resources for the advancement of in-house X-ray crystallography", FCT-MCTES, Total and Unit funding: €496,237, Ana Luísa Carvalho (PI).

SELECTED PUBLICATIONS

Coelho, C, Foti A, Hartmann T, Santos-Silva T, Leimkuehler S, Romão MJ. "Structural insights into xenobiotic and inhibitor binding to human aldehyde oxidase", NATURE CHEM BIOL, 11(10):779-83, (2015)

Palma AS, Liu Y, Zhang H, Zhang Y, McCleary BV, Yu G, Huang Q, Guidolin LS, Ciocchini AE, Torosantucci A, Wang D, Carvalho AL, Fontes CM, Mulloy B, Childs RA, Feizi T, Chai W. "Unravelling glycan recognition systems by glycome microarrays using the designer approach and mass spectrometry." MOL CELL PROTEOMICS Apr; 14(4):974-88. (2015)

Correia, HD, Marangon J, Brondino CD, Moura JJG, Romão MJ, Gonzalez PJ, Santos-Silva T. "Aromatic aldehydes at the active site of aldehyde oxidoreductase from Desulfovibrio gigas: reactivity and molecular details of the enzyme-substrate and enzyme-product interaction." J BIOL INORG CHEM 20:219-229., (2015)

Correia MA, Otrelo-Cardoso AR, Schwuchow V, Sigfridsson Clauss KG, Haumann M, Romão MJ, Leimkühler S, Santos-Silva T. "The Escherichia coli Periplasmic Aldehyde Oxidoreductase Is an Exceptional Member of the Xanthine Oxidase Family of Molybdoenzymes." ACS CHEM BIOL 2016 Oct 21;11(10):2923-2935. (2016)

Brás, JLA, Pinheiro BA, Cameron K, Cuskin F, Viegas A, Najmudin S, Bule P, Pires VMR, Romão MJ, Bayer EA, Spencer HL, Smith S, Gilbert HJ, Alves VD, Carvalho AL*, Fontes CMGA. "Diverse specificity of cellulosome attachment to the bacterial cell surface", SCIENTIFIC REPORTS, 6:38292.

FUNDING

Fundação para a Ciência e a Tecnologia
INSTRUCT
COST
BioStruct/iNEXT

COLLABORATIONS

A. Pearson, CUI, Hamburg, Germany
C. Fontes, FMV ULisboa & NZYTech, Lda
C.C. Romão, ITQB NOVA & Alfama
C. Reis, IPATIMUP
D. Svergun, EMBL Hamburg, Germany
E. Garattini, Instituto Mario Negri, Milan, Italy
I. Cardoso-Pereira, ITQB NOVA
J Behrens, Siamab Therapeutics, USA
J. C. Pessoa, IST, ULisboa
J. Santini, UCLondon, UK
M. Coimbra, UAveiro
S. Leimkuehler, Potsdam University, Germany
T. Feizi, Imperial College-London, UK

OUTREACH

European Researchers Night, 2015 & 2016
EXPO FCT open day, 2015 & 2016
"Welcome to freshman" at FCT NOVA, 2016
IYCrystallography 2015 - Extended Celebrations

WEBSITES

sites.fct.unl.pt/xtal
docentes.fct.unl.pt/almc
docentes.fct.unl.pt/ma-palma
docentes.fct.unl.pt/tsss

MOLECULAR MICROBIOLOGY MM

RESEARCH GROUP OVERVIEW

The Molecular Microbiology Research Group integrates researchers with broad interests in the study of applied and fundamental aspects of how the microbial cell functions and its interactions with the environment including, for pathogens, their eukaryotic hosts. The Portuguese Yeast Culture Collection (pycc. bio-aware.com/), a research infrastructure that gathers, maintains and distributes a unique collection of microorganisms from Mediterranean ecosystems, foods and beverages, is also part of this Research Group.

The main objectives are: (i) the study of drug resistance mechanisms in key bacterial species both at the cell and population level; (ii) the study of the molecular mechanism underlying bacterial infection of human cells; (iii) the study of gene expression and regulation of carbohydrate metabolism in prokaryote and eukaryote model organisms, including aspects of horizontal gene transfer; (iv) the study of adaptation in antibiotic-resistant bacterial populations; (v) the molecular characterization of sexual systems in yeasts; and (vi) the study of genetic and phenotypic aspects of microbe domestication using population and functional genomics.

RESEARCH LABS

BACT_DRUGS LAB | LUÍSA PEIXE

BACTERIAL CELL SURFACES AND PATHOGENESIS LAB | SÉRGIO R. FILIPE

GLYCOIMMUNOLOGY LAB | PAULA VIDEIRA

INFECTION BIOLOGY LAB | JAIME MOTA

MICROBIAL GENETICS LAB | ISABEL SÁ NOGUEIRA

MOLMICRO OF BACTERIAL PATHOGENS LAB | RITA SOBRAL

YEAST GENOMICS LAB | JOSÉ PAULO SAMPAIO & PAULA GONÇALVES

PATHOGEN MOLECULAR GENETICS LAB | ILDA SANCHES



BACT_DRUGS LAB

MOLECULAR MICROBIOLOGY MM

RESEARCH INTERESTS

The study of the ecology and evolution of antimicrobial resistant bacteria in different ecological niches and the evaluation of the role of the urinary microbiota in human health and disease are the main topics of the research conducted. In addition to fundamental understanding of these issues (e.g. relevant stressors, key virulence factors), applied research is dedicated to new biomarkers identification, design and production of quick and inexpensive tools for the diagnosis, treatment, and prevention of diseases. With this purpose we integrate conventional microbial techniques and high-throughput methodologies to:

- Surveillance of bacteria with antimicrobial resistance (antibiotics) and/or tolerance (biocides) phenotypes
- Improve bacterial discrimination approaches at different taxonomic levels
- Improve diagnostic methods for clinically relevant bacteria
- Identify novel compounds with antimicrobial and anti-biofilm activity
- Characterize the human urinary microbiota
- Enhance the efficacy of industrial processes for the production of safe, sustainable and high quality food

RESEARCH HIGHLIGHTS ON 2015-2016

Surveillance and typing of antimicrobial resistant bacteria

We firstly identified in our country genes conferring resistance to last resource antibiotics that compromise the treatment of human infections, namely *mcr-1* in *Salmonella* isolates with acquired tolerance to copper (Campos et al. Euro Surveill. 2016) and *fosA3* in *Escherichia coli* (Mendes et al. Emerg. Infect. Dis. 2016). An enhanced tolerance to biocides (e.g. benzalkonium chloride, silver or copper) in antibiotic resistant *Salmonella* 4,[5],12:i:- and/or *E. faecium* clones, were associated with the acquisition of particular genes (*qacZ/sil/pcuD*) (Mourão et al. Int. J. Antimicrob. Agents 2015;

LAB LEADER

Luísa Peixe

PhD in Microbiology,
1996, FF UPorto
Habilitation in Microbiology,
2005, FF UPorto
Associate Professor,
FF UPorto

LAB MEMBERS

INDEPENDENT RESEARCHERS

Carla Silva,
Assistant Professor
Patrícia Antunes,
Assistant Professor
Svetlana Perovic,
UCIBIO Researcher

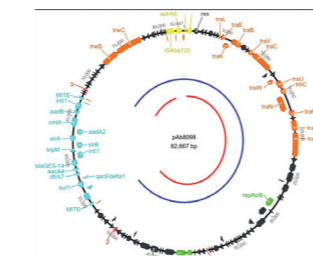
POST-DOCS

Ana Freitas
Ângela Novais
Filipa Grosso
Joana Mourão
Joana Rocha
Teresa Ribeiro

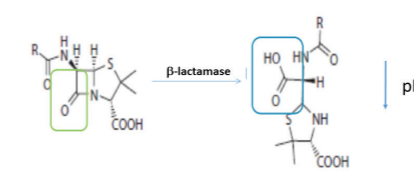
Silveira et al. J. Glob. Antimicrob. Resist. 2015). Moreover, we demonstrated that under anaerobiosis the acquisition of *tcpYABZ* constitutes an advantage for *Enterococcus* survival at high copper concentrations (Mourão et al. J Antimicrob. Chemother. 2016).

Development and optimization of tools for quick and inexpensive diagnosis of antibiotic resistant bacteria

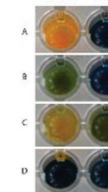
We developed and optimized tools for the reliable, quick and high-throughput detection of antibiotic resistance mechanisms and clones with clinical relevance, and the definition of new bacterial species. We developed a quick, inexpensive and high-throughput test for the diagnosis of antibiotic resistant bacteria (detection of carbapenemases) (Novais et al. JCM 2015). This methodology is worldwide used in clinical and food dedicated laboratories, being the recommended technique for carbapenemase detection in WHO laboratories from South America and already marketed by Rosco Diagnostica. Also, we invested in the development of alternative high-throughput methods based on spectroscopy (FTIR-ATR) and mass spectrometry (MALDI-TOF MS) for discrimination at clonal level of different bacterial species (*Acinetobacter baumannii*, *Klebsiella pneumoniae* and *Enterococcus faecium*) (Sousa et al., Frontiers in Microb 2015). Successful real-time use of these methodologies for characterization of outbreaks in Portuguese hospitals open the possibility for marketable solutions. We also contributed to a reliable reassignment of species within the *Citrobacter* genera, and identified a new bacterial species (*Citrobacter europaeus*, sp. nov.) from water and human faecal samples (Ribeiro et al. Antimicrob Agents Chemother 2015).



Complete sequence of pAb8098, an antibiotic resistance plasmid from *Acinetobacter baumannii*.



Principle and outcome of Blue-Carba test. A, B, C - bacteria producing carbapenemases. D. Negative control.



REPRESENTATIVE PROJECTS ON 2015-2016

"SafeFood: Development of a novel industrial process for safe, sustainable and higher quality foods, using biotechnology and cybernetic approach", EC-ERA-Net. Total funding: €1.8M; Unit funding: €110,000. Luísa Peixe (PI).

"New technologies for three Health Challenges of Modern Societies: Diabetes, Drug Abuse and Kidney (DESignBIOtechHealth)", FEDER-Norte 2020. Total funding: €3.4M, Unit funding: €401,348, Luísa Peixe (Collaborator).

"Qualidade e Segurança Alimentar - uma abordagem (nano)tecnológica", FEDER-Norte 2020, Total funding: €3.7M, Unit funding: €801,412, Luísa Peixe (Collaborator).

"Discrimination of *Salmonella* non-typhoid high-risk clones by high-throughput spectroscopic techniques (MALDI-TOF and FTIR-ATR)", ESCMID, Total funding: €30,000, Unit funding: €30,000, Luísa Peixe (PI).

"Chelators for novel therapeutic strategies", FEDER-Norte, Total funding: €972,000 Unit funding: €41,000, Luísa Peixe (Collaborator).

SELECTED PUBLICATIONS

Campos, J., Cristiano, L., Peixe, L., Antunes, P. "MCR-1 in multidrug-resistant and copper-tolerant clinically relevant *Salmonella* 1,4,[5],12:i:- and S. Rissen clones in Portugal, 2011 to 2015", EURO SURVEILLANCE, 30, 1-5, 2016

Mendes, AC, Rodrigues, C, Pires, J, Amorim, J, Ramos, MH, Novais, Â, Peixe, L. "Importation of Fosfomycin Resistance *fosA3* Gene to Europe", EMERGING INFECTIOUS DISEASE, 22, 346-348. 2016

Ribeiro, TG, Novais, Â, Branquinho, R, Machado, E, Peixe, L. "Phylogeny and Comparative Genomics Unveil Independent Diversification Trajectories of *qnrB* and Genetic Platforms within Particular *Citrobacter* Species", ANTIMICROBIAL AGENTS AND CHEMOTHERAPY, 59, 5951-5958. 2015

Novais, Â, Brilhante, M, Pires, J, Peixe, L. "Evaluation of the Recently Launched Rapid Carb Blue Kit for Detection of Carbapenemase-Producing Gram-Negative Bacteria", JOURNAL OF CLINICAL MICROBIOLOGY, 53, 3105-3107, 2015

Sousa C, Botelho J, Grosso F, Silva L, Lopes J, Peixe L. "Unsuitability of MALDI-TOF MS to discriminate *Acinetobacter baumannii* clones under routine experimental conditions", FRONT MICROBIOL, 6, 481, 2015

FUNDING

European Society of Clinical Microbiology and Infection Diseases

European Commission

FEDER-Norte 2020

COLLABORATIONS

Teresa Coque & Rafael Cantón, Hosp. Ramón y Cajal, Spain

Sylvain Brisse. Institut Pasteur, France

Nadav Bar. NORGES TEKNISK-NATURVITENSKAPELIGE UNIVERSITET, Norway

Trond Lovdal, NOFIMA, Norway

Petri Auvinen, University of Helsinki, Finland

Christian Riedel, University of Ulm, Germany

OUTREACH

Media appearance in newspapers

Public talk, Café de Ciência, Ciência Viva, 2016

UPorto open day, 2015

WEBSITES

www.luisapeixelab.com



BACTERIAL CELL SURFACES AND PATHOGENESIS LAB

MOLECULAR
MICROBIOLOGY
MM

RESEARCH INTERESTS

We are focused on understanding how bacteria assemble their cell surface. This process is carried out by a multistep mechanism that ensures (1) the robustness of the bacterial cell surface, which allows bacteria to withstand the intense osmotic pressures they are normally subjected to and (2) the concealment of the peptidoglycan (PGN) molecule, a major component of any bacterial cell surface and a telltale molecule that flags bacteria to the host innate immune system.

The questions currently being tackled are:

- How do *Staphylococcus aureus* bacteria conceal their PGN from detection by *Drosophila* host immune receptors?
- How do *Streptococcus pneumoniae* bacteria express their ability to resist beta-lactam antibiotics, which prevent synthesis of the PGN macromolecule, and decorate it with capsular polysaccharides, a major pneumococcal virulence factor?
- How do plant receptors recognize PGN molecules and discriminate those produced by plant bacterial pathogens vs bacterial symbionts?

RESEARCH HIGHLIGHTS ON 2015-2016

Analysis of wall teichoic acids produced by Gram-positive bacteria.

Wall teichoic acids (WTA) are phosphate rich molecules that, similarly to capsular polysaccharides, are attached to the peptidoglycan macromolecule and interfere with the efficient elimination of bacteria by the infected host immune system. Analysis of the WTA composition is essential to understand the composition of the bacterial cell surface and how bacteria interact with the infected host (Vaz et al, METHODS MOL BIOL, 2016). We have collaborated with Cabanes' group to identify the genes responsible for the attachment of L-rhamnose residues to WTA produced by *Listeria monocytogenes* bacteria (Carvalho et al, PLOS PATHOGENS, 2015). These residues promote resistance to antimicrobial peptides and have a key contribution to the bacterial virulence in a mouse model infection.

LAB LEADER

Sérgio R. Filipe

PhD in Biology, 2001,
ITQB-NOVA (Rockefeller
University, USA)
Assistant Professor,
FCT NOVA

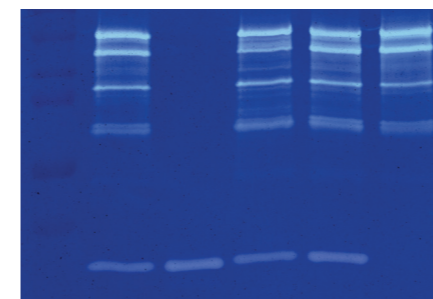
LAB MEMBERS

PHD STUDENTS

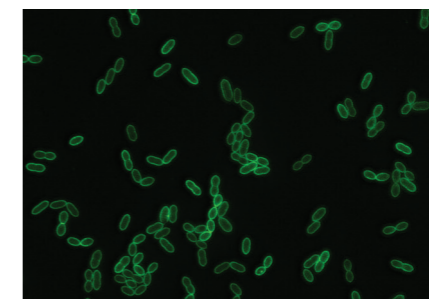
Filipa Vaz
Gonçalo Covas
Ana Rita Narciso
Denise Coutinho
Joana Figueiredo

Determination of the activity of peptidoglycan hydrolases.

Bacterial PGN hydrolases are cell wall lytic enzymes that can trim or degrade the peptidoglycan macromolecule. These enzymes may be extracted to analyze their activity by gel zymography (Vaz and Filipe, BIO-PROTOCOL 2015) or through the identification of the released peptidoglycan fragments by HPLC. We have collaborated with Pinho and Camilli's groups to characterize the PGN composition of *S. aureus* and *S. pneumoniae* mutants unable to produce proteins involved in the metabolism of PGN (Monteiro et al, NATURE COMMUN 2015) and to identify the potential lytic activity of the ILYS-3 lysozyme effector produced by nematodes.



Analysis of PGN hydrolases in different *S. aureus* mutants by gel zymography



Membrane localization of a component of the capsular synthesis machinery of *S. pneumoniae*

REPRESENTATIVE PROJECTS ON 2015-2016

"Plant strategies for detection of the inflammatory bacterial peptidoglycan molecule", FCT-MCTES, Total Funding: €173,948, Unit Funding: €173,948, Sérgio R. Filipe (PI).

"Rethinking Bacterial Cell Wall Synthesis: a combined synthetic and enzymatic approach", FCT-MCTES, Total Funding: €190,809, Unit Funding: €50,097, Sérgio R. Filipe (Collaborator).

SELECTED PUBLICATIONS

Gravato-Nobre, M. J., Vaz, F., Filipe, S., Chalmers, R. and J. Hodgkin. "The invertebrate lysozyme effector ILYS-3 is systemically activated in response to danger signals and confers antimicrobial protection in *C. elegans*", PLOS PATHOGENS, vol. 15, e1005826. 2016.

Monteiro, J. M., Fernandes, P. B., Vaz, F., Pereira, A. R., Tavares, A. C., Ferreira, M. T., Pereira, P. M., Veiga, H., Kuru, E., VanNieuwenhze, M., Brun, Y. V., Filipe, S. R., and M. G. Pinho. "Cell shape dynamics during the staphylococci cell cycle". NATURE COMMUNICATIONS, vol. 6, 8055. 2015.

Greene, N. G., Narciso, A. R., Filipe, S. R., and A. Camilli. "Peptidoglycan branched stem peptides contribute to *Streptococcus pneumoniae* virulence by inhibiting pneumolysin release.", PLOS PATHOGENS, vol. 11: e1004996. 2015.

Carvalho, F., Atilano, M. L., Pombinho, R., Covas, G., Gallo, R. L., Filipe, S. R., Sousa, S. and D. Cabanes. "L-Rhamnosylation of *Listeria monocytogenes* wall teichoic acids promotes resistance to antimicrobial peptides by delaying interaction with the membrane.", PLOS PATHOGENS, vol. 11: e1004919. 2015.

Reed, P., Atilano, M. L., Alves, R., Hoiczky, E., Sher, X., Reichmann, N. T., Pereira, P. M., Roemer, T., Filipe, S. R., Pereira-Leal, J. B., Ligoxygakis, P., and M. G. Pinho. "Staphylococcus aureus survives with a minimal peptidoglycan synthesis machinery but sacrifices virulence and antibiotic resistance." PLOS PATHOGENS 11: e1004891. 2015.

FUNDING

Fundação para a Ciência e a Tecnologia

COLLABORATIONS

Mariana Gomes Pinho, ITQB-NOVA

Didier Cabanes, I3S, UPorto

Madalena Pimentel, Universidade de Lisboa, Portugal

Andrew Camilli, Tufts University, USA

Luísa Hiller, Carnegie Mellon University, USA

Jonathan Hodgkin, University of Oxford, UK

Petros Ligoxygakis, University of Oxford, UK

Rut Carballido-López, INRA, France

OUTREACH

"Welcome to freshman" at FCT NOVA, 2016

Exhibition for prospective university students, Futurália, 2016

Training of students that participated in the final contest of the XIV European Union Science Olympiad (EUSO), 2016

Reception of visits of High School students to the Department of Life Sciences, 2016

WEBSITES

www.dcv.fct.unl.pt/pessoas/docentes/sergio-r-filipe

www.itqb.unl.pt/research/biology/bacterial-cell-surfaces-and-pathogenesis



GLYCOIMMUNOLOGY LAB

MOLECULAR MICROBIOLOGY MM

RESEARCH INTERESTS

We are focused on the physiological and pathological roles of glycosylation. Glycans are involved in all biological processes, influencing the development, growth and functioning of cells and organisms. Our main goals are to identify novel therapeutic targets and to develop innovative immunotherapies, based on antibodies and dendritic cells. Our studies demonstrated the fundamental roles of cell surface glycans in modulating the potency of dendritic cells and their therapeutically potential against infection and cancer. We are also screening aberrant glycosylation that potentiates cancer progression and metastasis, and suppress immune function for target therapy. We use state-of-the-art methods: immune-based assays, cell and molecular biology, in vitro and in vivo models with human/patient cells.

RESEARCH HIGHLIGHTS ON 2015-2016

Exploring glycosylation to improve anti-tumor immunotherapy

We developed a technology that holds promise to improve dendritic cells (DC)-based vaccines against cancer. The capacity of DCs to boost anti-tumor immunity is affected by cell surface sialic acid containing glycans (Cabral et al, 2013). Our technology shortages sialic acid and enhances the ability of DCs to activate T cells to specifically kill tumor cells (Silva et al, 2016; WO 2017002045 A1). While we further investigate this, we are looking for partners to translate our technology into clinics. On the other hand, tumor cells may express the sialyl Tn and sialyl Lewis X glycans, which are associated with increased malignancy. We found that these glycans are aberrantly expressed in defined proteins and attribute cancer cells capacity to evade immune system and to adhere to endothelial cells, initiating hematogenous metastasis (Carrascal et al, submit). We are interested in glycans and also other biomarkers. e.g. intracellular stress, that relate with malignancy as potential candidates for antibody based therapy (Loureiro et al, 2015).

LAB LEADER

Paula Videira

PhD in Biotechnology,
2002, Instituto Superior
Técnico
Assistant Professor,
FCT NOVA

LAB MEMBERS

INDEPENDENT RESEARCHERS
Carlos Novo,
Assistant Researcher

POST-DOCS

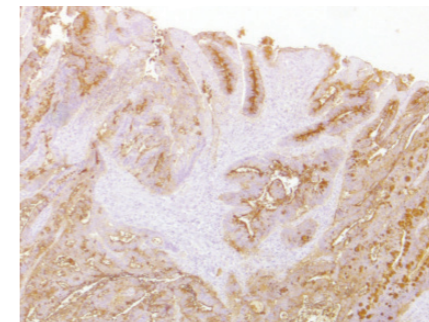
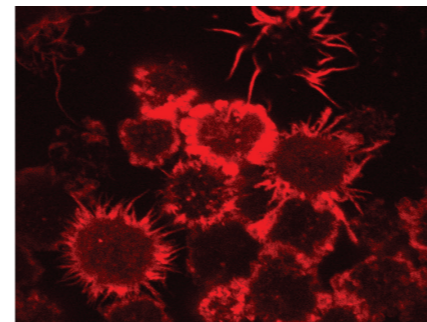
Dorinda Silva
Edson Teixeira
Zélia Silva

PHD STUDENTS

Diogo Casal
Fanny Deschepper
Liliana Laureiro
Mylène Carrascal
Roberta Zoppi
Tiago Ferro
Rita Francisco

CDG & Allies -PPAIN - Congenital disorders of Glycosylation - Professionals and Patient Associations International Network.

Together with the Portuguese association of CDG (APCDG) we founded an unrivalled international network that joins scientists, physicians, families and patient advocacy groups dedicated to CDG. We are establishing a patient-led unique infrastructure that foment research, awareness and education for CDG (Monticelli et al, 2016; Marques da Silva et al. 2017). Website www.apcdg.com/research.html. CDG & Allies PPAIN is located at FCT NOVA and directed by V. Ferreira (APCDG) and P. Videira.



A. Human dendritic cells stained with sialic acid-specific lectin (red). B. Colon adenocarcinoma showing sialyl Lewis X expression (brown).

REPRESENTATIVE PROJECTS ON 2015-2016

"Siamab therapeutics research agreement", Total and Unit funding: €20,000, Paula Videira (PI).

"GlyCoCan - exploiting glycosylation of colorectal cancer for the development of improved diagnostics and therapeutics", Total funding: €3.2M and Unit funding: €476,712, Paula Videira (Collaborator).

"Trifunctional antibodies and dendritic cell-based technologies: a combined approach to cancer immunotherapy" Bluepharma | University of Coimbra Award, Total and Unit funding: €20,000, Paula Videira (PI).

"ADVANCE - desenvolvimento de novas vacinas anti-cancro a partir de células dendríticas", FEDER,-QREN, Total funding: €431,012, Unit funding: €215,506, Paula Videira (co-PI).

"Therapeutic targets for triple negative breast cancer: development of mono and bispecific antibodies against Notch1 ligands", FCT-MCTES, Total funding: €197,643, Unit funding: €18,000, Paula Videira (Collaborator).

SELECTED PUBLICATIONS

Monticelli M, Ferro T, Ferreira VR, Jaeken J, Videira PA, "Immunological aspects of congenital disorders of glycosylation (CDG): a review", JOURNAL OF INHERITED METABOLIC DISEASE, Nov;39(6):765-780, 2016

Silva M, Silva Z, Marques G, Ferro T, Gonçalves M, Monteiro M, van Vliet S, Mohr E, Lino AC, Fernandes AR, Lima FA, van Kooyk Y, Matos T, Tadokoro CE and Videira PA, "Sialic acid removal from dendritic cells improves antigen cross-presentation and boosts anti-tumor immune responses", ONCOTARGET, 2016

Casal D, Cunha T, Pais D, Videira P, Coloma J, Zagalo C, Angélica-Almeida M, O'Neill JG, "Systematic Review and Meta-Analysis of Unconventional Perfusion Flaps in Clinical Practice", PLAST RECONSTR SURG, 138:459-79, 2016

Loureiro LR, Carrascal MA, Barbas A, Ramalho JS, Novo C, Delannoy P, Videira PA. "Challenges in Antibody Development against Tn and Sialyl-Tn Antigens." BIOMOLECULES. 2015; 5:1783-809.

Bugalho A, Martins C, Silva Z, Nunes G, Mendes AS, Ferreira I, Videira PA, "Immature Myeloid Cells and Tolerogenic Cytokine Profile in Lung Adenocarcinoma Metastatic Lymph Nodes Assessed by Endobronchial Ultrasound", TUMOR BIOLOGY, pp 1-9, 2015

FUNDING

Bluepharma and Universidade de Coimbra
European Commission-H2020
FEDER-QREN
CDG & Allies PPAIN Professionals and Patient Associations International Network
SiaMab Therapeutics

COLLABORATIONS

Fabio Dall'Olio, University of Bologna, Italy
Joseph Lau, Roswell Park Cancer Institute, USA
Manfred Wuhler, STICHTING VU-VUMC, Netherlands
Isabel Sá-Correia, IST
Robert Sackstein, Harvard Medical School, Brigham & Women's Hospital, USA
Lúcio Lara Santos, I.P.O. Porto
"Consortium for Functional Glycomics" National Institute of General Medical Sciences (NIGMS), USA
Dário Ligeiro, Instituto Português do Sangue e Transplantação
Celso Reis, IPATIMUP
Yvette Van Kooyk & Sandra Vliet, VU University Medical Center, Netherlands
Joy Burchell & Joyce Papadimitrou, King's College London, UK

José Capelo & Carlos Lodeira, FCT NOVA
Pedro Baptista & Alexandra Fernandes, FCT NOVA
Crioestaminal (Teresa Matos & André Gomes)
Bluepharma (Sérgio Simões)
Siamab (Jeff Behrens) Therapeutics
Paula Alves & Ana Barbas, iBET
Portuguese Association of CDG and other Rare Metabolic Diseases
Angelina Palma & Filipa Marcelo, FCT NOVA
Jose Ramalho, CEDOC, Sicgen
Michael Bachmann, Helmholtz-Zentrum Dresden, Germany

OUTREACH

EXPO FCT open day, 2016
European Researchers Nights, 2015 & 2016
Science in the Holidays for Young People, Ciência Viva, 2016
Media appearance in Newspapers, Magazines, TV and other channels.

WEBSITES

sites.fct.unl.pt/glycoimmunology



INFECTION BIOLOGY LAB

MOLECULAR
MICROBIOLOGY
MM

RESEARCH INTERESTS

Our main interest is to understand molecular and cellular mechanisms underlying bacterial virulence. In particular, we study processes by which intracellular bacterial pathogens alter the normal functioning of eukaryotic host cells. We focus in a virulence mechanism consisting in the one-step injection of bacterial effector proteins into host cells through specialized secretion systems. Bacterial effector proteins have been shown to act on a vast array of eukaryotic cell functions, such as cytoskeleton dynamics, cell signalling or vesicular transport. Our main research focus has been to study the function of effector proteins from bacterial pathogens that cause relevant infections in humans (*Chlamydia*, *Legionella*, and *Salmonella*) and which possess type III or type IV secretion systems that are essential for their virulence.

RESEARCH HIGHLIGHTS ON 2015-2016

Not much is known on how effector proteins delivered into host cells by bacterial pathogens localize to specific organelles or structures within infected cells. Recently, we have elucidated mechanisms involved in subcellular targeting of *Legionella* and *Salmonella* effectors:

Structure-function of the *Legionella* effector VipA, an actin nucleator

Binding of the *Legionella* effector VipA to actin was known to be important for subversion of vesicular trafficking. We now found that the C-terminal part of VipA includes the actin-binding region and is required for co-localization with actin filaments while the N-terminal part of VipA targets the protein to early endosomes (EEs). We also showed that targeting to both actin filaments and EEs are important for VipA function (Bugalhão et al, *MicrobiologyOpen*, 2016).

LAB LEADER

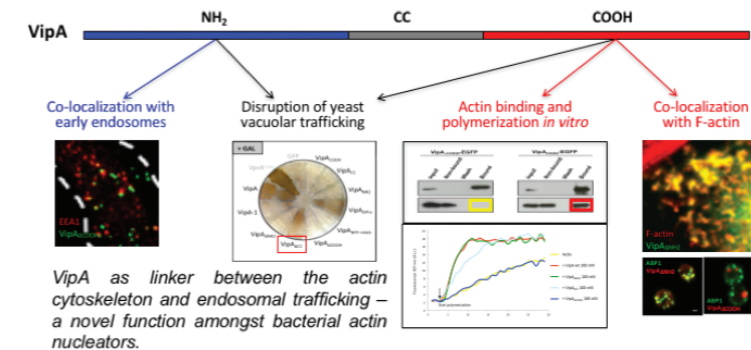
Jaime Mota
PhD in Biology, 2001,
ITQB NOVA
Assistant Professor,
FCT NOVA

LAB MEMBERS

POST-DOCS
Filipe Almeida
Irina Franco
Nuno Charro

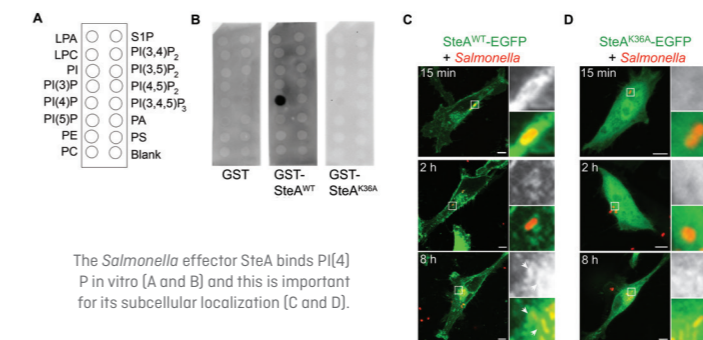
PHD STUDENTS

Lia Domingues
Maria da Cunha
Sara Pais



Subcellular targeting through binding to host cell lipids: the example of the *Salmonella* effector SteA

The *Salmonella* effector SteA was known to contribute to the intracellular life of the bacteria within a vacuole. We now found that SteA binds specifically to phosphatidylinositol 4-phosphate [PI(4)P], a host cell lipid. Binding of SteA to PI(4)P and the subcellular localization of SteA at the membrane of the *Salmonella* vacuole were dependent on a lysine residue of the effector. This enabled us to show that binding of SteA to PI(4)P is necessary for its precise localization within host cells (Domingues et al, *Cell Microbiol*, 2016).



The *Salmonella* effector SteA binds PI(4)P in vitro [A and B] and this is important for its subcellular localization [C and D].

REPRESENTATIVE PROJECTS ON 2015-2016

"Identification of new virulence mechanisms of a *Legionella pneumophila* strain recently isolated from a major outbreak in Portugal", ESCMID, Total and Unit funding: €20,000, Irina Franco (PI).

"A multidisciplinary approach to study *Chlamydia trachomatis* inclusion membrane (Inc) proteins", FCT-MCTES, Total and Unit funding: €199,236, Jaime Mota (PI).

"Interaction between *Legionella pneumophila* and the host cell actin cytoskeleton", FCT-MCTES, Total funding: €161,045, Unit funding: €144,605, Irina Franco (PI).

"Molecular and cellular function of SteA, a *Salmonella* virulence protein", FCT-MCTES, Total funding: €173,000, Unit funding: €93,717, Jaime Mota (PI).

SELECTED PUBLICATIONS

Domingues, L, Ismail, A, Charro, N, Rodríguez-Escudero, I, Holden, DW, Molina, M, Cid, VJ, Mota, LJ, "The *Salmonella* effector SteA binds phosphatidylinositol 4-phosphate for subcellular targeting within host cells", *CELLULAR MICROBIOLOGY*, Vol. 18: 949-69, 2016

Bugalhão, JN, Mota, LJ, Franco, IS, "Identification of regions within the *Legionella pneumophila* VipA effector protein involved in actin binding and polymerization and in interference with eukaryotic organelle trafficking", *MICROBIOLOGYOPEN*, Vol. 5, 118-133, 2016

Bugalhão, JN, Mota, LJ, Franco, IS, "Bacterial nucleators: actin' on actin", *PATHOGENS AND DISEASE*, Vol. 73, ftv078, 2015

Borges, V, Pinheiro, M, Antelo, M, Sampaio, DA, Vieira, L, Ferreira, R, Nunes, A, Almeida, F, Mota, LJ, Borrego, MJ, Gomes, JP, "*Chlamydia trachomatis* In Vivo to In Vitro Transition Reveals Mechanisms of Phase Variation and Down-Regulation of Virulence Factors", *PLOS ONE*, Vol. 10, e0133420, 2015

Charro, N, Mota, LJ, "Approaches targeting the type III secretion system to prevent or treat bacterial infections", *EXPERT OPINION ON DRUG DISCOVERY*, Vol. 10, 373-387, 2015

FUNDING

European Society of Clinical Microbiology and Infectious Diseases
Fundação para a Ciência e a Tecnologia

COLLABORATIONS

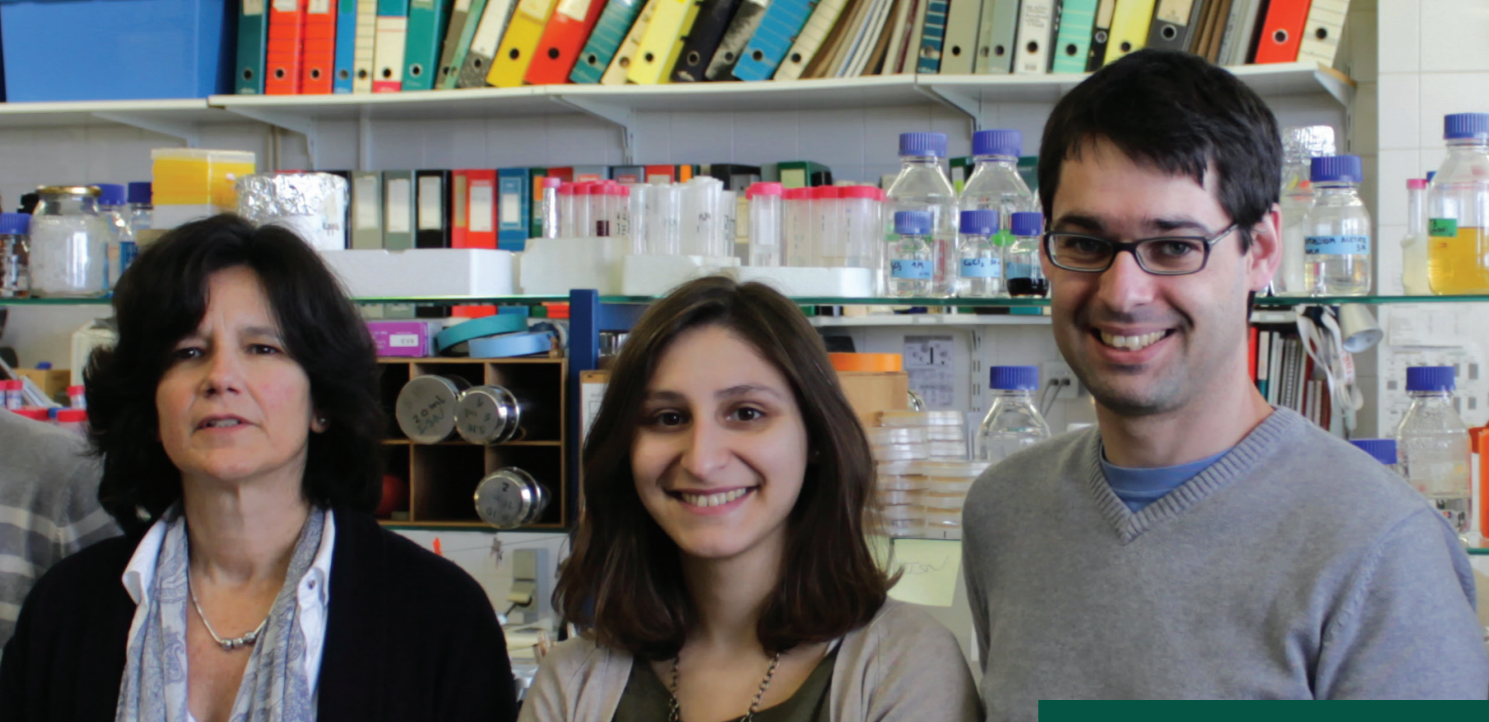
João Paulo Gomes, National Institute of Health, Portugal.
Maria Molina and Víctor J. Cid, Universidad Complutense, Madrid, Spain.
David Holden, Imperial College London, UK.
Adriano O. Henriques, ITQB NOVA
Margarida Archer, ITQB NOVA
Maria João Romão, UCIBIO, FCT NOVA
Rita Sobral, UCIBIO, FCT NOVA

OUTREACH

EXPO FCT open day, 2015
Public talk, "Technology Days", 2015 & 2016
"Welcome to freshman" at FCT NOVA, 2016

WEBSITES

sites.fct.unl.pt/infection-biology



MICROBIAL GENETICS LAB

MOLECULAR
MICROBIOLOGY
MM

RESEARCH INTERESTS

Molecular Microbiology and Microbial Genetics. Control gene expression of carbohydrate metabolism in bacteria. The main area of interest is to understand how the transcriptional and translational regulatory networks interact with other cellular components such as the metabolic system. This involves the analysis of the mechanisms through which the cell senses nutrient availability and transmits that information to the level of gene expression. It also involves looking at the transcription and translation control, which govern the expression of genes involved in carbohydrate metabolism in the Gram-positive model organism *Bacillus subtilis*. Another subject of interest is the use of *B. subtilis* as model for the study of these mechanisms in pathogenic bacteria.

RESEARCH HIGHLIGHTS ON 2015-2016

Bacterial Multitask ATPases of ABC-type I Importers

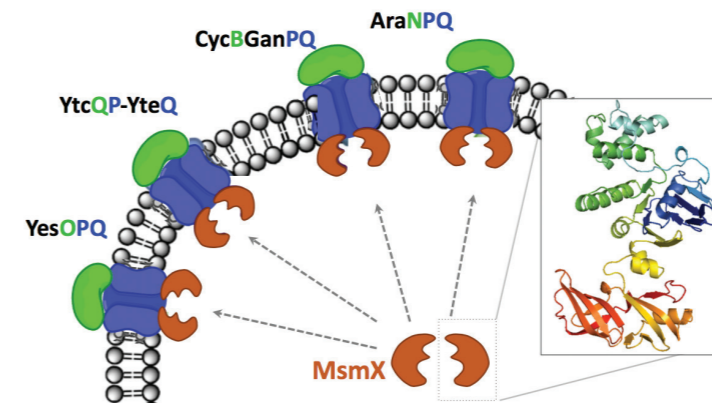
The ABC-type transporters constitute one of the largest and most diverse transporter superfamilies, are widespread among living organisms, with a high conservation of the primary sequence of the ATP-hydrolyzing domain and in the modular architecture comprising two transmembrane domains (TMDs) that form the translocation pore and two nucleotide-binding domains (NBDs) that hydrolyse the necessary ATP for the translocation process. NBDs were thought to be exclusive of each transporter complex, however it was recently discovered that distinct bacterial ABC type I importers share the same energy-generating component. We found that a single ATPase is responsible for energizing four different type I carbohydrate importers and plays a major role in pectin mobilization by *B. subtilis* [Ferreira et al, in preparation]. We aim to unravel the implications of sharing energy-generating components among ABC importers in bacteria and to assess their potential use as target for therapeutic use.

LAB LEADER

Isabel de Sá-Nogueira
PhD in Molecular Biology, 1991, FCT NOVA
Habilitation in Microbiology, Molecular Genetics and Molecular Biology, 2012, FCT NOVA
Associate Professor, FCT NOVA

LAB MEMBERS

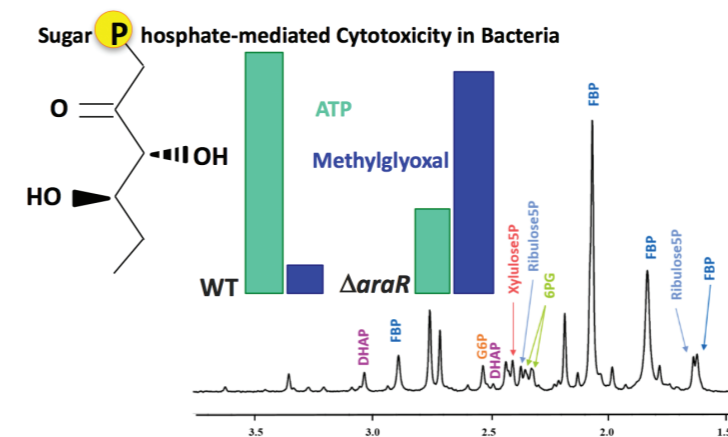
PHD STUDENTS
Lia Godinho
Mário Ferreira



MsmX-dependent ABC type I importers involved in pectin mobilization.

Carbohydrate Metabolism in Bacteria

B. subtilis is a workhorse in the industry and one of the most important organisms in biotechnology. Currently, major efforts attempt to trim off its genome to yield streamlined biosynthetic factories, chassis for novel applications, and deeper insights into the core processes of biology. Accumulation of sugar phosphate is known to be toxic for the majority of prokaryotic and eukaryotic cells, however the mechanisms that underlie toxicity are yet to be fully understood. Conversely, little is known concerning the mechanisms utilized by the cells to adapt to sugar phosphate stress. We addressed the physiology of arabinose-induced stress, including the cellular signals and targets involved, in cells depleted of the transcription factor AraR [Godinho et al, in preparation]. We found that AraR, which regulates a secondary catabolic carbohydrate pathway negatively impacts central carbon catabolism in *B. subtilis*.



REPRESENTATIVE PROJECTS ON 2015-2016

"Dental Blast: Development of antibacterial new coatings for applications in dental implants", FEDER-P2020, Total funding: €559,901, Unit funding (I3N/CENIMAT & UCIBIO): €95,334, Isabel Sá-Nogueira (Collaborator).

"B.EST.CBM, An integrative structural biology approach to characterise the protein-carbohydrate microbial recognition", FCT-MCTES, Total funding €199,884, Unit funding: €120,684, Isabel Sá-Nogueira (Collaborator).

SELECTED PUBLICATIONS

Aroso IM, Silva JC, Mano F, Ferreira AS, Dionísio M, Sá-Nogueira I, Barreiros S, Reis RL, Paiva A, Duarte AR, "Dissolution enhancement of active pharmaceutical ingredients by therapeutic deep eutectic systems"; EUR J PHARM BIOPHARM, 98:57-66, 2016

Mano F, Martins M, Sá-Nogueira I, Barreiros S, Borges JP, Reis RL, Duarte AR, Paiva A. "Production of Electrospun Fast-Dissolving Drug Delivery Systems with Therapeutic Eutectic Systems Encapsulated in Gelatin. AAPS PHARM SCI TECH. 2017. doi: 10.1208/s12249-016-0703-z

FUNDING

FEDER-Portugal 2020
Fundação para a Ciência e a Tecnologia

COLLABORATIONS

Ghislain Schyns, DSM Nutritional Products, Ltd.
Helena Santos, ITQB, FCT NOVA
João Paulo Borges, I3N, FCT NOVA
Susana Barreiros, LAQV, FCT NOVA
Alexandre Paiva, LAQV, FCT NOVA
Eurico Cabrita, UCIBIO, FCT NOVA
Maria João Romão, UCIBIO, FCT NOVA
Teresa Santos Silva, UCIBIO, FCT NOVA
Ana Luísa Carvalho, UCIBIO, FCT NOVA

OUTREACH

Welcome to freshman BSc BCM and MSc MGBM at FCT NOVA

WEBSITES

<https://sites.fct.unl.pt/microbial-genetics>
www.requimte.pt/ucibio/people/isn



MOLMICRO OF BACTERIAL PATHOGENS LAB

MOLECULAR MICROBIOLOGY
MM

RESEARCH INTERESTS

The bacterial cell wall is an extremely complex structure which suffers constant synthesis and degradation to allow the cells to grow and divide. Besides its immediate structural role, the cell wall also provides a communication platform with the external environment. In our laboratory, we study the cell wall of the Gram-positive pathogen *Staphylococcus aureus*, leading cause of hospital-acquired infections, mainly due to its success in accumulating antibiotic resistance traits. We combine biochemical and genetic approaches to understand the molecular mechanisms which associate the cell wall biosynthetic pathway to the physiology and mechanisms of resistance of human bacterial pathogens. We have a specific interest in the study of biofilm formation and application of biophysical methodologies.

RESEARCH HIGHLIGHTS ON 2015-2016

The physical interaction between MurT and GatD, the two enzymatic players of the amidation reaction of peptidoglycan, was analysed. The domain responsible for complex formation was identified and residues involved in this molecular linkage were highlighted through a genetic and biochemical approach. The data obtained may be a breakthrough for the antibiotic resistance field, as peptidoglycan amidation is essential for *Staphylococcus aureus*. ["A new target inside an old molecule: glutamate amidation of peptidoglycan", ESCMID Young researcher grant Award 2015].

The major autolysin of *S. aureus*, Atl, is able to bind to extracellular DNA at the cell surface. This association is important for biofilm formation and to the autolytic activity of *S. aureus*. As biofilm formation is the main cause of therapeutic failure of treatments associated with indwelling devices, our data sheds light into the key of the success of *S. aureus* as a nosocomial agent. Furthermore, we highlighted the strain-specificity of the expression, hydrolytic activity and role in biofilm formation of the Atl protein. Expression of *atl* gene in a *Staphylococcus aureus* biofilm.

LAB LEADER

Rita Sobral

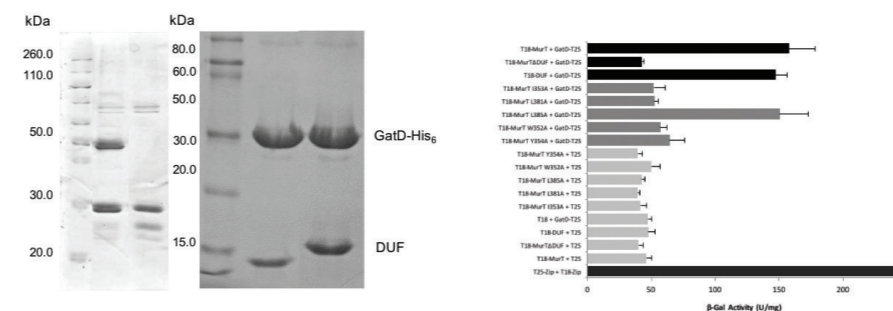
PhD in Biological Sciences,
2006, NOVA
Assistant Professor,
FCT NOVA

LAB MEMBERS

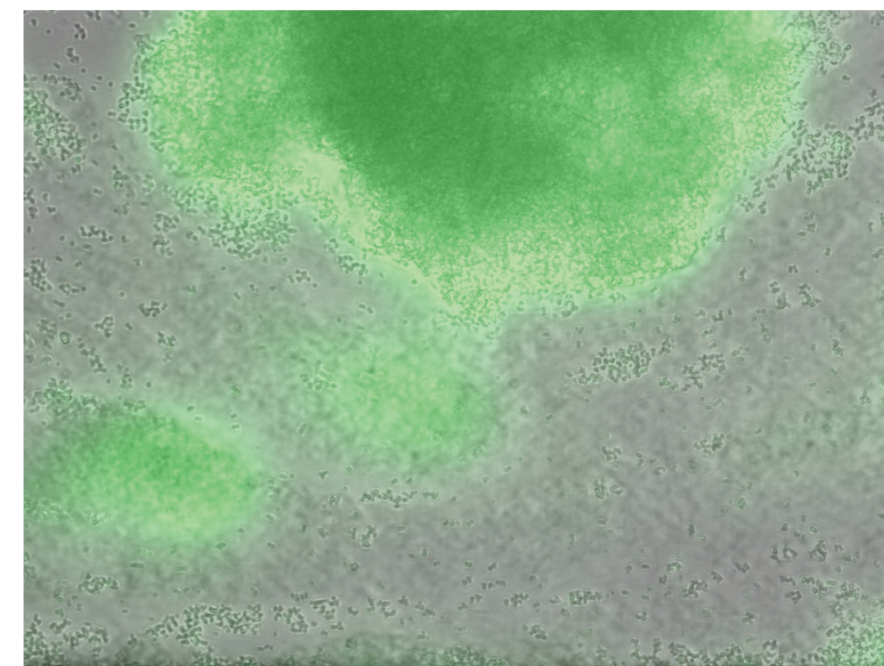
INDEPENDENT RESEARCHERS
Ana Ludovice,
Assistant Professor

POST-DOCS
Inês Grilo
Teresa Figueiredo

PHD STUDENTS
Diana Espadinha
Joana Rolo
Olesia Shapovalova
Raquel Portela



Molecular interaction assays on MurT-GatD complex [B. Gonçalves et al. DUF1727, the missing link in peptidoglycan amidation. In preparation, 2017].



Expression of *atl* gene in a *Staphylococcus aureus* biofilm. ["Unfolding the physiological roles of the binding of Atl to eDNA in *Staphylococcus aureus*". PhD Thesis of I. Grilo, defended on April 8, 2016.]

REPRESENTATIVE PROJECTS ON 2015-2016

"Microfluidics Liquid Crystal Based Bifunctional Bacterial Infection Sensor", FCT-MCTES, Total Funding: €159,912, Unit Funding: €144,912, Rita Sobral (Co-PI).

"Amidation of the peptidoglycan of Gram-positive bacteria: an unexplored potential target for antibiotics", FCT-MCTES, Total Funding: €165,000, Unit Funding: €60,872, Rita Sobral (Collaborator).

"A new target inside an old molecule: glutamate amidation of peptidoglycan", ESCMID, Total and Unit funding: €20,000, Rita Sobral (PI).

SELECTED PUBLICATIONS

Portela R, Patrício P, Almeida PL, Sobral RG, Franco JM, Leal CR, "Rotational tumbling of *Escherichia coli* aggregates under shear", PHYS REV E, 94, 062402. (2016)

Siopa F, Figueiredo, T, Frade RFM, Neto I, Meirinhos A, Reis CP, Sobral RG, Afonso CAM, Rijo P, "Choline-Based Ionic Liquids: Improvement of Antimicrobial Activity", CHEMISTRYSELECT, 1, 5909-5916. (2016)

FUNDING

European Society of Clinical Microbiology and Infection Diseases
Fundação para a Ciência e a Tecnologia

COLLABORATIONS

Alexander Tomasz., The Rockefeller University, USA.
Catarina Leal. Eco-Novel Food and Feed. LEAF, ISA UL
Eurico Cabrita. FCT NOVA
Francisco Pinto, FC UL
Hermínia de Lencastre, ITQB NOVA
Kenneth Bayles, University of Nebraska, USA
Jaime Mota. FCT NOVA
João Almeida. FCT NOVA
Jorge da Silva Dias, FCT NOVA.
Maria João Romão, FCT NOVA
Maria Miragaia, ITQB NOVA
Patrícia Rijo, CBIOS,
Escola de Ciências e Tecnologias da Saúde, Universidade Lusófona.
Pedro Almeida, FCT NOVA
Susana Gaudêncio, FCT NOVA

OUTREACH

EXPO FCT open day, 2015
European Researchers Nights, 2016
Science in the Holidays for Young People, Ciência Viva, 2016

WEBSITES

www.crem.fct.unl.pt/Personal/Rita_Sobral/Rita%20Sobral.htm



YEAST GENOMICS@NOVA LAB

MOLECULAR
MICROBIOLOGY
MM

RESEARCH INTERESTS

We use yeasts to study basic and applied aspects of microbial physiology, fungal development and evolutionary ecology. We address questions related to sugar utilization in yeast fermentations, to the evolution of sex in early diverged lineages of Basidiomycetes, or to the distribution and ecology of wild *Saccharomyces* populations and their domestication by man. To do so we combine the awesome power of Next-Generation (whole-genome) Sequencing with in-depth physiological and ecological studies.

Our work includes computational and experimental methods and integrates genomics, evolutionary genetics, ecology, microbial diversity and physiology.

RESEARCH HIGHLIGHTS ON 2015-2016

The molecular basis for fructophily (PI Paula Gonçalves)

The preference for fructose as carbon source prevails in a large group of yeast species that are abundant in high sugar environments. We elucidated important aspects of evolution of the fructose transporter underlying fructophily, which was acquired by horizontal gene transfer. (C Gonçalves *et al.* 2016).

Homothallism in Basidiomycetes (PI Paula Gonçalves)

The first genetic dissection of homothallism in basidiomycetes was accomplished in the astaxanthin producing yeast *Phaffia rhodozyma*. The knowledge acquired concerning the sexual reproduction in this yeast may be used to improve strains for industrial production of astaxanthin (David-Palma *et al.* 2016).

LAB LEADERS

José Paulo Sampaio

PhD in Microbiology, 1996,
FCT NOVA
Associate Professor,
FCT NOVA

Paula Gonçalves

PhD in Molecular Biology,
1995, Free University
of Amsterdam,
the Netherlands
Assistant Professor,
FCT NOVA

LAB MEMBERS

INDEPENDENT RESEARCHERS

Madalena Oom,
UCIBIO Researcher

POST-DOCS

Celso Almeida
Marco Coelho

PHD STUDENTS

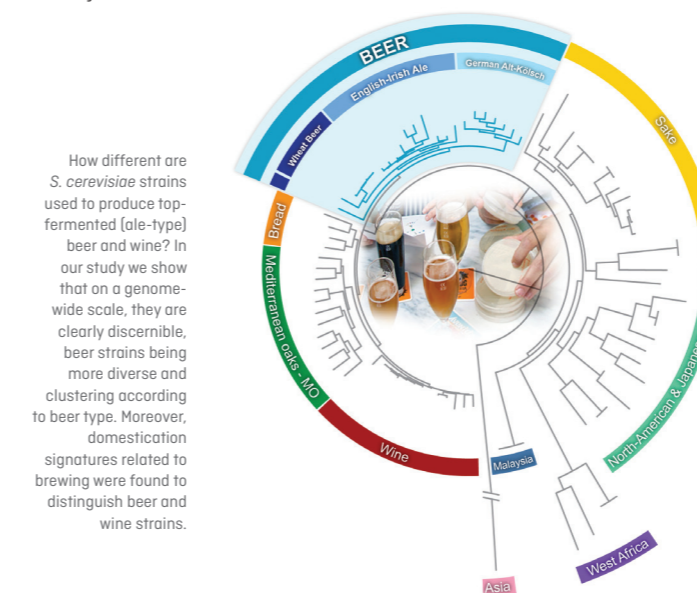
Ana Pontes
Carla Gonçalves
Márcia Palma
Pedro Almeida

Domestication in *Saccharomyces* (PI José Paulo Sampaio)

The distinct domestication trajectories of wine and top-fermenting beer yeasts were elucidated.

For wine yeasts, a novel population associated with Mediterranean oaks was shown to be the closest known relative and likeliest wild ancestor of the wine yeast domesticated population. Important genetic differences pertinent to the wine fermentation environment were uncovered between wild and domesticated lineages (Almeida *et al.* 2015).

Population genomics studies involving top-fermenting beer strains, led us to propose that beer domestication was an event distinct from the cases of wine and sake yeast domestication. Our results revealed that top-fermenting beer yeasts are polyphyletic, with a main clade composed of three subgroups, dominantly represented by the German, British, and wheat beer strains. Genetic signatures of domestication were found in genes previously linked to brewing (M Gonçalves *et al.* 2016).



REPRESENTATIVE PROJECTS ON 2015-2016

"Diversity and distribution pattern of soil yeasts in Mediterranean forests in Portugal", FCT-MCTES, Total and Unit funding: €87,000, José Paulo Sampaio (Collaborator).

"Tracing domestication in microbes - the case of *Saccharomyces cerevisiae*", FCT-MCTES, Total funding: €177,000, Unit funding: €125,000, José Paulo Sampaio (PI).

"Out of Gondwana - a phylogeographic hypothesis for the radiation of *Saccharomyces*", FCT-MCTES, Total and Unit funding: €135,000, José Paulo Sampaio (PI).

"FNA3", Sumol and Compal, Total and Unit funding: €49,000, Paula Gonçalves (PI)

SELECTED PUBLICATIONS

Almeida P, Barbosa R, Zalar P, Imanishi Y, Shimizu K, Turchetti B, Legras JL, Serra M, Dequin S, Couloux A, Guy J, Bensasson D, Gonçalves P, Sampaio JP. "A Population genomics insight into the Mediterranean origins of wine yeast domestication", MOLECULAR ECOLOGY, 24:5412-27, 2015

David-Palma M, Sampaio JP, Gonçalves P. "Genetic Dissection of Sexual Reproduction in a Primary Homothallic Basidiomycete", PLOS GENETICS, 12:e1006110, 2016

Gonçalves C, Coelho MA, Salema-Oom M, Gonçalves P. "Stepwise functional evolution in a fungal sugar transporter family", MOLECULAR BIOLOGY AND EVOLUTION, 33:352-66, 2015

Gonçalves M, Pontes A, Almeida P, Barbosa R, Serra M, Libkind D, Hutzler M, Gonçalves P, Sampaio JP. "Distinct domestication trajectories in top-fermenting beer yeasts and wine yeasts", CURRENT BIOLOGY, 26:2750-2761, 2016

Maia TM, Lopes ST, Almeida JMFCF, Rosa LH, Sampaio JP, Gonçalves P, Coelho MA. "Evolution of mating systems in basidiomycetes and the genetic architecture underlying mating-type determination in the yeast *Leucosporidium scottii*", GENETICS, 201:75-89, 2015

FUNDING

Fundação para a Ciência e a Tecnologia
Sumol + Compal SA
COST

COLLABORATIONS

Hittinger Lab, University of Wisconsin, USA
Rokas Lab, Vanderbilt University, USA
Libkind Lab, Instituto Andino-Patagónico de Tecnologías Biológicas y Geoambientales CONICET, Argentina
Carlos Rosa Lab, Universidade Federal de Minas Gerais, Brazil
Helena Santos, ITQB NOVA
Manuel Malfeito & Catarina Prista, ISA
Andrey Yurkov, DSMZ, Germany
Douda Bensasson, University of Georgia, USA
Jean-Luc Legras, Université de Montpellier, France
Mathias Hutzler, Research Center Weihenstephan for Brewing and Food Quality, Germany
Petr Baldrian Lab, Institute of Microbiology of the Czech Academy of Sciences, Czech Republic
Polona Zalar, University of Ljubljana, Slovenia
Benedetta Turchetti, Food and Environmental Sciences & Industrial Yeasts Collection, University of Perugia, Italy
Neža Čadež, University of Ljubljana, Slovenia
Nicola Francesca, Università di Palermo, Italy
Paulo Marques, Sumol+Compal SA

OUTREACH

Media appearances on newspapers and other channels.

WEBSITES

www.crem.fct.unl.pt/Yeast_Genomics_Lab



In Memoriam
Professor Ilda Sanches
1958-2017

PATHOGEN MOLECULAR GENETICS LAB

MOLECULAR
MICROBIOLOGY
MM

RESEARCH

Ilda Sanches coordinated a Research Unit - CREM - Centro de Recursos Microbiológicos from 2008 to 2012 and fostered numerous fruitful scientific collaborations in Portugal and abroad. Besides the enthusiasm she devoted both to teaching and to research, she will be remembered by her warm and joyful nature that permeated her daily interactions with colleagues, students and friends.

Ilda Sanches obtained her PhD in 1991 and for three decades had teaching and high-level managing duties at Universidade Nova de Lisboa. Her research was centered on aspects of the molecular epidemiology of Gram positive bacteria. She focused on understanding the dynamics of populations of bacterial pathogens from human and animal origin and the molecular mechanisms involved in pathogen adaptation and virulence. Her research activities included the comparison of phenotypes and genotypes of bacterial strains from different niches, clinical origins and hosts; the analysis of the genomic structure and potential for horizontal gene transfer of phages (bacterial virus) and of other mobile genetic elements; the study of antimicrobial resistance patterns and mechanisms of resistance; the investigation of the biological activity of new materials and new bio-compounds against various pathogens; and the investigation of tailor-made strategies for infection control and risk assessment for bacterial colonization and infection.

LAB LEADER

Ilda Sanches
(1958-2017)

PhD in Biology, 1991,
FCT NOVA
Habilitation 2016,
FCT NOVA
Associate Professor,
FCT NOVA

LAB MEMBERS

INDEPENDENT RESEARCHERS
Rosário Mato,
Invited Assistant Professor

POST-DOCS
Nateson
Balashubramanian
Catarina Rodrigues

PHD STUDENTS
Cinthia Barroco
Carlos Florindo
Célia Leão
Inês Silvestre

FUNDING

EC-FP7

Fundação para a Ciência e a Tecnologia.

COLLABORATIONS

Alexandra Fernandes, FCT NOVA

Maria José Borrego, INSA.

Rogério Tenreiro, FC UL.

Susana Gaudêncio, FCT NOVA.

OUTREACH

Researchers Night – “Tesouros Oceânicos”
30-09-2016.

ExpoFCT – “Vamos explorar os Oceanos”
07-04-2016.

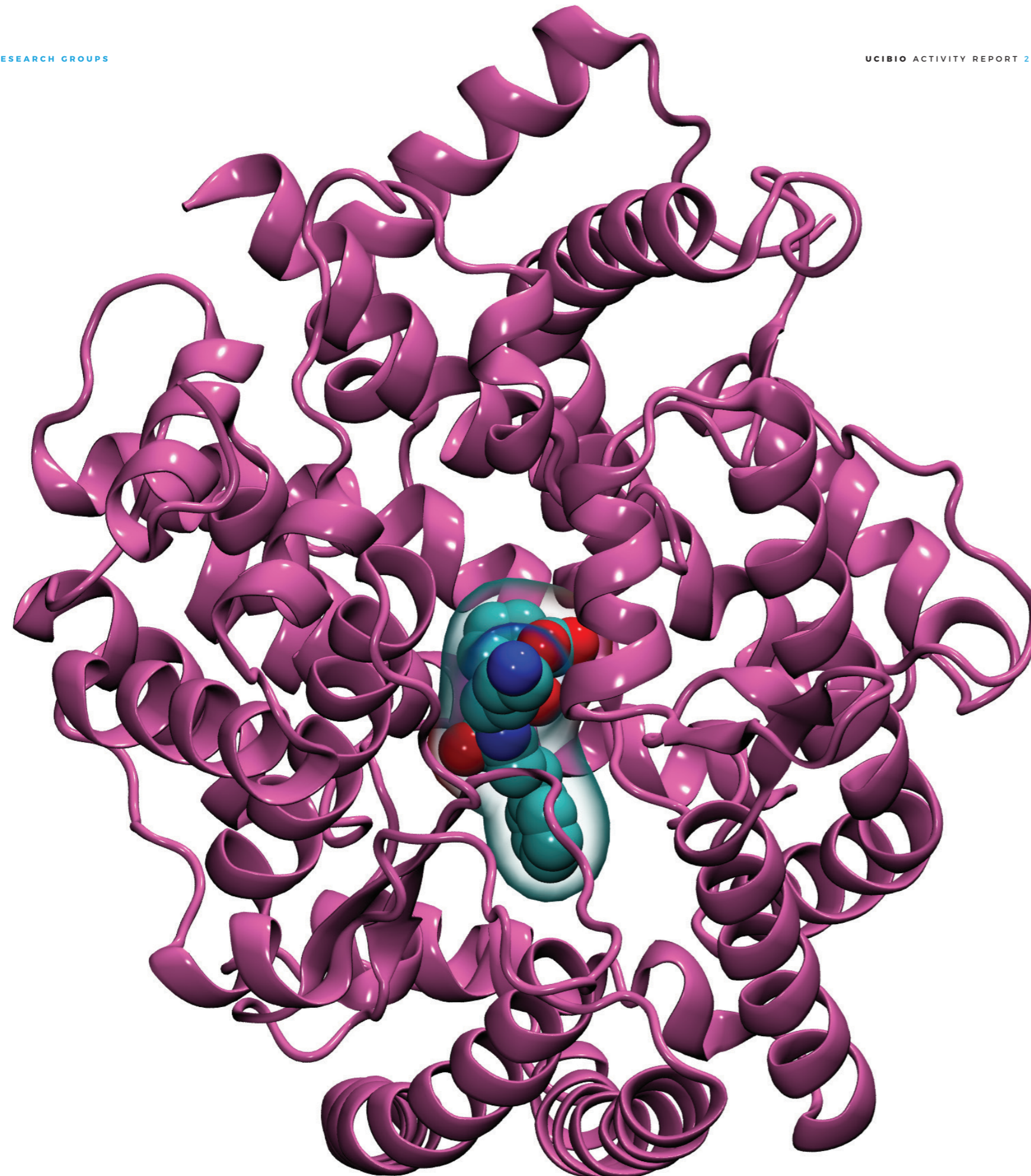
SELECTED PUBLICATIONS

Almeida, A., C. Alves-Barroco, E. Sauvage, R. Bexiga, P. Albuquerque, F. Tavares, I. Santos-Sanches, and P. Glaser. Persistence of a dominant bovine lineage of group B *Streptococcus* reveals genomic signatures of host adaptation. *Environ. Microbiol.* 18(11):4216-4229. [2016]

Prieto-Davo, A., T. Dias, S. E. Gomes, Y. Parera-Valadez, P. Borralho, F. Pereira, C. M. Rodrigues, I. Santos Sanches, and S. P. Gaudencio. The Madeira Archipelago as a significant source of marine-derived actinomycete diversity with anticancer and antimicrobial potential. *Front. Microbiol.* 7:1594. [2016]

Roma-Rodrigues, C., C. Alves-Barroco, L. R. Raposo, M. N. Costa, E. Fortunato, P. Viana Baptista, A. R. Fernandes*, and I. Santos-Sanches*. Infection of human keratinocytes by *Streptococcus dysgalactiae* subspecies *dysgalactiae* isolated from milk of the bovine udder. *MICROBES INFECT.* 18:290-293. [2016]

Vasilyeva, A., I. Santos-Sanches, C. Florindo and A. Dmitriev. Natural Mutations in *Streptococcus agalactiae* Resulting in Abrogation of β Antigen Production. *PLOS ONE.* 10(6): e0128426. [2015]



THEORETICAL & COMPUTATIONAL BIOCHEMISTRY TCB

RESEARCH GROUP OVERVIEW

The Computational Chemistry and Biochemistry Research Group is formed of four PhD researchers who are also Professors at the Department of Chemistry and Biochemistry of the Faculty of Sciences of the University of Porto. They all have started their academic activities, teaching and research, in the area of theoretical chemistry. Over the last two decades, the scientific interests of the Group have evolved as a consequence of the amazing evolution in informatics and the new trends of the international scientific community. The group attracted a significant number of members, that presently amount to 4 fellows, 13 PhDs, 3 post-docs and 6 undergraduates.

The interests of the group are now more focused on protein activity, enzymatic reaction mechanisms, improvement of computational tools and methodologies. Concerning methodologies, the researchers have acquired expertise in high level quantum-mechanical methods (DFT, post-Hartree-Fock), classical

molecular dynamics simulations, Quantitative structure-activity relationship (QSAR) calculations, and hybrid QM/MM calculations.

In 1996 the Group benefited from the relocation of the Faculty of Sciences into a purpose-built building. Today, the Group occupies four computational laboratories of 42 square meters each, a room for meetings, private office rooms for the staff and researchers, and a climatized room of 24 square meters to host the computer cluster. The computational laboratories are equipped with a number of local personal computers enough for all the researchers and students, which are used both as current calculation machines and as terminals to access the computer cluster. This last equipment has been continuously updated over the years, and has reached at present time a significant computational power, resulting in the biggest national cluster for scientific purposes in Portugal.

RESEARCH LABS

COMPUTATIONAL BIOCHEMISTRY LAB | MARIA JOÃO RAMOS



COMPUTATIONAL BIOCHEMISTRY LAB

THEORETICAL & COMPUTATIONAL BIOCHEMISTRY TCB

RESEARCH INTERESTS

Computational enzymatic catalysis, protein dynamics, computational mutagenesis, molecular docking and drug discovery, all aiming at a better understanding of the functions and applications of enzymes.

RESEARCH HIGHLIGHTS ON 2015-2016

Enzymatic flexibility and reaction rate: A QM/MM study of HIV-1 protease

The relevance of conformational fluctuations on enzyme rates has been a matter of debate for decades. Single molecule experiments have detected variations on the catalytic rates between different enzyme molecules, and within the same enzyme molecule, in a time scale larger than turnover. Computational methods can detect different energy barriers, induced by thermal conformational fluctuations, at a microscopic time scale, several orders of magnitude faster than the turnover rate of the fastest enzyme. Others have observed these barrier fluctuations, but few computational studies have dissected them in detail and tried to understand their origins and consequences. For this purpose, we studied the first step of the reaction catalyzed by HIV-1 Protease, starting from 40 different conformations. We found activation free energies ranging from 14.5 to 51.3 kcal/mol. The calculated apparent barrier is 16.5 kcal/mol, which is very close to the experimental value of 15.9 kcal/mol for product release. These fluctuations are determinant to the overall rate, and these are correlated to specific structural changes. The effect of each enzymatic conformation on the stabilization of the transition state can be explained by the electrostatic interaction of every protein residue with the flow of net electronic density (negative charge) from the reactants to the transition state.

LAB LEADER

Maria João Ramos

Ph.D. in Quantum Chemistry, 1983, University of Glasgow, UK
Habilitation, 2000, UPorto
Honoris Causa Doctorate, 2014, University of Stockholm
Vice-Rector for R&D, UPorto
Full Professor, FC UPorto

INSTITUTIONAL ROLES AT UCIBIO

Vice-director

LAB MEMBERS

INDEPENDENT RESEARCHERS

Pedro Fernandes, Associate Professor
Natércia Brás, FCT Investigator
Nuno Cerqueira, FCT Investigator
Sérgio Sousa, FCT Investigator
António Ribeiro, UCIBIO Researcher
Luísa Amaral, UCIBIO Researcher

POST-DOCS

Rui Neves
Eduardo Oliveira
Elizabeth Vieira
Krzysztof Biernacki

PHD STUDENTS

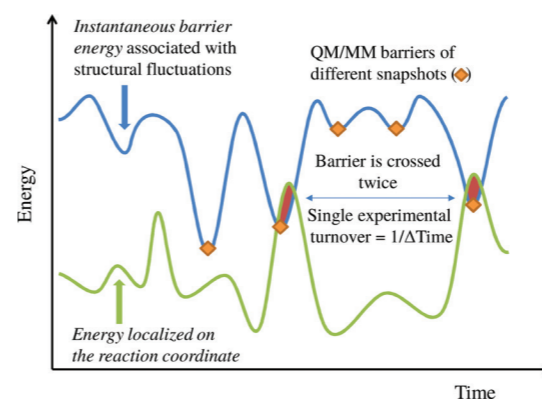
Ana Calixto
Cátia Moreira
Diana Gesto
Diogo Martins
Dmytro Ivaschenko
Fabiola Medina
Giovanna D'Angelo
João Coimbra
Marco Lerario
Pedro Ferreira
Pedro Paiva

LAB MANAGER

Óscar Passos

The Catalytic Mechanism of the Marine-Derived Macrocyclase PatGmac

Cyclic peptides are a class of compounds with high therapeutic potential, possessing bioactivities including anti-tumour and anti-viral (including anti-HIV). Despite their desirability, efficient design and production of these compounds has not yet been achieved. The catalytic mechanism of patellamide macrocyclization by PatG macrocyclase domain has been investigated using computational methods. We applied a quantum mechanics/molecular mechanics (QM/MM) methodology, specifically ONIOM [M06/6-311++G(2d,2p):ff94//B3LYP/6-31G(d):ff94]. The mechanism proposed here begins with a proton transfer from Ser783 to His 618 and from the latter to Asp548. Nucleophilic attack of Ser783 to the substrate leads on to the formation of an acyl-enzyme covalent complex. The leaving group (AYDG) of the substrate is protonated by the substrate's N-terminus leading to the breakage of the P1-P1' bond. Finally, the substrate's N-terminus attacks the P1 residue, decomposing the acyl-enzyme complex forming the macrocycle. We found that the formation and decomposition of the acyl-enzyme complex have the highest activation free energies (21.1 kcal.mol⁻¹ and 19.8 kcal.mol⁻¹ respectively), typical of serine proteases. Understanding the mechanism behind the macrocyclization of patellamides will be important to the application of the enzymes in the pharmaceutical and biotechnological industries.



A model for the catalytic landscape of enzymes
Ribeiro et al., ACS Catalysis, 5, 5617-5626, 2015
DOI: 10.1021/acscatal.5b00759



Hot paper with Cover:
Brás et al., Chem. Eur. J. 2, 13089-13097, 2016
DOI: 10.1002/chem.201601670

REPRESENTATIVE PROJECTS ON 2015-2016

"DESIGNBIOTecHealth: new technologies for three health challenges of modern societies: diabetes, drug abuse and kidney diseases", FEDER- Norte 2020, Total funding: €:3.4M, Unit funding: €239,155, Maria João Ramos (PI).

"ENZYMATIC CATALYSIS - seeking a global picture", FCT-MCTES, Total funding: €:44,533, Unit funding: 360,933, Maria João Ramos (PI).

"Consensus Scoring - A new methodology to identify lead compounds for the pharmaceutical industry", FCT-MCTES, Total and Unit funding: €29,521, Sérgio Sousa (PI).

"An integrative structural biology approach to characterise the protein-carbohydrate microbial recognition", FCT-MCTES, Total funding: €198,884, Unit funding: €20,400, Maria João Ramos [Collaborator].

"Aldehyde oxidases in drug metabolism and biocatalysis: searching for the substrate specificity and catalytic mechanism", FCT-MCTES, Total funding: €198,996, Unit funding: €36,204, Nuno Cerqueira [Collaborator].

SELECTED PUBLICATIONS

Cerqueira, N. M. F. S. A., Gonzalez, P. J., Fernandes, P. A., Maura, J. J. G., Ramos, M. J., "Periplasmic Nitrate Reductase and Formate Dehydrogenase: Similar Molecular Architectures with Very Different Enzymatic Activities", ACC CHEM RES, 48 (11), 2875-2884, 2015

Sousa, S. F., Ribeiro, A. J. M., Neves, R. P. P., Brás, N. F., Cerqueira, N. M. F. S. A., Fernandes, P. A., Ramos, M. J., "Application of Quantum Mechanics/Molecular Mechanics Methods in the Study of Enzymatic Reaction Mechanisms", WILEY INTERDISCIPLINAR JOURNAL OF COMPUTATIONAL MOLECULAR SCIENCE, (in press)

Neves, R. P. P., Fernandes, P. A., Ramos, M. J., "Unveiling the Catalytic Mechanism of NADP⁺-Dependent Isocitrate Dehydrogenase with QM/MM Calculations", ACS CATALYSIS, acscatal.5b01928, 2015

Sousa, S. F., Ramos, M. J., Lim, C., Fernandes, P. A., "Relationship between Enzyme/Substrate Properties and Enzyme Efficiency in Hydrolases", ACS CATALYSIS, 5 (10), pp 5877-5887, 2015

Ribeiro, A. J. M., Santos-Martins, D., Russo, N., Ramos, M. J., Fernandes, P. A., "Enzymatic Flexibility and Reaction Rate: A QM/MM Study of HIV-1 Protease", ACS CATALYSIS, 5 (9), 5617-5626, 2015

FUNDING

FEDER-NORTE 2020

Fundação para a Ciência e a Tecnologia

COLLABORATIONS

Vicent Moliner, Univ. València, Spain

Verónica Jimenez, Univ. Andrés Bello, Concepción, Chile

Julie Menetrey, Univ Paris Sud, CNRS, France

Carmay Lim, Academia Sinica, Taiwan

Hajime Hirao, Nanyang University, Singapore

Liang, ZX, Nanyang Technol Univ, Singapore

Nino Russo, University of Calabria, Italy

Marirosa Toscano, Univ Calabria, Italy

Victor de Freitas, LAQV, UPorto

Baltazar de Castro, LAQV, UPorto

Maria Rangel, UCIBIO UPorto

Marcel Jaspars, M, Univ Aberdeen, Scotland

Maria J. Romao, UCIBIO, FCT NOVA

Terao, M., IRCCS Ist Ric Farmacol Mario Negri, Italy

José Moura, UCIBIO, FCT NOVA

Fernando Garcia, Nanyang Technol Univ, Singapore

OUTREACH

Exhibition, "Moléculas Magníficas", 2015

WEBSITES

www.fc.up.pt/pessoas/mjramos

TOXICOLOGY TOXI

RESEARCH GROUP OVERVIEW

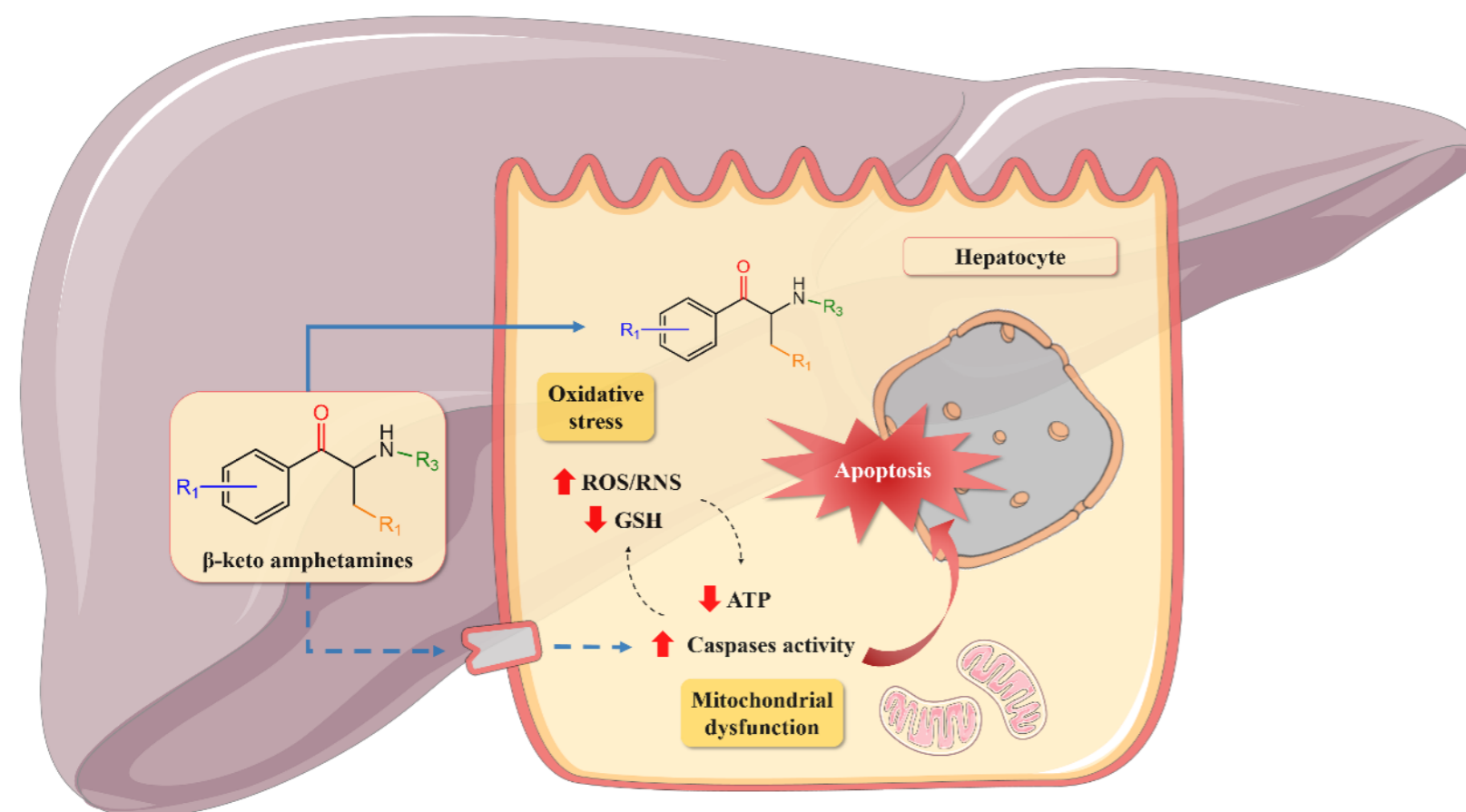
The TOXI group has a long established expertise in *in vitro* and *in vivo* studies, and in chemical analysis in the ambit of toxicity mechanisms, toxicokinetics, forensic and clinical toxicology. The TOXI achievements can be divided into 4 main topics: i) new treatment approaches for intoxications, ii) clarification of mechanisms of drug toxicity, iii) toxicity of drugs of abuse and iv) safety assessment of nanoparticles.

Most recent TOXI group intends to continue and improve the main areas of research for which a capital of experience and international recognition has already been acquired:

- Search for antidotes, integrating *in silico*, *in vitro* and *in vivo* studies
 - Toxicological evaluation of nanomaterials for biomedical applications
 - Use metabolomic tools to evaluate mechanisms of action and to find new and sensitive biomarkers of toxicity in the modern context of Systems Toxicology
 - Continue to devote a great effort to the refinement and replacement of *in vivo* by *in vitro* assays, especially in metabolic, bioavailability and mechanistic studies
 - Overall, it is our main objective to strengthen our most successfully implemented lines of research for which solid expertise exists and also to pursue the most innovative lines for which new collaborations, networks and projects are continuously pursued.
- Develop toxicokinetic and mechanistic toxicology studies on classical and new psychoactive substances
 - Study interindividual factors governing the susceptibility towards the toxicity of drugs of abuse by using mixture toxicology models

RESEARCH LABS

TOXICOLOGY LAB | FÉLIX DIAS CARVALHO & MARIA DE LOURDES BASTOS





TOXICOLOGY LAB

TOXICOLOGY
TOXI

RESEARCH INTERESTS

TOXICOLOGY group interests can be divided into 4 main topics: i) mechanistic toxicology, ii) modulation of xenobiotic toxicokinetics, iii) development of new treatments for intoxications, iv) metabonomics.

Overall, it is our main goal to strengthen our most successful lines of research, in which the group has solid expertise and international recognition:

- Toxicokinetic and mechanistic studies on drugs of abuse.
- Safety evaluation of nanomaterials.
- Evaluation of mixtures toxicology.
- Search for new antidotes, from in silico to in vivo.
- Modulation of pharmacokinetic factors to increase the safety of xenobiotics.
- Use of metabolomic tools to dissect mechanisms of action and to find new and sensitive biomarkers of toxicity.
- Refinement and replacement of in vivo by in vitro assays.

We also pursue the state of the art methodologies through establishment of new collaborations where new expertise can be acquired. Finally, financial support has been a continuous task, through development of scientific projects for national and international applications as well as through patent protection of our products.

RESEARCH HIGHLIGHTS ON 2015-2016

Discovery of an effective antidote for Amanita phalloides poisoning Amanita phalloides is responsible for more than 90% of the fatalities occurring after mushrooms ingestion and no effective antidote is clinically available. In silico and in vivo studies proved that polymyxin B reversed the main toxicological features of α -amanitin, which point polymyxin B as a new potential antidote for A. phalloides intoxication (Garcia et al. ARCH TOXICOL, 2015, 89(12): 2305-2323; NATIONAL PATENT 108481; INTERNATIONAL PATENT PENDING; widely advertised in national mass media).

LAB LEADER

Félix Carvalho

PhD in Toxicology, 1998,
Faculty of Pharmacy,
University of Porto (FFUP)
Habilitation in
Pharmaceutical Sciences,
1991, FFUP
Full Professor, FFUP

LAB MEMBERS

INDEPENDENT RESEARCHERS

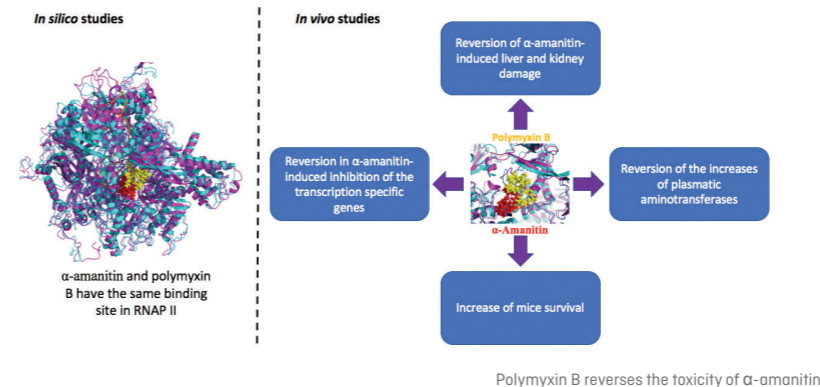
Fernando Remião,
Associate Professor
Helena Carmo,
Assistant Professor
Maria Bastos,
Full Professor
Paula Guedes de Pinho,
UCIBIO Researcher

POST-DOCS

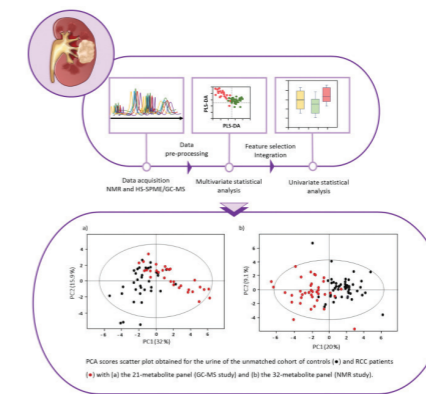
Aura Silva
Carolina Amorim
Diana Silva
Joana Pinto
João Silva
Juliana Garcia
Nathalie Moreira
Renata Silva
Ricardo Oliveira
Vera Costa

PHD STUDENTS

Ana Araújo
Bárbara Silva
Catarina Chaves
Domingos Martins
Emanuele Alves
Fernando Moreira
Jorge Soares
Juliana Faria
Márcia Monteiro
Maria Barbosa
Maria Enea
Maria Valente
Rui Marta
Sónia Campos
Vânia Vilas Boas



Metabolic profiling of potential urinary renal cell carcinoma (RCC) biomarkers using gas chromatography –mass spectrometry (GC-MS) and nuclear magnetic resonance (NMR) platforms. The search for early diagnostic approaches for RCC owns great clinical and biological meaning due to its asymptomatic development and progression and to the decline of therapeutic effectiveness with disease progression. A metabolic signature descriptive of RCC was unveiled, successfully distinguishing RCC patients from controls. It was demonstrated the value of a systematic metabolomics for the identification of urinary metabolic biomarkers in renal cancer (Monteiro et al. J CELL MOL MED_in press; Monteiro et al. SCI REPORTS, 2016, 6, 37275; Monteiro et al. FUTURE SCIENCE, 2015, 167-184).



(I) Metabolic Workflow (II) GC-MS and Nuclear Magnetic Resonance metabolomics reveals an excretory metabolic signature of RCC.

REPRESENTATIVE PROJECTS ON 2015-2016

"Poisoning the heart with anticancer drugs: is metabolic bioactivation or aging promotion the link to the cardiotoxicity of anticancer drugs?", FCT-MCTES, Total funding : €199,933, Unit funding: €140,619, Vera Costa (PI).

"DESIGNBIOTecHealth -new technologies for three health challenges of modern societies: diabetes, drug abuse and kidney diseases", FEDER-Portugal 2020, Total funding: €2.8M, Unit funding: €240,750 , Félix Carvalho (Collaborator).

"Development of antidotes for Amanita phalloides intoxications, from in silico to the intoxicated patient", FCT-MCTES, Total funding : € 199,637, Unit funding: €166,637, Félix Carvalho (PI).

"CorkPlus -contribution of cork stoppers for chemical and sensory properties of bottled wine". FEDER-Portugal 2020 and Amorim & Irmãos, SA, Total Funding: €1.2M, Unit funding: €483,423, Paula Guedes de Pinho (PI).

"Wine metrics: revealing the volatile molecular feature responsible for the wine like aroma: a critical task toward the wine quality definition". Total funding: €95,933, Unit funding:€2,750, Paula Guedes de Pinho (Collaborator).

SELECTED PUBLICATIONS

Silva, R, Vilas-Boas, V, Carmo, H, Dinis-Oliveira, RJ, Carvalho, F, Bastos, ML, Remião, F, "Modulation of P-glycoprotein efflux pump: induction and activation as a therapeutic strategy", PHARMACOLOGY AND THERAPEUTICS, Vol. 149, 1-123, 2015

Araújo, AM, Valente, MJ, Carvalho, M, Dias da Silva, D, Gaspar, H, Carvalho, F, Bastos, ML, Guedes de Pinho, P, "Raising awareness of new psychoactive substances: chemical analysis and in vitro toxicity screening of 'legal high' packages containing synthetic cathinones", ARCHIVES OF TOXICOLOGY, Vol. 89(5), 757-771, 2015

Garcia, J, Costa, VM, Carvalho, AT, Silvestre, R, Duarte, JA, Dourado, DF, Arbo, MD, Baltazar, T, Dinis-Oliveira, RJ, Baptista, P, Bastos ML, Carvalho F, "A breakthrough on Amanita phalloides poisoning: an effective antidotal effect by polymyxin B", ARCHIVES OF TOXICOLOGY, Vol. 89(12), 2305-2323, 2015

Valente, MJ, Araújo, AM, Bastos, ML, Fernandes, E, Carvalho, F, Guedes de Pinho, P, Carvalho, M, "Editor's Highlight: Characterization of Hepatotoxicity Mechanisms Triggered by Designer Cathinone Drugs (β -Keto Amphetamines)", TOXICOLOGICAL SCIENCES, Vol. 153(1), 89-102, 2016

Monteiro, M, Barros, A., Pinto, J, Carvalho, M, Pires-Luís, A, Jerónimo, C, Henrique, R, Bastos, ML, Gil, AM, Guedes de Pinho, P, "Nuclear Magnetic Resonance metabolomics reveals an excretory metabolic signature of renal cell carcinoma", SCIENTIFIC REPORTS, 6, 37275, 2016

FUNDING

Amorim & Irmãos, SA
FEDER-Portugal 2020
Fundação para a Ciência e a Tecnologia

COLLABORATIONS

Leibniz Research Centre for Working Environment and Human Factors, Germany.
Department of Pharmacology and Experimental Therapeutics
LSU Health Sciences Center, USA
IPO, Porto
CIAFEL, UPorto
CICECO- Instituto de Materiais de Aveiro, UAveiro
Clinical Hematology Service,CHP, Porto,
Laboratory of Toxicology, University of Crete, Greece.
Laboratory of Pharmacology and Experimental Therapeutics/IBILI, UCoimbra
CNC.IBILI - UCoimbra
Neurochemistry Laboratory, National Center of Toxicological Research/FDA, USA
International Iberian Nanotechnology Laboratory, Braga
Group of Pharmacology and Pharmaceutical Care, UCoimbra
Department of Legal Medicine and Forensic Sciences, UPorto
EPSJV - Polytechnic School of Health Joaquim Venâncio, Oswaldo Cruz Foundation, Brazil
Department of Chemistry and QOPNA, UAveiro
Department of Analytical Chemistry, Fluminense Federal University, Brazil
Interdisciplinary Center of Marine and Environmental Investigation), Porto

OUTREACH

Media appearances in newspapers, magazines and TV

WEBSITES

www.ff.up.pt/toxicologia

DRUGS TARGETS & BIOMARKERS DTB

RESEARCH GROUP OVERVIEW

The DTB group is a multidisciplinary team, developing fundamental, applied and translational research activities. We are interested in understanding the causes and the mechanisms underlying health, aging and disease, as well as to provide insights into new drugs development and discovery of new drug targets. Biomarkers might be used not only as tools for diagnosis but also give insights for the development of new therapeutic strategies. On the other hand, a precocious diagnosis and monitoring may prevent worsening of diseases and contribute to improve the quality of life of the patients, reducing the socio-economic impact of such disorders.

Thus, our goals are to validate existing and potential biomarkers for diagnosis, to evaluate susceptibility and risk for disease, to monitor diseases and, by studying the underlying mechanisms, to search for new drug targets. We focus on physiological and pathological conditions, such as aging, pregnancy/

preeclampsia, anemia, chronic kidney disease and obesity, as all these disorders present common features, like inflammation and oxidative stress. To further clarify the underlying mechanisms associated to these conditions, besides human studies, animal models (pregnant rats, rat model of chronic renal failure, obese rats), in vitro studies (primary cell cultures and different cell lines) and bioinformatics models for interatomic networks analysis are used.

The development of drug resistance has been increasing, emphasizing the importance of understanding the cellular mechanisms that lead to resistance, and the search for new powerful drugs with lower side effects. In this research area we are particularly interested in resistance to erythropoietic stimulating agent's therapy, breast cancer therapies and biological evaluation of potential aromatase inhibitors for hormone dependent breast tumor treatment.

RESEARCH LABS

BIOCHEMISTRY LAB | NATÉRCIA TEIXEIRA



BIOCHEMISTRY LAB

DRUGS TARGETS
& BIOMARKERS
DTB

RESEARCH INTERESTS

The DTB group is a multidisciplinary team interested in clarifying the underlying causes and mechanisms of health, aging and disease, identifying disease biomarkers and discovering new therapeutic targets and drugs.

Thus, one of our aims is the validation of emerging biomarkers of physiological and pathological conditions, such as aging, pregnancy/preeclampsia, anemia, chronic kidney disease and obesity, disorders associated with inflammation and oxidative stress.

On the other hand, the increasing development of drug resistance emphasizes the need to study the underlying mechanisms and the search for new targets and potent drugs. We are particularly interested in resistance to erythropoietic stimulating agent therapy, to ER+ breast cancer therapies and in the evaluation of new aromatase inhibitors for its treatment.

RESEARCH HIGHLIGHTS ON 2015-2016

Mechanisms underlying resistance to recombinant human erythropoietin therapy in the remnant kidney rat model of CKD anemia

We showed that the development of anemia/rHuEPO hyporesponsiveness is associated with a high systemic and renal inflammatory condition, favoring hypoxia and triggering an increase in renal expression of HIF-1 α , TGF- β 1 and CTGF that will further aggravate renal fibrosis, which will enhance the inflammatory response, creating a cycle that promotes disease progression. New therapeutic strategies to reduce inflammation in CKD patients could improve the response to rHuEPO therapy and reduce hyporesponsiveness (Ribeiro S., et al.; BIOCHIMIE, 2016).

LAB LEADER

Natércia Teixeira

PhD in Biochemistry, 1986,
University of Strathclyde,
UK
Habilitation in Cell Biology,
2004, UPorto

Full Professor, FF UPorto

LAB MEMBERS

INDEPENDENT RESEARCHERS

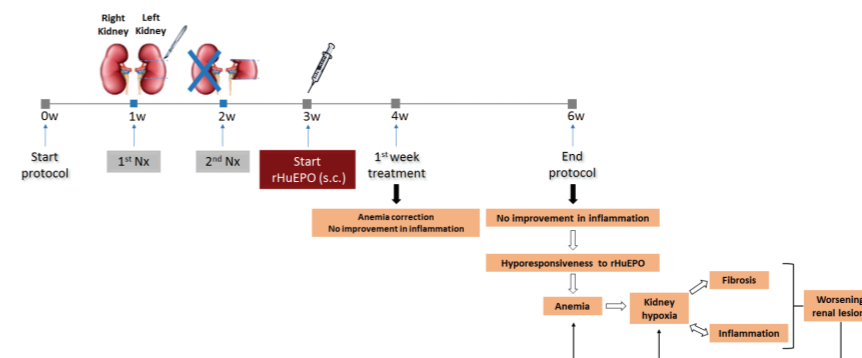
Agostinho Marques,
Associate Professor
Alice Santos Silva,
Associate Professor
Bruno Fonseca,
UCIBIO Researcher
Maria Sameiro Faria,
Medical Doctor (Nephrologist)
Maria Jesus,
Associate Professor
Maria Rosário Santos,
Senior Technician
Susana Coimbra,
Assistant Professor
Elísio Costa,
Assistant Professor
Elsa Bronze da Rocha,
Assistant Professor
Georgina Correia da Silva,
Assistant Professor
Luis Belo,
Assistant Professor
Margarida Borges,
Assistant Professor
Petronila Rocha Pereira,
Assistant Professor
Cristina Catarino,
Assistant Professor
Susana Rocha,
UCIBIO Researcher

POST-DOCS

Cristina Amaral
Marta Almada
Sandra Ribeiro

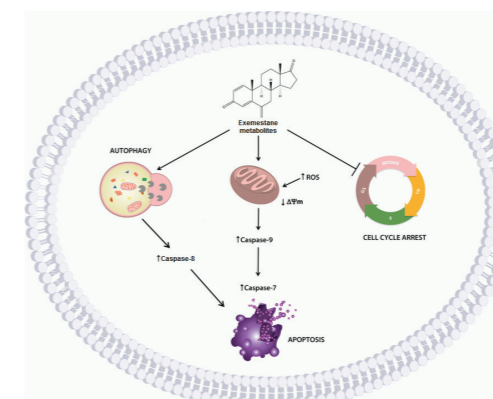
PHD STUDENTS

Ana Gomes
Cláudia Teixeira
Ermelinda Silva



Exemestane metabolites suppress growth of estrogen receptor-positive breast cancer cells by inducing apoptosis and autophagy: a comparative study with exemestane

Exemestane is a third-generation steroidal aromatase inhibitor that undergoes a complex and extensive metabolism. We showed that as well as exemestane, the major exemestane metabolites are potent aromatase inhibitors that induce, in ER+ breast cancer cells, cell cycle arrest and apoptosis. Nevertheless, contrary to exemestane, the metabolites-induced autophagy acts as a promoter mechanism of apoptosis. Therefore, it was concluded that the biological effects of metabolites are different from the ones of exemestane, which suggests that exemestane efficacy in breast cancer treatment may also be dependent on its metabolites (Amaral C., et al.; INT J BIOCHEM CELL BIOL, 2015).



Proposed mechanism for exemestane metabolites in ER+ breast cancer cells

REPRESENTATIVE PROJECTS ON 2015-2016

"The endocannabinoids as modulators of cell death and differentiation: A unified hypothesis of how cannabinoids affect placental development", FCT-MCTES and FEDER, Total funding: €102,455, Unit funding: €102,455, Georgina Correia da Silva (PI).

"DESIGNBIOTecHealth: new technologies for three health challenges of modern societies: diabetes, drugs abuse and kidney diseases", FEDER-Portugal 2020, Total funding: €2,8M, Unit funding: €374,000, Alice Silva (PI of the sub-area NEPHROCARDIORISK).

"Sharing Childhood 2", EC-Programme Erasmus, Total funding: €162,508, Unit funding: € 28,771, Elísio Costa (PI).

SELECTED PUBLICATIONS

Amaral C, Lopes A, Varela CL, da Silva ET, Roleira FM, Correia-da-Silva G, Teixeira N. "Exemestane metabolites suppress growth of estrogen receptor-positive breast cancer cells by inducing apoptosis and autophagy: A comparative study with Exemestane", INT J BIOCHEM CELL BIOL, 69: 183-95, 2015.

Costa MA, Fonseca BM, Mendes A, Braga J, Teixeira NA, Correia-da-Silva G, "The endocannabinoid 2-arachidonoylglycerol dysregulates the synthesis of proteins by the human syncytiotrophoblast", BIOCHIM BIOPHYS ACTA, 1861(3): 205-12, 2016.

Ribeiro S, Garrido P, Fernandes J, Rocha-Pereira P, Costa E, Belo L, Reis F, Santos-Silva A, "Liver iron is a major regulator of hepcidin gene expression via BMP/SMAD pathway in a rat model of chronic renal failure under treatment with high rHuEPO doses.", BIOFACTORS, 42: 296-306, 2016.

Coimbra S, Oliveira H, Neuparth MJ, Prouença JB, Figueiredo A, Rocha-Pereira P, Santos-Silva A. "Systemic inflammation and pro-inflammatory IL17 signalling persists at the end of therapy in patients with metabolic syndrome and psoriasis, reducing the length of remission.", BRITISH JOURNAL OF DERMATOLOGY, 174(2): 414-6, 2016.

Nascimento H, Vieira E, Coimbra S, Catarino C, Costa E, Bronze-da-Rocha E, Rocha-Pereira P, Carvalho M, Ferreira H, Rêgo C, Santos R, Santos-Silva A, Belo L, "Adipokine Gene Single-Nucleotide Polymorphisms in Portuguese Obese Adolescents: Associations with Plasma Concentrations of Adiponectin, Resistin, IL-6, IL-1 β , and TNF- α .", CHILDHOOD OBESITY, 12: 300-313, 2016.

FUNDING

Fundação Ciência Tecnologia (FCT) CESP
- Instituto Universitário de Ciências de Saúde
European Commission
FEDER- Norte 2020
GAI-Santander Totta

COLLABORATIONS

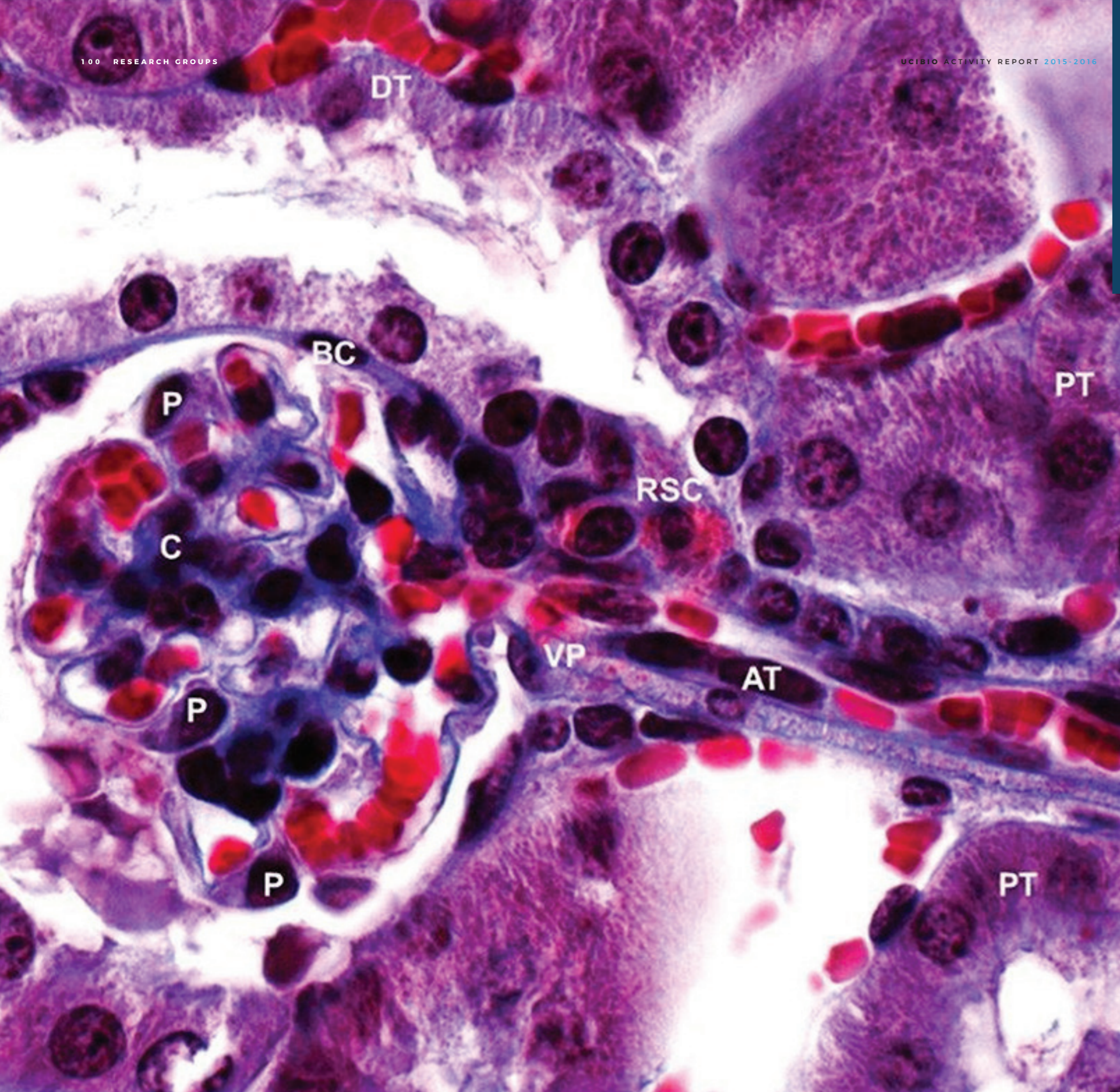
Pharmaceutical Chemistry Group, FFUC
Department of Anatomy, FMUP
Chemistry Department, UAveiro
Faculdade de Desporto, UPorto
Faculdade de Ciências, UPorto
Instituto de Ciências Biomédicas Abel Salazar, UPorto
Instituto Superior de Engenharia do Porto
Instituto de Farmacologia e Terapêutica Experimental, FMUC
Centro de Investigação em Ciências da Saúde, UBI
Faculdade de Medicina Dentária, UPorto
CINTESIS, UPorto
Institute for Biomedical Imaging and Life Sciences, UCoimbra
University of Strathclyde, UK
Department of Pharmacology and Therapeutics, St James's Hospital, Ireland
Charles University, Czech Republic
University of Brescia, Italy
School of Pharmacy, University of Naples Federico II, Italy
Polytechnic University of Madrid, Spain
Institute of Biomolecular Chemistry, Consiglio Nazionale Delle Ricerche, Italy
Italian Agency of Medicines, Italy
Department of Clinical and Division of Population Health Sciences, RCS, Ireland
Aragón Health Sciences Institute, IIS Aragón REDISSEC isciii, Spain
University Hospital, University of Zaragoza, Spain
Psychology Unit of the S. Maugeri Foundation, Scientific Institute of Montescano (PV), Italy
Centro Hospitalar, Porto
Centro Hospitalar UCoimbra
Conde Ferreira Hospital
Haemodialysis Clinics

OUTREACH

Public talks for high school students, "Cannabinoids impact on fertility and reproduction", 2016.
Project Society, School and Research (SEI) for high school students, 2016.

WEBSITES

www.requimte.pt/ucibio/drugs-targets-biomarkers



BIOMODELS, BIOANALYTICS AND BIOPHYSICS BBB

RESEARCH GROUP OVERVIEW

The BBB group conveys expertise on physical-chemistry, medicinal chemistry, pharmaceutical and analytical sciences in order to support research towards biomedical challenges. The Group focuses on the study of the complex interactions of drugs, bioactive compounds and/or nanoparticles with lipid membranes and other biologically relevant structures. Several topics are pursued, including the interaction of nonsteroidal-anti-inflammatory, anti-cancer and anti-tuberculosis drugs with mimetic membrane models; the development of drug delivery systems for the treatment of infectious diseases, for dermatocosmetic applications (cellulite and alopecia), and for administration of nutraceuticals (resveratrol).

Research activities are also focused on unveiling the secrets of human neutrophils' oxidative burst, namely the role of these cells in the healing vs the deleterious effects of the inflammatory process. Other aspects related to oxidative stress are addressed, including the protective effects of carotenoids against the oxidative damage in human erythrocytes, the modulation of human neutrophils' oxidative burst by flavonoids and the potential anti-inflammatory effects of 2-styrylchromones. Research towards novel bioanalytical techniques is another topic of interest, aiming the development of high-throughput and screening methods for bioactive compounds, namely those exerting antioxidant properties. Analytical methods based on molecular recognition, targeted to study biomembrane and inflammation phenomena, are also pursued.

RESEARCH LABS

BIOMODELS, BIOANALYTICS AND BIOPHYSICS LAB | SALETTE REIS



BIOMODELS, BIOANALYTICS AND BIOPHYSICS LAB

**BIOMODELS,
BIOANALYTICS
AND BIOPHYSICS
BBB**

RESEARCH INTERESTS

The BBB group conveys expertise on physical-chemistry, medicinal chemistry, pharmaceutical and analytical sciences in order to support research towards biomedical challenges. The Group focuses on the study of the complex interactions of drugs, bioactive compounds and/or nanoparticles with lipid membranes and other biologically relevant structures.

Research activities are also focused on unveiling the secrets of human neutrophils' oxidative burst, namely the role of these cells in the healing vs the deleterious effects of the inflammatory process. Other aspects related to oxidative stress are addressed, including the protective effects of carotenoids against the oxidative damage in human erythrocytes and the modulation of human neutrophils' oxidative burst by flavonoids.

Research towards novel bioanalytical techniques is another topic of interest, aiming the development of high-throughput and screening methods for bioactive compounds.

RESEARCH HIGHLIGHTS ON 2015-2016

Biomodels for unveiling mechanisms of action: resveratrol

The interaction of resveratrol with membrane models was studied by X-ray scattering analysis, derivative spectrophotometry, fluorescence quenching and fluorescence anisotropy studies aiming to gather information about its effect on order and structure (Neves et al, SOFT MATTER, 2016). Resveratrol was incorporated into 1,2-dimyristoyl-sn-glycero-3-phosphocholine liposome model systems, either fluidizing or stiffening the bilayer, according to the membrane fluidity state. These findings suggest that the effects of resveratrol resemble cholesterol action on biological membranes, thereby contributing to the regulation of cell membrane structure and fluidity, which may influence the activity of transmembrane proteins and hence control the cell signaling pathways, explaining its pleiotropic action.

LAB LEADER

Salette Reis

PhD in Analytical Chemistry, 1995, FF UPorto
Habilitation in Pharmaceutical Sciences, 2006, FF UPorto
Associate Professor, FF UPorto

LAB MEMBERS

INDEPENDENT RESEARCHERS

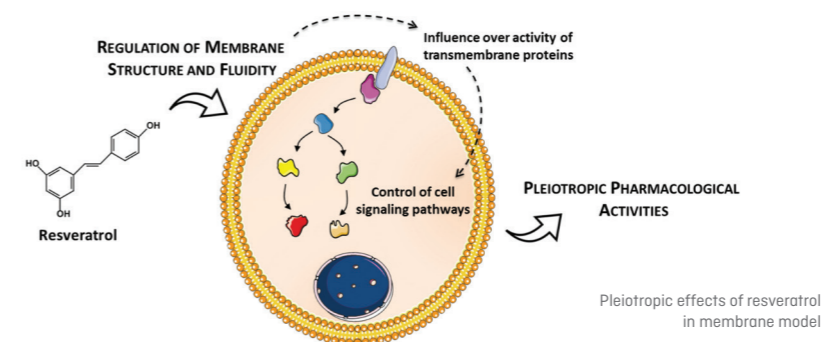
Eduarda da Silva, UCIBIO Researcher
Eduarda Fernandes, Associate Professor
Cláudia Pinho, FCT Investigator
Lucília Saraiva, Assistant Professor
Marcela Segundo, Assistant Professor
Marisa Freitas, UCIBIO Researcher
Paula da Silva, Assistant Professor
Sofia Lima, UCIBIO Researcher

POST-DOCS

Ana Neves
Daniela Ribeiro
Joana Soares
José Oliveira
Luísa Barreiros
Marina Pinheiro

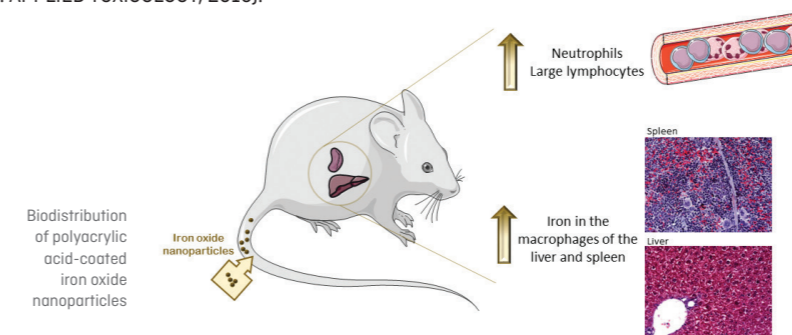
PHD STUDENTS

Abderrazzaq Essaghraoui
Alexandre Vieira
Ana Catarina Alves
Ana Sara Gomes
Ana Rita Pinto
Andreia Granja
Catarina Pereira-Leite
Cláudia Bessa
Daniela Compos
Helena Rocha
Inês Ramos
Joana Magalhães
João Albuquerque e Costa
José Araújo
Liliana Raimundo
Luíse Chaves
Ong Yong Sze
Patrícia Peixoto
Sara Marques
Sara Moreira
Virgínia Gouveia



Nanodelivery: enhanced delivery vs. biohazard

Novel nanoparticles were designed and tested for enhanced and targeted delivery of drugs and bioactive compounds. Among the different implemented strategies, freeze-drying technology, immobilization in-film and functionalization with apolipoprotein E, folic acid (FA), hyaluronic acid (HA) or mannose were the main innovations to secure efficient delivery of drugs. Tools for automatic evaluation of nanoformulation performance were also deployed, along with novel models for studying the interaction with p53 expressed in yeast as a target for anticancer therapy. However, there is the other side of the coin, where the biodistribution of polyacrylic acid-coated iron oxide nanoparticles (IONs) was associated with proinflammatory effects in liver and spleen (Couto et al., J. APPLIED TOXICOLOGY, 2016).



REPRESENTATIVE PROJECTS ON 2015-2016

"Carotenoid oxidation by reactive oxygen and nitrogen species: chemical analysis and biological activity", FCT-MCTES, Total and Unit Funding: €148.800, Eduarda Fernandes (PI).

"Targeting p53 family proteins: on the route to new anticancer agents", FCT-MCTES, Total Funding: €195.019, Unit Funding: €80.232, Lucília Saraiva (PI).

"NEPCAT - Novo Equipamento envolvendo Processos CATalíticos integrados para tratamento de poluentes orgânicos e desinfecção de águas", FEDER-ON.2, Total funding: €638.050, Unit funding: €99.048, Marcela Segundo (Collaborator).

"Pyloribinders - Helicobacter pylori specific biomaterials for antibiotic-free treatment/diagnostic of gastric infection", FCT-MCTES, Total Funding: €199.338, Unit funding: €16.800, Salette Reis (Collaborator).

"Navigating through marine-derived fungi: bioprospection and synthesis of bioactive secondary metabolites and analogues as chemotherapeutic agents", FCT-MCTES, Total Funding: €196.704, Unit Funding: €38.203, Salette Reis (Collaborator).

SELECTED PUBLICATIONS

Costa, A, Pinheiro, M, Magalhães, J, Ribeiro, R, Seabra, V, Reis, S, Sarmento, B, "The formulation of nanomedicines for treating tuberculosis", ADVANCED DRUG DELIVERY REVIEWS, Vol 102, 102-105, 2016

Ribeiro, D, Freitas, M, Lima JLFC, Fernandes, E, "Pro-inflammatory pathways: the modulation by flavonoids", MEDICINAL RESEARCH REVIEWS, Vol. 35 (5), 877-936, 2015

Lemos, A, Leão, M, Soares, J, Palmeira, A, Pinto, M, Saraiva, L, Sousa, E, "Medicinal chemistry strategies to disrupt the p53-MDM2/MDMX interaction", MEDICINAL RESEARCH REVIEWS, Vol. 36 (5), 789-844, 2016

Vieira, AC, Chaves, LL, Pinheiro, M, Ferreira, D, Sarmento, B, Reis, S, "Design and statistical modeling of mannose-decorated dapsone-containing nanoparticles as a strategy of targeting intestinal M-cells", INTERNATIONAL JOURNAL OF NANOMEDICINE, Vol 11, 2601-17, 2016

Ramos, II, Gregório, BJR, Barreiros, L, Magalhães, LM, Tóth, IV, Reis, S, Lima, JLFC, Segundo, MA, "Programmable flow system for automation of oxygen radical absorbance capacity assay using pyrogallol red for estimation of antioxidant reactivity", TALANTA, 150, 599-606, 2016

FUNDING

ALBA Synchrotron
Conselho de Reitores das Universidades Portuguesas
FEDER-ON.2
Fundação para a Ciência e a Tecnologia
Ministerio Español de Economía y Competitividad
Sogrape

COLLABORATIONS

Marcelo Avena Lab, Universidad Nacional del Sur, Argentina

Spas Kolev Lab, The University of Melbourne, Australia

Heinz Amenitsch Lab, Graz University Technology, Institute Inorganic Chemistry, Austria

Iolanda Cuccovia Lab, Universidade de São Paulo, Brazil

José Soares Sobrinho Lab, Federal University of Pernambuco, Departamento de Ciências Farmacêuticas, Recife, Brazil

Daniel Horak Lab, The Czech Academy of Sciences, Prague, Czech Republic

Petr Solich Lab, Charles University, Czech Republic

Philippe Fontaine Lab, Synchrotron SOLEIL, L'Orme des Merisiers, Saint Aubin, France

Sven Jakobtorweihen Lab, Institute of Thermal Separation Processes, Hamburg University of Technology, Germany

Rudolf Schneider Lab, Bundesanstalt für Materialforschung und -prüfung, Germany

Eleni Efthimiadou Lab, Institute of nanoscience and nanotechnology, Patr. Grigoriou & Neapoleos, Athens, Greece

Inga Lab, University of Trento, Italy

Fronza Lab, IRCCS AOU San Martino - IST-Genova, Italy

Gareth Griffiths Lab, University of Oslo, Norway

Rodica Turcu Lab, National Institute for Research and Development of Isotopic and Molecular Technologies Cluj-Napoca, Romania

Rebecca Alonso Lab, Nanovex Biotechnologies, Parque Tecnológica de Asturias, Spain Manuel Miró Lab, University of Balearic Islands, Spain

Fernando Plazaola Lab, University of the Basque Country, UPV/EHU, Spain

Javier Echevarria Lab, University of the Basque Country, UPV/EHU, Spain

Rafael Morales Lab, UPV/EHU and IKERBASQUE, Basque Foundation for Science, Bilbao, Spain

Department of Chemical Engineering, University of Vigo, Spain

Pérez Lab, University of Barcelona, Spain

Kazanietz Lab, University of Pennsylvania, USA

OUTREACH

Media appearances on national magazines
14ª Mastra da Universidade do Porto, Porto. 2016-03-17/2016-03-20

WEBSITES

<https://sites.google.com/site/biophysicbiomembranes/home>
<https://sites.google.com/site/fragabaiunit>
<https://sites.google.com/site/sshtsgabaigunit>
<https://sites.google.com/site/drugdiscdev>

3

ADVANCED
TRAINING

One of the main goals of UCIBIO is to foster continuous improvement in advanced training by consolidating and expanding the offer of specialized post-graduate courses.

At PhD level, UCIBIO is involved in 6 Doctoral Programs funded by FC&T. This participation includes lectures, thesis supervision, and involvement in the governing boards.

- BIOTECHHEALTH, International PhD Program on Cellular and Molecular Biotechnology Applied to Health Sciences (www.biotechhealth.pt) is organized by two schools of Univ. of Porto (ICBAS and FFUP), 4 Research Institutions (INEB, IBMC, IPATIMUP and REQUIMTE) and the Hospital Centre of Porto (CHP).
- MolBioS - Molecular Biosciences PhD Program (www.itqb.unl.pt/education/phd-molecular-bioscience) is a result of the long experience in interdisciplinary PhD programs in molecular-focused biosciences at UNL (UCIBIO, ITQB), with the participation of IBET, and IGC.
- PDQS, PhD Program in Sustainable Chemistry (phdsusche.itqb.unl.pt/) is a consortium of 3 universities (UNL, UP, UA) and 6 research units (LAQV/UCIBIO, CIQUP, CICECO, QOPNA, ITQB and CESAM).
- PTNMRPhD - International PhD Program on Nuclear Magnetic Resonance Applied to Chemistry, Materials and Biosciences (sites.fct.unl.pt/ptnmrphd) is an international PhD Program involving UCIBIO at FCT-UNL as coordinators, ITQB-UNL, IST - Universidade de Lisboa (IST-UL), Universidade de Aveiro (UA) -Universidade de Coimbra (UC), Universidade do Porto (UP), Universidade da Beira Interior (UBI), Universidade do Minho (UM), Universidade da Madeira (UMa) and Universitat Autònoma de Barcelona (UAB), Spain, The Magnetic Resonance Center (CERM), Italy and The Bijvoet Center for Biomolecular Research from the University of Utrecht, Netherlands (Bijvoet Center).
- Rabbit - Radiation Biology and Biophysics (sites.fct.unl.pt/rabbit) is an international PhD Program involving CSIC (ES), Queen's University Belfast (QUB), University of Innsbruck (UI) - Queen's University Belfast (QUB), The Open University (OU) and CEFITEC and UCIBIO at FCT-UNL as local organizers.

- MIT-Portugal PhD program in BioEngineering Systems (www.mitportugal.org/education/bioengineering-systems/doctoral-program) is an international PhD program that seeks to provide the highest quality graduate education, offered jointly by four Portuguese universities, NOVA University of Lisbon (Faculty of Science and Technology-FCTUNL, the Institute of Chemical and Biologic Technology-ITQB), Technical University of Lisbon-Utl (Instituto Superior Técnico, IST), the University of Minho (School of Engineering-UMinho), and the University of Coimbra (Faculty of Science and Technology-FCTUC, and the Centre for Neuroscience and Cell Biology - CNC), with collaboration from MIT.

Within these Programs approximately 30 PhD theses are submitted per year and the respective vivas bring together National and International top-level researchers and Academics.

UCIBIO has also an important contribution to the advanced training of undergraduate students; UCIBIO members supervise MSc and BSc Final Year Project Students (approximately 70 MSc thesis are supported per year, and 100 BSc Final Year projects; full list in section 11) whose work is conducted within research laboratories. Students have the opportunity not only to work in the laboratory and use infrastructures and facilities, but also contact with PhD students as well as young and senior Researchers.

UCIBIO is highly committed to offer specialized post-graduate courses for academia and industry. Courses on structural and analytical advanced techniques are organized periodically and include theoretical and hands-on components, allowing a first knowledge or refreshment of the basis of the methods, and an opportunity to work with the instruments.

Twenty courses and workshops were organized in the period 2015-2016. These advanced training initiatives are also an opportunity for the internationalization of the research unit since they are often co-organized in the framework of international programs e.g INSTRUCT, COST (full list in section 10).

4

FACILITIES
AND
INFRA
STRUCTURESBIOLOGICAL
AND CHEMICAL
ANALYSIS FACILITY

RESPONSIBLES

Alexandra R. Fernandes

PhD in Biotechnology, 2000, IST-UL
Assistant Professor,
FCT NOVA

A. Cecília Roque

PhD in Biotechnology, 2004, IST-UL
Habilitation in Bioengineering, 2015,
FCT NOVA
Associate Professor,
FCT NOVA

STAFF

Cecília Bonifácio (Lab Technician)
Elisabete Ferreira (Lab Technician)

CONTACTS

Email: biolab@campus.fct.unl.pt
Website: sites.fct.unl.pt/biolab



Associated member of TRIS HCP

DESCRIPTION

The BioLab is a Biological and Chemical Analysis Facility at FCT-NOVA. This facility is devoted to the comprehension of cellular and molecular mechanisms, from the in vitro characterization of molecular interactions to the in vivo validation in model animals.

The BioLab facility gathers in a single unit a unique set of state-of-the-art biophysical and biological technologies.

Available Technologies:

- Circular Dichroism
- Multi Parametric Surface Plasmon Resonance
- Isothermal Titration Calorimetry
- Differential Scanning Calorimetry
- MicroScale Thermophoresis
- Flow Cytometry

Animal Experimentation Laboratory

The BioLab Animal Experimentation Laboratory will have two clean separate specialized rooms and equipment with closely-controlled environment and a separate room for unclean activities to reduce the potential for cross-contamination.

EQUIPMENT

Applied Photophysics Chirascan™ qCD

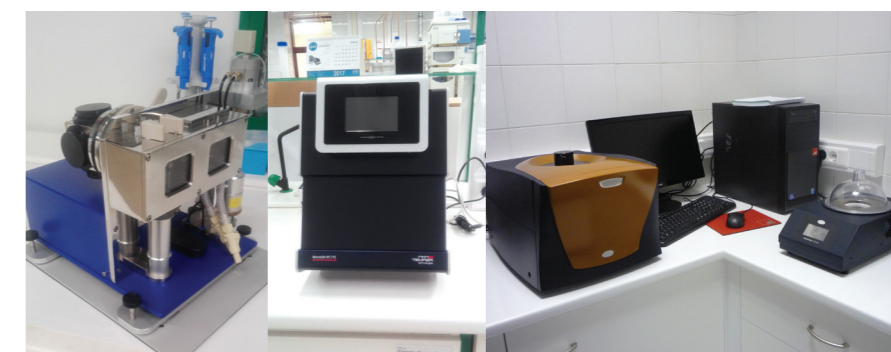
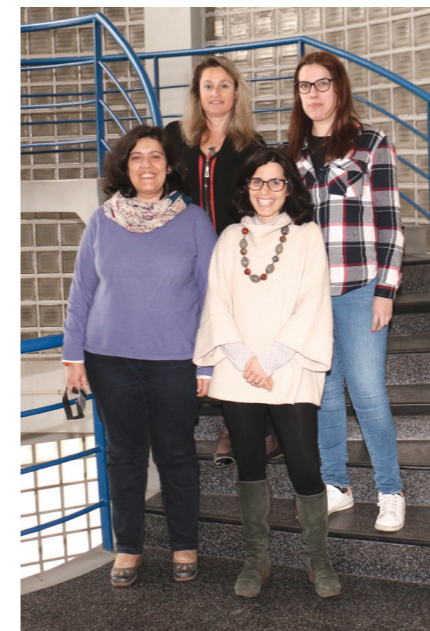
Bionavis™ SPR Navi 200

TA™ Nano DSC

TA™ Nano ITC

Nano Temper Technologies™ Monolith NT.115

Attune™ Acoustic Focusing Cytometer



COMPUTER CLUSTER FACILITY

RESPONSIBLE

Maria João Ramos

Ph.D. in Quantum Chemistry, 1983,
University of Glasgow, UK
Habilitation, 2000, UPorto

STAFF

Pedro Alexandrino Fernandes
Alexandre Lopes Magalhães
Óscar Passos

FUNDING

Fundação para a Ciência e a Tecnologia

DESCRIPTION

The current configuration of the computational system has a total of 1568 CPU cores and little more than 83k GPU cores, spread across a platform with ultra fast infiniband network and 10 Gbit/s links between master and slave nodes. Having more than 300 TB in total storage space, 3248 GB in memory available and a total of 59270 kWh for the all year energy consumption, this system had an average occupancy rate above 112% in the last year, minimum and maximum "wait time" around 1,45 h and 8,76 days respectively and accumulated total offline time of 11 days for the slave nodes and 4 h for the master nodes.

Users have access to the master nodes only, from there, they can submit whatever calculation they need for their work to the slave nodes using the queuing system implemented in the cluster. This system will select, from the several types of slave nodes, the ones suitable for the submitted job according to the demand of resources of the job, the availability of the slave nodes and the user total usage. No reservation is active, all online slave nodes are available for all the users and the priority is set by the following rule $0,1(\text{FIFO}) + 0,5(\text{academic degree}) + 0,4(\text{least usage/user usage})$.

EQUIPMENT

The Computer cluster Facility has its own cluster of computers with the following characteristics:

MASTER Nodes

- Intel Server Xeon E5620 8 cores; 16 GB RAM; 6TB HDD RAID; Dual Infiniband FDR 56Gbit/s; Quad 10Gbit/s Ethernet
- Supermicro Storage Xeon E5-2609v2 4 cores; 16GB RAM; 72TB HDD RAID; 3TB SSD RAID; Dual Infiniband FDR 56Gbit/s; Quad 10Gbit/s Ethernet
- Tyan Storage Xeon E5405 2 cores; 4GB RAM; 26TB HDD RAID
- Supermicro Storage Xeon E5335 4 cores; 6GB RAM; 12TB HDD RAID
- 4x Supermicro Server Xeon E5645 12 cores; 32GB RAM; 1TB
- 28x Intel Server Xeon E5-2609 8cores; 8GB RAM; 1TB HDD RAID
- 28x Supermicro Server Xeon E5-2640 12 cores; 32GB RAM; 1TB
- 4x Supermicro Server Xeon E5-2630v2 12 cores; 32GB RAM; 1TB
- 8x Supermicro Server Xeon E5-2620v3 12 cores; 32GB RAM; 1TB
- 8x Supermicro Server Xeon E5-2650 16 cores; 64GB RAM; 2TB HDD RAID; 256GB SSD; 3x NVIDIA Tesla K20

NETWORK

- 3x Dell Powerswitch 48p 1Gbit/s; 2p 10Gbit/s
- 2x SMC 8748L2 50p 1Gbit/s
- 2x EdgeCore ECS4610-50T 48p 1Gbit/s; 128Gbit/s stacking
- 3Com 3824 24p 1Gbit/s
- Voltaire 36p Infiniband QDR 40Gbit/s

SLAVE Nodes

- 36x Supermicro Server Xeon E5420 8 cores; 8GB RAM; 1TB HDD RAID
- 10x Tyan server Xeon E5430 8 cores; 8GB RAM; 1TB HDD RAID
- 24x Intel Server Xeon E5620 8cores; 8GB RAM; 1TB HDD RAID; Infiniband QDR 40Gbit/s

ENERGY

- APC Symmetra 160K UPS - 64KVA Installed

CHILLERS

- 2x YORK 20kW Chillers
- 2x APC InRow RD20
- CLIVET 14kW
- Mitsubishi PUHZ140



NUCLEAR MAGNETIC RESONANCE

RESPONSIBLE UCIBIO-FCT NOVA

Eurico J Cabrita

PhD in Organic Chemistry, 1994, FCT NOVA
Habilitation in Physical Chemistry, 2016, FCT NOVA
Assistant Professor, FCT NOVA
Coordinator of the Portuguese Nuclear Magnetic Resonance Network (PTNMR)

STAFF

Ana Teresa Lopes (Lab Technician)
Jorge Dias (Post-Doc)

FUNDING

Fundação para a Ciência e Tecnologia
RECI/BBB/BQB/0230/2012

WEBSITE

Www.dq.fct.unl.pt/en/external-services/nuclear-magnetic-resonance-nmr

RESPONSIBLE UCIBIO-UPORTO

Maria Conceição Rangel

PhD in Biomedical Sciences, 1989, UPorto
Habilitation in Biomedical Sciences, 2011, UPorto
Associate Professor, ICBAS UPar

STAFF

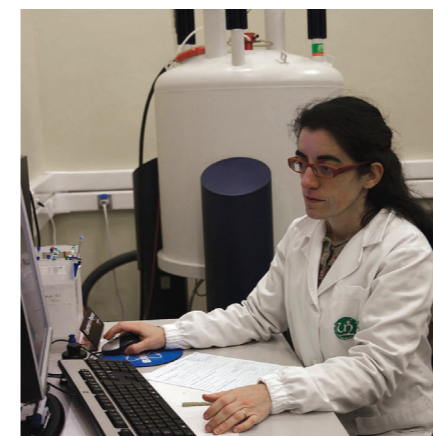
Mariana Andrade (Lab Technician)

FUNDING

Fundação para a Ciência e Tecnologia

WEBSITE

www.cemup.up.pt/index_e.html



DESCRIPTION

The NMR Facility at UCIBIO (FCT NOVA and UPORTO) is integrated in the Portuguese Nuclear Magnetic Resonance Network (PTNMR). PTNMR is a distributed National Research Infrastructure that integrates the Portuguese Roadmap of Research Infrastructures. PTNMR provides coordinated access to a national platform of equipment, resources, services and skills in NMR for participating institutions and the scientific community, from both national and international R&D industry and academia. The main goal is the maintenance of a single platform that supports the technical integration, sharing of resources and a combined management of the national NMR infrastructure, enabling access to modern and fully operational NMR spectrometers and support of R&D initiatives.

The NMR facility of UCIBIO-FCT NOVA, hosted in the Chemistry Department, pioneered in Portugal in the use of NMR for the determination of protein structures. Currently, we still support many research projects focused on the determination of protein structure and dynamics but most of the research being conducted is related to the study of molecular interactions and molecular recognition in a wide range of chemical and biochemical systems. The facility is also strongly committed to providing NMR routine services to support in-house synthesis and chemical (bio)engineering research groups.

The NMR facility of UCIBIO- UPORTO is part of the Structural Analysis Laboratory of the University of Porto Materials Center (CEMUP). The three spectrometers available provide NMR routine services to support in-house researchers, graduate and post-graduate students as well as external users.

EQUIPMENT

UCIBIO-FCT NOVA

Magnet:
Bruker Avance II+ 600 14.1 T, narrow bore
1H frequency: 600 MHz

Console:
4-channel digital AQS/2 Bruker Avance II+ Gradient: GREAT Z-Gradient Temperature controlled BCU-05

NMR probes:
Cryoprobe TCI (¹H, ¹³C, ¹⁵N); 5 mm QNP (¹H, ¹⁹F, ¹³C, ³¹P)

Magnet:
Bruker Avance II+ 400 9.4 T, narrow bore
1H frequency: 400 MHz

Console:
3-channel digital AQS/2 Bruker Avance II+ Gradient: GREAT Z-Gradient HR-MAS control unit Temperature controlled BCU-xtreme

NMR probes:
5 mm TXI (¹H, ¹³C, ¹⁵N); 4 mm HR-MAS (¹H, ¹³C, ¹⁵N)

Magnet:
Bruker Avance III 400 9.4 T, narrow bore
1H frequency: 400 MHz

Console:
Nanobay, 2-channel digital Automatic sampler NMR case

NMR probes:
5 mm QNP (¹H, ¹⁹F, ¹³C, ³¹P)

UCIBIO-UPORTO

Magnet:
Bruker Ascend 600 14.1 T, narrow bore
1H frequency: 600 MHz

Console:
3-channel digital AQS/2 Bruker Avance III Gradient: GREAT Z-Gradient, Temperature controlled BCU-Xtreme, with automatic sampler Sample Express

NMR probes:
5 mm TCI Prodigy BBO; 5 mm TXI (¹H, ¹³C, ¹⁵N)

Magnet:
Bruker Avance III 400 9.4 T, Ultrashielded
1H frequency: 400 MHz

Console:
Avance III 3-channel digital Gradient: GRASP IIP Temperature controlled BCU-Xtreme

Magnet:
Bruker Ascend II+ 400 9.4 T, narrow bore
1H frequency: 400 MHz

Console:
3-channel digital AQS/2 Bruker Avance II+ Gradient: GREAT Z-Gradient HR-MAS control unit Temperature controlled BCU-xtreme

NMR probes:
5 mm broad band BB-1H-D
5 mm inverse detected triple resonance 1H-BB-D
5 mm dual DUAL

PILOT INSTALLATION

RESPONSIBLE

Maria Reis
PhD in Biochemical Engineering, 1991, FCT NOVA
Habilitation in Biochemical Engineering, 2003, FCT NOVA
Full Professor, FCT NOVA

POST-DOCS FELLOWS

Catarina S. S. Oliveira
Joana Cassidy
Mónica Carvalheira

PHD FELLOWS

Jorge Santos
Mariana Matos
Rafaela Cruz

RESEARCH ASSISTANTS

Bruno Oliveira
Emanuel Lopes
Fernando Silva
Pedro Cardoso

DESCRIPTION

The UCIBIO pilot plant's mission is to be a key enabler of training and education to produce highly skilled graduate students in the field of Biotechnology/Biochemical Engineering. To be responsible for conducting world-class research and innovation in key areas of bioprocess technology and providing state-of-the-art pilot plant facilities for conducting research, development and training.

The pilot plant enables to develop biotechnological processes up to the 100L working volume and to obtain products (such as biopolymers) up to the kg-scale.

EQUIPMENT

EQUIPMENT USED FOR EUROPHA PROJECT:

- 1 up-flow anaerobic sludge blanket reactor with up to 100L operating volume, to perform the acidogenic fermentation;
- 1 sequencing batch reactor type with up to 100L operating volume, to perform the microbial selection;
- 1 fed-batch reactor type with up to 50L operating volume, to perform the production of biopolymers;
- 1 feeding tank with up to 200L operating volume;
- Feeding and recirculation pumps to acidogenic reactor;
- Feeding and macronutrient pumps to selection reactor;
- Feeding pump to biopolymer production reactor;
- Biomass purge pump to inoculate biopolymer production in reactor;
- Water bath for acidogenic reactor;
- Hydrogen transducer for acidogenic reactor;
- Air compressor for selection and accumulation reactors;
- CEPA® Z 41 High-Speed Tubular Centrifuge;
- Accessories needed for pilot plant operation and as sensors for online monitoring;
- Control hardware & software;

EQUIPMENT USED FOR PHASEPLIT PROJECT:

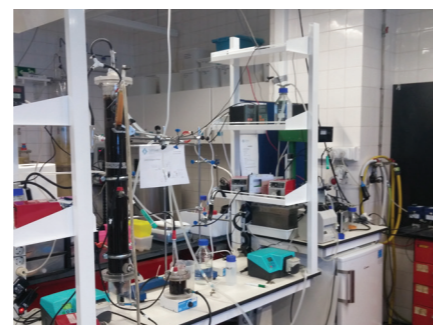
- 1 CSTR with up to 100L operating volume
- 1 settler with up to 30L operating volume
- 1 feeding tank with up to 30L operating volume
- 1 recirculation pump for acidogenic reactor
- 1 feeding pump for acidogenic reactor
- pH dosing pump
- 1 upflow anaerobic sludge blanket (UASB) methanogenic reactor with up to 100L operating volume
- 1 recirculation pump for methanogenic reactor
- 1 feeding pump for methanogenic reactor
- 1 buffer tank with up to 100L operating volume
- Control hardware and software
- Gas flow meter and sensors

EQUIPMENT USED FOR SALTGAE PROJECT:

- 2 up-flow anaerobic sludge blanket reactor with up to 2.5L operating volume
- 1 reactor CSTR with up to 1L operating volume
- Incubator

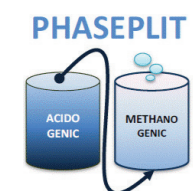


Layout of the biopolymer production process used in PHASEPLIT project



Layout of the biopolymer production process used in SALTGAE project.

FUNDING



PORTUGUESE YEAST CULTURE COLLECTION

RESPONSIBLE

José Paulo Sampaio
PhD in Microbiology, 1996, FCT NOVA
Associate Professor, FCT NOVA

STAFF

Cláudia Carvalho
Ana Pontes

DESCRIPTION

The Portuguese Yeast Culture Collection (PYCC) is a service and research collection that provides support to R&D activities in Portugal and abroad. PYCC is a culture collection specialized in yeasts but maintains also cultures of filamentous fungi and bacteria.



Associated Partner of the Microbial Resource Research Infrastructure



PYCC is a Corporate Member of the European Culture Collections' Organisation



PYCC is a member of the World federation for Culture Collections WDCM#595

WEBSITE

pycc.bio-aware.com



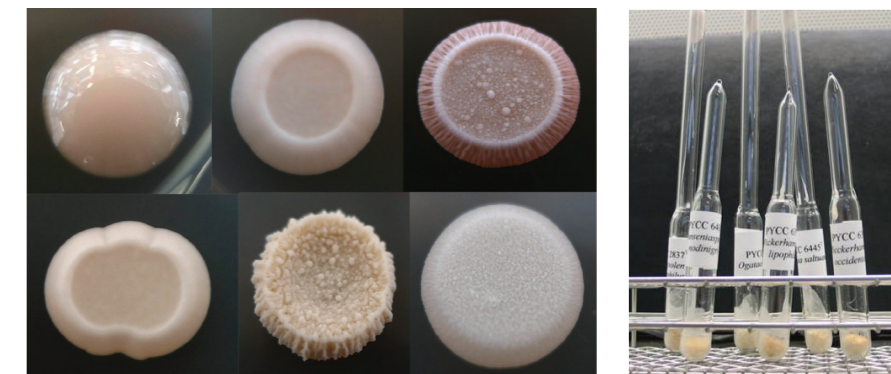
The collection serves as a repository of yeast biodiversity and genetic resources, with emphasis on Mediterranean foods, beverages and natural habitats.

Currently PYCC holds approximately 4000 yeast strains that represent most of the known diversity of this group of microorganisms.

PYCC holdings can be assessed through the Collection's online catalogue.

About 1500 strains are unique to PYCC and were obtained in ecological studies carried out by researchers of the laboratories that housed the collection.

Most of the current PYCC holdings have been authenticated through state-of-the-art molecular methods and all strains available in the Collection are cryopreserved at -145°C.



Colonies from yeast cultures maintained at PYCC
© Ana Pontes and Cláudia Carvalho.

Preparation of lyophilized cultures
© Cláudia Carvalho.

SINGLE-CRYSTAL X-RAY DIFFRACTION

RESPONSIBLE

Maria João Romão

PhD in Chemistry, 1989, IST-UL
Habilitation in Biochemistry, 2001, FCT NOVA
Full Professor, FCT NOVA

STAFF

Ana Luísa Carvalho (UCIBIO Researcher)
Teresa Santos-Silva (FCT Investigator)
Sónia Barroso
(Chemical Crystallography Responsible Scientist)
Cecília Bonifácio (Chemical Crystallography Technician)

FUNDING

Fundação para a Ciência e Tecnologia
RECI/BBB-BEP/0124/2012

COST

BioStruct/iNEXT
INSTRUCT

WEBSITES

sites.fct.unl.pt/xtal
www.dq.fct.unl.pt/en/single-crystal-x-ray-structure-determination

DESCRIPTION

The X-ray Diffraction facility provides the screening, testing and complete data collection from X-ray diffraction of single crystals, either from protein or small molecule compounds. Data is obtained in the in-house X-ray diffractometer or through access to synchrotron macromolecular crystallography beamlines (ESRF, DIAMOND, SLS, SOLEIL, DESY, ALBA). Diffraction is performed using an X-ray diffractometer (with KAPPA four-circle goniometer), and complete data are collected according to experimental requirements. A microspectrophotometer is available and can be coupled to the goniometer. Dedicated software permits indexing, integration, scaling of data and 3D structure solution.

Small-Angle X-ray Scattering (SAXS) experiments can be performed through access to synchrotron facilities.

A service for Single Crystal X-ray Structure Determination of small molecules is available.

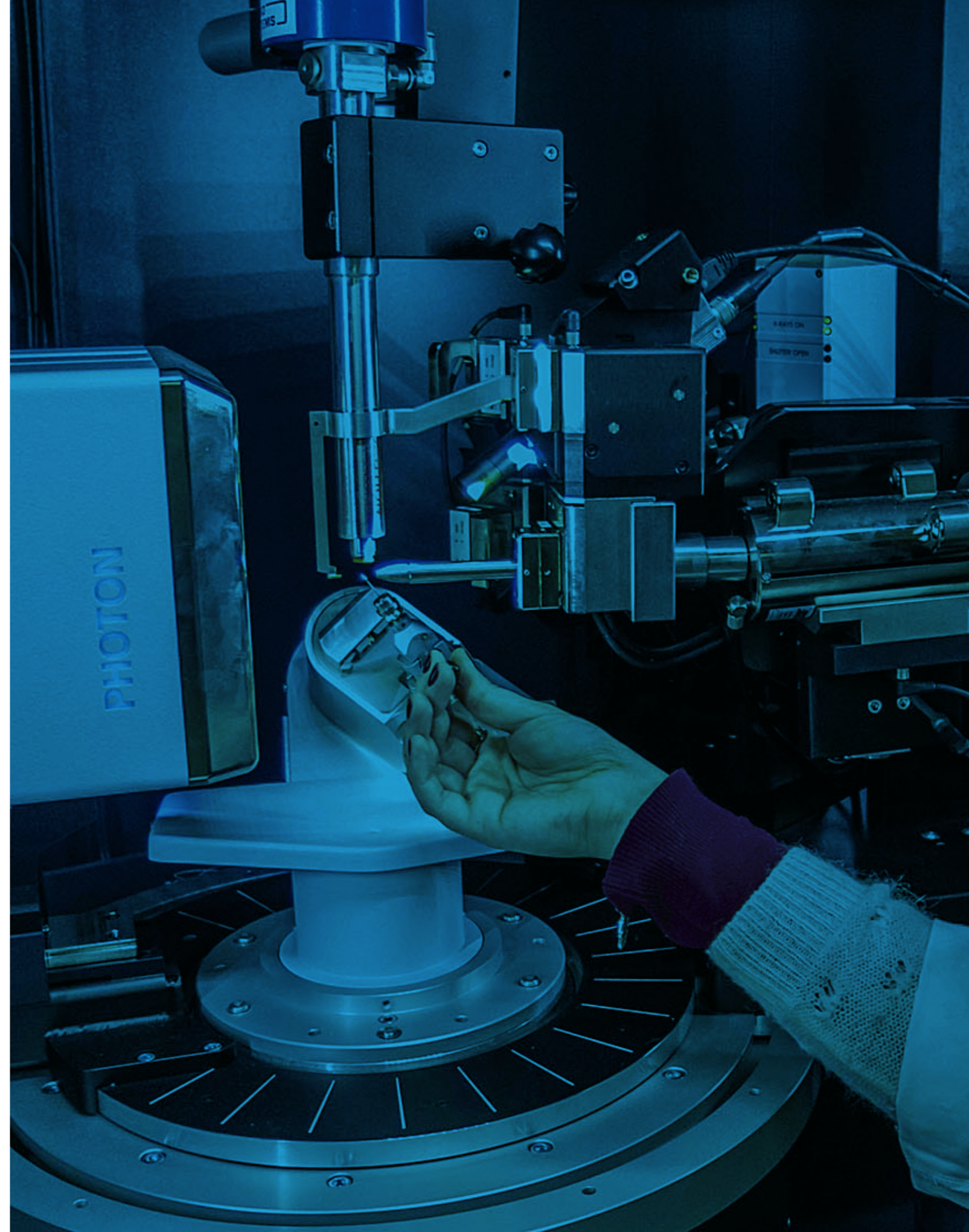
The facility integrates the Portuguese Center for Integrated Structural Biology (PCISBIO), an Affiliate Center of Instruct.

EQUIPMENT

- X-ray diffractometer with KAPPA four-circle goniometer (Bruker D8 Venture)
- μ S 3.0 microfocus Mo-K α and Cu-K α X-ray sources (Bruker)
- Photon 100 CMOS detector
- Cryostream 600 (Oxford CryoSystems)
- ISX Stage for in-situ X-ray crystallography
- Microspectrophotometer (4DX Systems)
- Xe chamber for crystal derivatization (Hampton Research)
- Automated nanodrop equipment for protein crystallization (Dryx8, Douglas Instruments)



KAPPA four-circle goniometer in a microfocus X-ray diffractometer and photon counter CMOS detector



5

SCIENCE MANAGEMENT

SCIENCE MANAGEMENT OFFICE



RESPONSIBLE

Teresa Sequeira Carlos

SCIENCE COMMUNICATION & MANAGEMENT

PhD in Molecular Virology & Immunology, 2005,
University of St. Andrews, UK
e-mail: tsc@fct.unl.pt

STAFF

Joana Ribeiro, PhD, Funding Pre-award
José Braga, PhD, IT Specialist
Bárbara Costa, secretary

FUNDING

Fundação para a Ciência e a Tecnologia

DESCRIPTION

Science Communication

We are responsible for disseminating relevant discoveries and breakthroughs, prizes and achievements of UCIBIO research. We publish these, regularly, into the research unit website to reach a broad audience. Liaising with the media by sending press releases, resulting in several media appearances. We aim to establish the bridge between researchers and the society. To engage public with UCIBIO's research, we support researchers to be involved in outreach activities in the local/regional community including school visits, open days, science fairs, workshops, public talks and events. We collaborate with the national agency for scientific culture, Ciência Viva, to participate in national science outreach activities, through which, researchers ensure that their research work is understood by non-specialists and contribute to a better understanding of science by the general public. We organize and support researchers to organize workshops and conference cycles. We have recently launched, together with UCIBIO Researchers, the Workshop series on "Funding Applications & Career Development" that aims to encourage and support researchers, from late PhD students to young post-docs and staff researchers, to build a solid and successful research career.

IT

We aim at providing automation tools that facilitate and speed up management processes. We are developing a responsive web-based application for management of data relevant to the Research Units. Researchers will have easy (and secure) access to their personal, institutional and scientific productivity data. This platform will also provide managers with tools to extract statistics and key performance indicators.

Funding

We deliver a supportive service to strengthen the international impact of UCIBIO's research by: identifying and disseminating national and international funding opportunities; actively liaising with funding agencies and sponsors to comply with grants and awards application requirements; supporting researchers in the preparation and submission of proposals to competitive calls, specially European and framed with the H2020 programme.

FUNDING, TECHNOLOGY TRANSFER AND TRANSLATION TO INDUSTRY

The newly created Science Management Office (SMO) at UCIBIO works in close collaboration with the Research and Innovation Accelerator (RIA) office at FCT NOVA. Frontiers IP Group plc (UK) has a contract with RIA and provides direct support in Technology Transfer (TT). At UPorto, internationalization and TT are provided by UPorto Rectorate and UPTEC. These offices work towards increasing the capture of international funding by pulling together RGs and researchers for joint applications to H2020 calls and translating ongoing collaborations with international partners into competitive proposals under Horizon 2020 EU Framework Programme.

UCIBIO's research funding secured from the European Commission competitive funds has significantly increased from 493K€ in 2014 to 742K€ in 2015 and 1.96M€ in 2016. To foster the development of competitive and successful proposals for H2020 Framework Programme

calls, SMO has managed several workshops towards improvement of researchers' awareness of funding options [e.g. "Tips & Tricks for successful funding", 15th September 2016, and "Hands-on session of Horizon 2020 Grant writing workshop", 21st December 2016, of the Mini Workshops series "Funding Applications & Career Development"]. SMO has also been involved in improving connections with program managers and funding agencies.

In addition, SMO in close collaboration with RIA has been supporting the process of IP protection of current research projects. The number of IPs submitted in 2014 were 4, in 2015 - 6 and in 2016 - 8.

Supported on more than 12 years of research in the use of nanoparticles for diagnostics and expertise on molecular diagnostics, in December 2015 researchers from UCIBIO have launched Nano4 Global, Lda, a nanodiagnostic

company. Nano4 Global is currently finishing the first round of VC seed investment, was a finalist of "Prémio NOS INOVAÇÃO" and one of the 67 Portuguese Companies invited to represent Portugal in the WebSummit 2016.

UCIBIO has strengthened the existing collaborations with Industry/SMEs, which is noticeable by the increase in direct funding from industry for services and focused research projects (Industry funding: 40K€ in 2014, 152K€ in 2015 and 119K€ in 2016). Some examples are the ongoing projects with Sumol+Compal, Merck-Serono, VitroBio, Siamab Therapeutics, BluePharma, Hovione, Sogrape, Petrobras and Amorm & Irmãos. The UCIBIO pilot plant has been a key enabler and promoter of the successful collaborations with Industry/SME, enabling the upscale, demonstration and validation of technologies in the areas of biotechnology and biochemistry.

UCIBIO has been increasingly focusing on translation to Clinical setting through projects in collaboration with key central hospitals/ Medical Institutes [e.g. Hospital Garcia da Orta, Hospital dos Capuchos, Hospital São José,

Hospital Infante D. Pedro (Aveiro), Instituto Português de Oncologia (Porto, Lisboa), Instituto de Higiene e Medicina Tropical/ Hospital Egas Moniz; Hospital of Tras-os-Montes e Alto Douro (Vila Real), Centro Hospitalar do Porto, Centro Hospitalar da Universidade de Coimbra, CUF Grupo José Mello Saúde, Hospital de Ourense (Spain), Hospital Ramón y Cajal (Spain), Miguel Servet University Hospital (Spain), Cedars Sinai Hospital (USA), St James's Hospital (Dublin, Ireland), Center for Metabolic Disease, KU Leuven, (Belgium)].

In 2016, a completely novel centralized Laboratorial Facility to support transectorial research within UCIBIO at FCT NOVA was created - BioLab (Section 4). BioLab also provides specialized contract services to other R&D units, SMEs, hospitals and industry. Until the end of 2017, an animal research facility will be operating within BioLab, critical for biomedical research and for the pre-clinical validation of potential novel biomolecules/biomaterials that can be translated to the Industry.

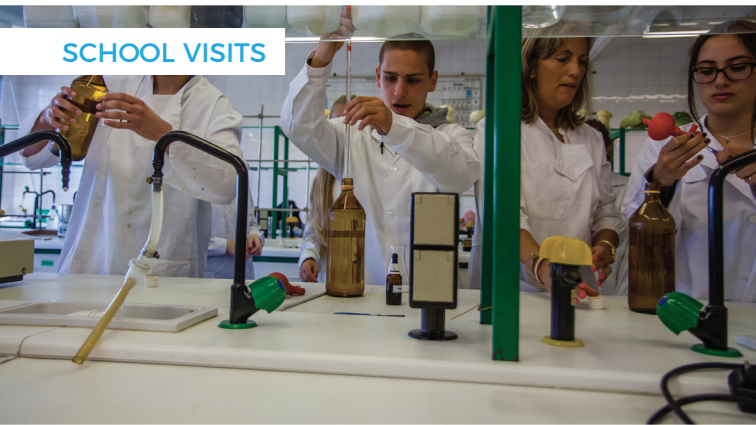


OUTREACH AND DISSEMINATION

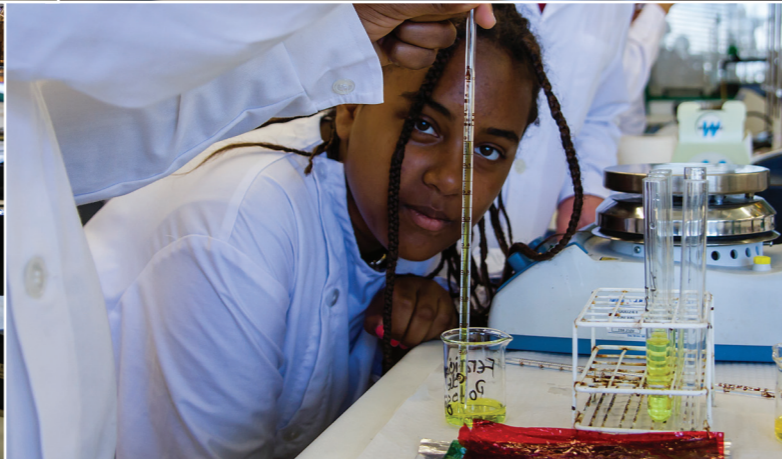
UCIBIO's researchers are aware of the benefits of outreach activities for a broader impact of their activity. Aiming to engage public with research work developed at UCIBIO, researchers are involved in various outreach actions, including open days, school visits, workshops, public talks and events for local entities (schools, hospitals, science fairs, etc). Through these activities, researchers ensure that their research work is understood by non-specialists and contribute to a better understanding of science by the general public. UCIBIO's discoveries and breakthroughs are also constantly published on the research unit website to keep the community informed. The

Science Communication Office interacts with media by sending press releases of the most relevant discoveries, prizes and achievements, resulting in several references in the media.

UCIBIO also participates in national science outreach activities by collaborating with the national agency for scientific culture, Ciência Viva. More specifically, UCIBIO is one of the partners of Ciência Viva in the current 3 year international project, World Biotech Tour, which aims to promote understanding of biotechnology, and how it touches our lives every day. UCIBIO researchers participate actively in the European Researchers Night.



SCHOOL VISITS



EUROPEAN RESEARCHERS NIGHT



WORLD BIOTECH TOUR



LAB ACTIVITIES - FRESHMEN



EXPO FCT



MEDIA APPEARANCES

OBSERVADOR

CIÊNCIA

Motivar os investigadores portugueses com mais sete milhões de euros

4/12/2014, 21:12 573

Investigar as falhas na coordenação motora, no sistema imunitário ou na forma como as células se dividem garantiram aos investigadores uma das mais prestigiadas bolsas europeias.

Partilhe

Cinco jovens investigadores distinguidos pelo Conselho Europeu de Investigação
@ Andreia Reisinho Costa

CIÊNCIA Sensor de papel detecta bactérias produtoras de electricidade

Sensor de papel detecta bactérias produtoras de electricidade

O dispositivo, que recorre a nanopartículas que mudam de cor em contacto com as bactérias, foi desenvolvido por uma equipa portuguesa.

LUSA - 24 de Abril de 2015, 13:40

Em presença de certas bactérias, o sensor de papel torna-se azul DR

Cientistas liderados por Elvira Fortunato e Carlos Salgueiro, da Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa, criaram um teste rápido, feito à base de

CIÊNCIA Projectos sobre cancro, AVC e acidificação dos oceanos vencem prémios L'Oreal

Projectos sobre cancro, AVC e acidificação dos oceanos vencem prémios L'Oreal

Desenvolvimento de um sistema para fazer chegar fármacos às células cancerosas e estudos para descobrir causas dos acidentes vasculares cerebrais misteriosos e o efeito nos peixes da acidificação dos oceanos venceram Prémios Mulheres na Ciência.

NICOLAU FERREIRA - 23 de Fevereiro de 2016, 7:00

CIÊNCIA De onde vêm as principais leveduras do vinho? Dos carvalhos do Mediterrâneo

De onde vêm as principais leveduras do vinho? Dos carvalhos do Mediterrâneo

Equipa coordenada por investigador português acaba de descobrir a origem selvagem das leveduras vinícolas mais utilizadas na fermentação das uvas. Este é um novo capítulo da história da domesticação do nosso melhor "microorganismo".

RITA PONCE - 25 de Novembro de 2015, 8:31



26 | **CIÊNCIA** | PÚBLICO, TER 1 SET 2015

Enzima do fígado vista pela primeira vez a 3D por cientistas portuguesas

A estrutura de uma proteína existente no fígado humano, central para a transformação dos medicamentos, foi agora revelada – átomo a átomo

Bioquímica Catarina Rocha

É uma enzima do fígado humano que tem especial importância para o metabolismo de vários fármacos. Chama-se aldeído oxidase (AOX) e foi agora pela primeira vez vista a três dimensões por uma equipa de investigadoras portuguesas. A descoberta da estrutura desta proteína com mais de dez mil átomos foi publicada ontem na revista *Nature Chemical Biology*, e é um contributo para o desenvolvimento de novos medicamentos, tornando-os mais eficazes e diminuindo o seu custo.

Esta proteína de acção catalisadora intervém num grande número de reacções de metabolismo de medicamentos no fígado humano, mas alguns desses processos não são ainda bem conhecidos e previsíveis. O fracasso de uma grande parte dos ensaios clínicos feitos pelas empresas farmacêuticas deve-se à dificuldade em saber se determinada molécula será ou não metabolizada pela AOX,

si", explica Catarina Coelho, da UNL e também da equipa portuguesa, que inclui ainda Teresa Santos Silva. "Apenas quando conseguimos localizar as posições da maioria dos mais de dez mil átomos é que podemos correlacionar a estrutura com a função (da proteína) e tirar conclusões acerca dos mecanismos enzimáticos e de inibição", acrescenta Catarina Coelho, citada num comunicado da UNL.

Cristais por correio

A bactéria *Escherichia coli* foi o organismo escolhido para produzir a enzima em quantidade suficiente para ser cristalizada. A equipa colaborou com cientistas da Universidade de Potsdam, na Alemanha, devido à especificidade da *Escherichia coli* – porque algumas moléculas "ajudantes" (cofactores), necessárias para a activação da enzima, não são facilmente sintetizadas pela bactéria.

"Já tinha sido desenvolvida em Inglaterra uma estirpe de *Escherichia coli* específica para a produção de

ECONOMIA | Expresso

ÚLTIMAS OPINIÃO ECONOMIA EXPRESSO CURTO PODCASTS TRIBUNA TRUMP: 5 ENSAIOS 2:59

Startup portuguesa cria sistema portátil de diagnósticos para tuberculose e zika

27.09.2016 às 13h40

A Nano4, um startup portuguesa sediada em Lisboa, quer liderar a nível mundial a nova geração de diagnósticos para doenças infecciosas e cancro

Fazer os diagnósticos clínicos moleculares de doenças como a tuberculose, zika ou cancro de uma forma rápida, fiável e a baixo custo. Esta é a inovação que a startup portuguesa Nano4 se prepara para lançar em breve no mercado mundial e que poderá mudar de forma radical a maneira tradicional de fazer diagnósticos em laboratório.



d dinheiro vivo NEGÓCIOS MERCADOS ECONOMIA FAZEDORES GESTÃO & RH MARKETING & PUB OPINIÃO

Dinheiro Vivo TV Star Company by Dinheiro Vivo Fotogalerias Harvard Business Review Encontros 560

PREMIO NOS INOVAÇÃO 2016

Nano4 Global: Diagnosticar doenças numa questão de segundos



Empresa portuguesa de nanotecnologia coloca Portugal na vanguarda dos métodos de diagnóstico clínico.

Marta Velho

08.10.2016 14:00

"Como se de peças Lego se tratassem, as moléculas encaixam umas nas outras e, através do ADN, reconhecem a doença," de bata branca, rodeado de pipetas, tubos de ensaio e outros materiais de laboratório,

EXPRESSO TRIBUNA BLITZ EXAME INFORMÁTICA EXAME BOA CAMA BOA MESA EMPREGO IMOBILIÁRIO O MIRANTE

Expresso

ÚLTIMAS OPINIÃO ECONOMIA EXPRESSO CURTO PODCASTS TRIBUNA TRUMP: 5 ENSAIOS 2:59

PROJETO 20x20

Narizes artificiais para prevenir infeções

08.01.2015 às 16h37


6

SEMINARS
AND
CONFERENCES

- 2015-09-30 - César Laia (LAQV, FCT-NOVA), 'Development of Electrochromic Devices'
- 2015-10-14 - Sérgio Filipe (UCIBIO, FCT-NOVA), 'How Bacteria Conceal their Surface from the Host'
- 2015-10-28 - Paula Videira (UCIBIO, FCT-NOVA), 'Glycoimmunology: the Sugars and the Immune Response'
- 2015-11-11 - Victor Freiras (LAQV, FCT-NOVA), 'Polyphenols-Relevance to Food Sensorial Quality'
- 2015-11-25 - Salette Reis (UCIBIO, FCT-NOVA), 'The Role of Lipids on Health, Disease and Therapeutics: MB2 Contribution'
- 2015-12-02 - Burkhard Köning, (Faculty of Chemistry and Pharmacy, University of Regensburg, Germany), 'Photoredox Catalysis: Organic Synthesis with Visible Light', FCT-NOVA,
- 2015-12-16 - Ana Lobo (LAQV, FCT-NOVA), 'Technology for the Future-What are the Pressing Issues?'
- 2016-01-06 - Luísa Peixe (UCIBIO, Faculdade de Farmácia, Universidade do Porto), 'Going Deep in the Inter-and Intraspecies Differentiation of Clinically Relevant Bacteria by MALDI-TOF MS and FTIR'
- 2016-01-13 - Félix Carvalho (UCIBIO, Faculdade de Farmácia, Universidade do Porto), 'Involvement of Mitochondria in the Neurotoxicity of Ecstasy'
- 2016-01-27 - Luís Cunha e Silva (LAQV, Faculdade de Ciências, Universidade do Porto), 'Metal-Organic Framework Based Materials for Sustainable Catalysis'
- 2016-02-10 - Luís Jaime Mota (UCIBIO, FCT-NOVA), 'The Injectisome: a Nanomachine for Bacterial Poisonous Kisses'
- 2016-02-24 - José Esperança (ITQB, FCT-NOVA), 'New Developments in Ionic Liquids Research'
- 2016-03-09 - Gideon Davies (University of York, United Kingdom), 'Structural Enzymology and Carbohydrate Chemistry'
- 2016-03-23 - Arwen Pearson (University of Hamburg, Germany), 'Developing Tools to Probe Protein Structure, Function and Dynamics'
- 2016-03-30 - André Sanches Ribeiro (Tampere University of Technology, Finland), 'Promoter Sensitivity to σ Factor Numbers in Escherichia coli'
- 2016-04-13 - Cristina Silva Pereira (ITQB, FCT-NOVA), 'Ionic Liquids as Unforeseen Assets to Fight Life-Threatening Mycotic Diseases'
- 2016-04-27 - Luís Passarinha (Faculdade de Ciências da Saúde, Universidade da Beira Interior), 'Biosynthesis and Purification strategies to Break the Bottlenecks Lined to Membrana Protein Structure Resolution'
- 2016-05-11 - Cristina Freire (Faculdade de Ciências, Universidade do Porto), 'Nanocatalysis: the Bridge Between Heterogeneous and Homogeneous Catalysis'
- 2016-06-01 - Luísa Peixe (UCIBIO, Faculdade de Farmácia, Universidade do Porto), 'Going deep in the inter- and intraspecies differentiation of clinically relevant bacteria by MALDI-TOF MS and FTIR'
- 2016-06-22 - Beatriz Royo (ITQB, FCT-NOVA), 'Challenging Catalysis with Cheap and Abundant Metals'
- 2016-07-13 - Luís Filipe Lages (NOVA School of Business and Economics), 'How to Bring Science and Technology to the Market'
- 2016-10-26 - Orfeu Flores (STAB VIDA), 'STAB VIDA- from Laboratory Business to Digital Business'
- 2016-11-09 - Ludwig Krippahl (NOVA LINCOS, DI, FCT-NOVA), 'Computer Assisted Data Analysis'
- 2016-11-23 - Eunice Costa (Inhalation and BioPharmaceuticals, HOVIONE), 'Pulmonary Delivery: The Challenge of Small Particles at Large Scale'
- 2016-12-07 - Susana Gaudêncio (LAQV and UCIBIO, FCT-NOVA), 'Blue Biotechnology: Marine Actinomycetes as a Source of Bioactive Compounds with Industrial Applications'

3rd LAQV-UCIBIO Conference Cycle
March- July 2016

FCT FACULDADE DE CIÊNCIAS E TECNOLOGIA UNIVERSIDADE NOVA DE LISBOA



Room 217D - ED
1:30 pm – 2:30 pm

UCIBIO LAQV

4th LAQV-UCIBIO Conference Cycle
October - December 2016

FCT FACULDADE DE CIÊNCIAS E TECNOLOGIA UNIVERSIDADE NOVA DE LISBOA



Room 217D - ED
12:00 - 13:00

UCIBIO LAQV

ORGANIZATION OF OTHER SEMINARS

1. Kattesh V. Katti (Cancer Nanotechnology Platform, University of Missouri), 'Green Nanotechnology-Implications In Nanomedicine for the Creation of Holistic Integrative Medicine (HIM)', 2015-01-13. Host: Ricardo Franco
2. 'Nanoparticles in modern analytical chemistry: advances and perspectives', UPORTO, Porto, Portugal, 2015-02-02. Host: Marcela Segundo
3. Ada E. Yonath (Department of Structural Biology, Weizmann Institute, Israel), 'Ribosome Structure and Function', FCT-NOVA, 2015-04-02. Host: Ana Luísa Carvalho, Maria João Romão, Teresa Santos-Silva
4. 'O ciclo da vida na biologia da mulher: alterações associadas a síndrome do ovário poliquístico', UPORTO, Porto, Portugal, 30 April 2015. Host: Irene Rebelo
5. Brian Kobilka (Department of Molecular and Cellular Physiology, Stanford University, USA), 'Structural Insights into the Dynamic Process of G Protein Coupled Receptor Signaling', FCT-NOVA, 2015-05-06. Host: Ana Luísa Carvalho, Maria João Romão, Teresa Santos-Silva
6. 'Diabetes mellitus: diagnóstico, classificação, complicações e terapêutica', UPORTO, Porto, Portugal, 21 May 2015. Host: Irene Rebelo
7. 'From idea to market', UPORTO, Porto, Portugal, 2015-05-27. Host: Lucília Saraiva
8. 'Red Biotech: Finding a meaning for life', UPORTO, Porto, Portugal, 2015-05-28. Host: Lucília Saraiva
9. 'New drug development in Portugal', UPORTO, Porto, Portugal, 2015-06-25. Host: Lucília Saraiva
10. 'First Symposium on Immunomodulation in Cancer and Regeneration. 2015.', Porto, Portugal', FCT-NOVA, Porto, Portugal, 2015-07-02. Hosts: Catarina Almeida, Maria Jose Oliveira, Susana Santos. Scientific coordination: Paula Videira, Manuel Sobrinho Simões, Luis Graça.
11. 'Jornadas de Segurança Alimentar e Saúde Pública', UTAD, Vila Real, Portugal, 2015-10-02. Host: Gilberto Igrejas
12. '9as Jornadas de Biologia', UTAD, UTAD, Vila Real, Portugal, 14-15 October 2015. Host: Gilberto Igrejas
13. 'III Jornadas de Saúde Pública e Farmacoterapia', UPORTO, Porto, Portugal, 2015-11-25. Host: Lucília Saraiva
14. 'XI Encontro Nacional de Biologia Evolutiva', FCT-NOVA, Caparica, Portugal, 2015-12-21. Host: Marco A. Coelho, Paula Gonçalves
15. 'How to cook a dog? FCT-NOVA', FCT-NOVA, Caparica, Portugal, 8,16,23 Mar 2016. Host: José Luis Capelo, Carlos Lodeiro
16. 'O contexto da procriação medicamente assistida em Portugal', FFUP, UPORTO, Porto, Portugal, 2016-05-01. Host: Irene Rebelo
17. Luis Filipe Loureiro (DVM, Adjunct Professor Tulane University), 'Uma Saúde': a interface saúde animal, humana e o ambiente, UTAD, Vila Real, Portugal, 2016-05-09. Host: Patrícia Poeta
18. World Congenital Disorders of Glycosylation (CDG) Awareness Day, FCT-NOVA, Caparica, Portugal, 2016-05-16. Coordination: Paula Videira
19. '7as Jornadas Atlânticas, Pharmaceutical Society -O embriologista na avaliação de um casal infértil' contexto da procriação medicamente assistida em Portugal', FFUP, UPORTO, Porto, Portugal, 2016-06-02. Host: Irene Rebelo
20. Robert Sackstein (Director of the Program of Excellence in Glycosciences), 'Translational Glycobiology: Making Post-translational TRANSLATIONAL', 2016-06-05. Host: Paula Videira
21. Edson Teixeira (Integrated Laboratory of Biomolecules, Faculdade de Medicina, Universidade Federal do Ceará - Brasil), 'Biological Activities of Lectins', FCT-NOVA, 2016-09-22. Host: Paula Videira

22. Thomas Peters (Institute of Chemistry, Center for Structural and Cell Biology in Medicine (CSCM), University of Luebeck, Germany), 'Ligand binding - a more complicated matter than thought? Insights from NMR', FCT-NOVA, 2016-09-30. Host: Eurico Cabrita
23. 'VII Fórum em Investigação Farmacológica: farmacologia experimental. UTAD', UTAD, Vila Real, Portugal, 2016-10-19. Host: Patrícia Poeta
24. 'I Simpósio em Microbiologia: a tríade alimentos, saúde e ambiente. UTAD', UTAD, Vila Real, Portugal, 2016-11-23. Host: Patrícia Poeta
25. Ruth M. Gschwind (Universität Regensburg, Germany), 'Intermediates and Interactions in Photo- and Organocatalysis', 2016-11-24. Host: Eurico Cabrita

ORGANIZATION OF CONFERENCES, MEETINGS, COURSES AND WORKSHOPS

CONFERENCES

1. '1st International Caparica Conference in Antibiotic Resistance', FCT-NOVA, Aldeia dos Capuchos, Caparica, Portugal, 26-28 January 2015. Chairs: Carlos Lodeiro, Jose Luis Capelo
2. '4° Encontro de Biotecnologia Microbiana e Farmacêutica', UPORTO, Porto, Portugal, 2015-04-29. Host: Lucília Saraiva
3. 'Nutrient Removal and Recovery (NRR2015)', FCT-NOVA, Gdansk, Poland, 18-21 May 2015. Scientific Committee member: Adrien Oehmen
4. '6th European Conference on Chemistry in the Life Sciences (6th ECCLS)', FCT-NOVA, Lisboa, Portugal, Jun 10-12, 2015. Host: Sofia R. Pauleta
5. 'CSI 2015, colloquium spectroscopicum internationale XXXIX', FCT-NOVA, Figueira da Foz, Coimbra, Portugal, 30 August-3 September 2015. Host: Mário Diniz
6. 'IV International Congress on Analytical Proteomics', FCT-NOVA, Aldeia dos Capuchos, Caparica, Portugal, 7-9 September 2015. Chairs: Carlos Lodeiro, Jose Luis Capelo
7. 'European Symposium on Biopolymers (ESBP2015)', FCT-NOVA, Rome, Italy, 15-17 Sept 2015. Scientific Committee member: Maria Reis
8. 'II International Caparica Symposium on Profiling', FCT-NOVA, Aldeia dos Capuchos, Caparica, Portugal, 18-20 September 2015. Chairs: Carlos Lodeiro, Jose Luis Capelo
9. 'II International Caparica Conference on Urine Omics. URINOMICS 2015', FCT-NOVA, Aldeia dos Capuchos, Caparica, Portugal, 25-27 September 2015. Chairs: Carlos Lodeiro, Jose Luis Capelo
10. '4° Ciclo Divulgação Científica FFUP/ICBAS', UPORTO, Porto, Portugal, Outubro 2015 a Maio de 2016. Host: Elsa Bronze da Rocha, Artur Águas
11. 'VI Fórum em Investigação Farmacológica: atualidades do sistema nervoso.', UTAD, Vila Real, Portugal, 2015-10-23. Host: Patricia Poeta
12. 'VI International Conference on Environmental, Industrial and Applied Microbiology', FCT-NOVA, Barcelona, Spain, 28-30 Oct 2015. Scientific Committee member: Adrian Oehmen
13. '11° Encontro Nacional de Química Orgânica e 4° Encontro Nacional de Química Terapêutica', UPORTO, Porto, Portugal, 1-3 Dez 2015. Host: Paula Gomes
14. 'First International Caparica Christmas Conference on Translational Chemistry, IC3TC2015', FCT-NOVA, Aldeia dos Capuchos, Caparica, Portugal, 7-10 December 2015. Chairs: Carlos Lodeiro, Jose Luis Capelo
15. '6th joint congress of Microbiology and Biotechnology: Microbiotec15', FCT-NOVA and UPORTO, Universidade de Évora, Évora, Portugal, 10-12 December 2015. Scientific Committee: Luísa Peixe, José Paulo Sampaio
16. '2nd International Symposium on Nanoparticles/ Nanomaterials and Applications', UTAD, Caparica, Portugal, 18-21 Jan 2016. Host: José Luis Capelo, Carlos Lodeiro, Gilberto Igrejas
17. 'MiniSymposium - Bacterial Life, Death and Infection, ITQB, Universidade Nova de Lisboa', FCT-NOVA, Oeiras, Portugal, 2016-04-08. Host: Rita G. Sobral. and Lencastre H
18. 'Symposium: Human Toxicity of Pesticides. An inexorable burden to mankind?' at the XIV International Congress of Toxicology in conjunction with the X Mexican Congress of Toxicology', UPORTO, Mérida, México, 2-6 Jun 2016. Host: Félix Carvalho F, Tsatsakis AM
19. '18th Conference of the European Society for Clinical Hemorheology and Microcirculation', organized by the Portuguese Society of Hemorheology and Microcirculation, Faculty of Medicine, Lisbon University', UPORTO, Lisbon, Portugal, 5-8 Jun 2016. Host: Alice Santos Silva
20. 'II International Caparica Congress on ULTRASONICS 2016', FCT-NOVA, Caparica, Portugal, 6-8 Jun 2016. Host: José Luis Capelo, Carlos Lodeiro, Gilberto Igrejas
21. '3rd IWA Specialized International Conference "ecotechnologies For Wastewater Treatment"', FCT-NOVA, Cambridge, UK, 27-30 Jun 2016. Scientific Committee member: Maria Reis
22. 'IWA/WEF Nutrient Removal and Recovery 2016 conference in Denver', FCT-NOVA, Colorado, USA, 10-13 Jul 2016. Executive Steering Committee member: Adrian Oehmen
23. MEWE2016 conference, 'Joint conference of the IWA MEWE and Biofilm Specialist Groups', FCT-NOVA, Copenhagen, Denmark, 4-7 Sep 2016. Scientific Committee member: Maria Reis, Adrien Oehmen, G Carvalho
24. '2nd International Caparica Conference on Chromogenic and Emissive Materials', UTAD, Caparica, Portugal, 5-8 Sep 2016. Host: Gilberto Igrejas
25. 'II International Congress on Chromogenic and Emissive Materials, II IC3EM 2016', FCT-NOVA, Caparica, Portugal, 7-10 Sep 2016. Host: José Luis Capelo, Carlos Lodeiro
26. '3rd European Conference on Smart Inorganic Polymers, Artificial Intelligence and Computer Science building [FC 6] of Faculty of Sciences', UPORTO, Porto, Portugal, 12-14 Sep 2016. Host: Maria Rangel

27. 'SIBEAQO-III – Third Iberoamerican Organic Chemistry Symposium, FCUP, Porto, Portugal', UPORTO, Porto, Portugal, 23-26 Sep 2016. Org.: Fernandes A., Medforth C., Roque C., Gomes P., Baptista P
28. Symposium, 'European Materials Research Society (E-MRS) Fall 2016 Conference', FCT-NOVA, Warsaw, Poland, 19-22 Oct 2016. Scientific Committee member: Ricardo Franco
29. '1st International Conference on Pollutant Toxic Ions and Molecules, PTIM 2015', FCT-NOVA, Caparica, Portugal, 2-4 Nov 2016. Scientific Committee: Mário Diniz
30. '2nd International Christmas Conference on Sample Treatment 2016', FCT-NOVA, Caparica, Portugal, 5-7 Dec 2016. Host: José Luís Capelo, Carlos Lodeiro, Gilberto Igrejas
31. 'New Drugs and improved Therapies Symposium', XIX National Congress of Biochemistry', UPORTO, Guimarães, Portugal, 8-10 Dec 2016. Host: Natércia Teixeira

MEETINGS

1. "9º Encontro Nacional de Cromatografia", Lisbon, Portugal', UPORTO, Lisbon, Portugal, 5-9 Jan 2016. Scientific Committee member: Marcela Segundo
2. 'Jornadas Intercalares dos Mestrados do DQ e do DCV, FCT NOVA', FCT-NOVA, Caparica, Portugal, 30-31 Jan 2016. Org.: Ricardo Franco
3. 'UCIBIO + LAQV Meeting, Fátima', FCT-NOVA, UPORTO and UTAD, Fátima, Portugal, 3-4 Feb 2016. Org: Ricardo Franco, Eulália Pereira
4. "IJUP 2016 – 9º Encontro de Jovens Investigadores da Universidade do Porto", University of Porto, Porto, Portugal', UPORTO, Porto, Portugal, 17-19 Feb 2016. Scientific Committee member: Marcela Segundo
5. 'EPI2016 - 15th Iberian Peptide Meeting, FCUP', UPORTO, Porto, Portugal, 10-12 Feb 2016. Chair: Paula Gomes. Org.: Rodríguez-Borges J. E., Vale M. L. C., Araújo M. J., Vale N., Teixeira C., Ferraz R
6. '3rd Applied Synthetic Biology meeting, European Federation of Biotechnology', FCT-NOVA, Caparica, Portugal, 22-24 Feb 2016. Org.: Cecília Roque
7. '2nd Scientific Meeting of the COST ACTION CM1306"', FCT-NOVA, Lisbon, Portugal, 2016-02-24. Org.: Eurico Cabrita, MM Marques
8. 'IMMEM XI' - 11th International Meeting on Microbial Epidemiological Markers', UPORTO, Estoril, Portugal, 9-12 Mar 2016. Org.: Luísa Peixe
9. '1st Joint French-Portuguese NMR Meeting, Reitoria da UNL', UTAD, Lisbon, Portugal, 19-23 Apr 2016. Organizing Committee member: Sofia Pauleta
10. '1st Joint French Portuguese NMR meeting"', FCT-NOVA, Lisbon, Portugal, 19-23 Apr 2016. Org.: Eurico Cabrita
11. '5th Portuguese Young Chemists Meeting (5th PYCheM)/ 1st European Young Chemists Meeting', UPORTO, Guimarães, Portugal, 26-29 Apr 2016. Chair: Paula Gomes P.. Org.: Rodríguez-Borges J. E., Vale M. L. C., Araújo M. J., Vale N., Teixeira C., Ferraz R.
12. "5º Encontro de Biotecnologia Microbiana e Farmacêutica", ICBAS/FFUP, Porto, Portugal', UPORTO, Porto, Portugal, 2016-04-27. Org.: Salette Reis, L Saraiva, H Amaral
13. '8th Meeting of Analytical Chemistry Division of the Portuguese Chemical Society – Analítica 2016', Lisbon, Portugal', UPORTO, Lisbon, Portugal, 6-7 Jun 2016. Scientific Committee member: Marcela Segundo

COURSES

1. Eurico Cabrita e Ana Luísa Carvalho, 'ISBio2015- "Integrative Structural Biology tools for the study of protein-ligand interactions"', FCT-NOVA, FCT-NOVA, Caparica, Portugal, 13-19 Julho 2015
2. Gabriela Almeida (PhD), Célia Silveira (PhD), Mário Diniz (PhD), Hugo Santos (PhD), Alexandra Fernandes (PhD), Catarina Rodrigues (PhD), Ludi Krippahl (PhD), '1st Training Course on Proteomics' - UCIBIO, REQUIMTE', FCT-NOVA, Caparica, Portugal, 31/08 a 4/09 de 2015
3. José Luís Capelo, Carlos Lodeiro, 'II Hands on Course in 180 based proteins quantification for proteomics. Proteomass Headquarter Laboratories, FCT, University Nova of Lisbon', FCT-NOVA, Caparica, Portugal, 15-17 Jun 2016
4. José Luís Capelo, Carlos Lodeiro, 'IV Hands on Course in Sample Preparation using Nanoparticles. Proteomass Headquarter Laboratories, FCT, University Nova of Lisbon', FCT-NOVA, Caparica, Portugal, 20-22 Jun 2016
5. José Luís Capelo, Carlos Lodeiro, 'IV Hands on Course in Sample Preparation using Nanoparticles. Proteomass Headquarter Laboratories, FCT, University Nova of Lisbon', FCT-NOVA, Caparica, Portugal, 27-29 Jan 2016
6. José Luís Capelo, Carlos Lodeiro, 'IV Hands on Course in Sample Preparation using Nanoparticles. Proteomass Headquarter Laboratories, FCT, University Nova of Lisbon', FCT-NOVA, Caparica, Portugal, 27-29 Jun 2016
7. José Luís Capelo, Carlos Lodeiro, 'V Hands on Course in Fluorescent and Related Techniques Applied to Chemosensors and Nanoparticles', FCT-NOVA, Caparica, Portugal, 25-27 Apr 2016
8. José Luís Capelo, Carlos Lodeiro, 'VII Hands on Course in Ultrafast Sample Treatment for Proteomics', FCT-NOVA, Caparica, Portugal, 1-3 Jan 2016
9. Jose Luis Capelo, Hugo Miguel Santos, Elisabete Oliveira, Carlos Lodeiro, 'V Hands on Course in Ultrafast Sample Treatment for Proteomics', FCT-NOVA, Laboratorio BIOSCOPE, FCT- Univ. Nova of Lisbon, Portugal, 22-24 June 2015
10. Jose Luis Capelo, Hugo Miguel Santos, Elisabete Oliveira, Javier Fernandez Lodeiro, Carlos Lodeiro, 'III Hands on Course in Sample Preparation using Nanoparticles for Proteomics', FCT-NOVA, Laboratorio BIOSCOPE, FCT- Univ. Nova of Lisbon, Portugal, 20-22 July 2015

WORKSHOPS

1. Cecília Roque (organizer), 'Workshop on "Protein de novo design for Biotech applications", within the framework of the ChiMerase ERA-IB project and the American Corners Portugal', FCT-NOVA, Caparica, Portugal, 13-15 Sepr 2016
2. Eaton, P., Caldeira, J. (organizers), '4th Porto AFM Training Workshop', UPORTO, Porto, Portugal, 18-21 Apr 2016
3. Fernandes AR, Baptista PV, Roque C, Gomes P, Medforth C. (organizers), 'Nanotechnology for Bioapplications, UCIBIO Workshop, FCT-NOVA', FCT-NOVA, Caparica, Portugal, 2016-07-18
4. Franco R (organizer), Gomes I and Giza M (co-organizers), 'Bionanotechnology Workshop, (JorTec 2016), FCT-NOVA', FCT-NOVA, Caparica, Portugal, 1 Feb
5. Granja P, Saraiva L (organizers), 'Biopharmaceuticals development: from discovery to first in man flow and issues', ICBAS/FFUP, Porto, Portugal', UPORTO, Porto, Portugal, 2016-05-24
6. Granja P, Saraiva L (organizers), 'Development of an immunotherapy against infection by multiresistant bacteria', ICBAS/FFUP, Porto, Portugal', UPORTO, Porto, Portugal, 2016-05-25
7. José Luís Capelo, Carlos Lodeiro (organizers), 'Spectroscopy and Nanobioparticles characterization Paralab Seminar-Proteomass, FCT-UNL', FCT-NOVA, Caparica, Portugal, 2016-10-01
8. José Rueff, Herminia de Lencastre, Isabel Sá Nogueira (organizers), '1º Workshop de Genética NOVA Saúde', FCT-NOVA, Lisboa, Portugal, 2015-10-09
9. Maria Rangel (organizer), '3rd SiPs Training School – Advanced Characterization Methods, Centro de Materiais da Universidade do Porto (CEMUP), University of Porto', UPORTO, Porto, Portugal, 8-12 Sep 2016
10. Paula Videira (Scientific Coordination), 'Think metabolic, Think Congenital Disorders of Glycosylation (CDG)!', FCT-NOVA, Beja, Portugal, 2016-02-25
11. Rebelo, I, Belo L, Bronze da Rocha E, Borges M and Teixeira N, '7º Workshop Bioquímica Clínica - Obesidade: da vida in utero à terceira idade, Universidade do Porto', UPORTO, Porto, Portugal, 2016-07-01
12. Paula Videira (Scientific coordination), 'Think metabolic, Think Congenital Disorders of Glycosylation (CDG)!', FCT-NOVA, Lisbon, Portugal, 2016-02-26

7

PHD AND
MASTER
THESES

PHD THESES

- Alessandra Berto, "Composição proximal, minerais, ácidos graxos e atividade antioxidante de frutas nativas da Amazônia", Oct-15. Program: Doutoramento em Química. Supervisors: Eduarda Fernandes / supervisora: Nilson Evelazio de Souza, UEM
- Alexandra Moura Moreira da Silva, "Predictores de qualidade de vida do doente em diálise", Universidade católica Portuguesa, do Porto. 2015. Supervisors: XX / Alice Santos-Silva
- Ana Margarida Dias, "Exploring new protein-based scaffolds for bioengineering applications", Universidade Nova de Lisboa. 2016-1-8. Program: MIT-Portugal program in Bioengineering Systems. Supervisors: Ana Cecília Roque (principal supervisor), Olga Irazo
- Ana Patrícia Amieiro Garrido, "Resistance to recombinant human erythropoietin therapy – studies in experimental models of anemia and chronic kidney disease", Faculdade de Medicina da Universidade de Coimbra . 2015. Supervisors: Alice Santos-Silva
- Ana Rute de Azevedo Pina Neves, "A membrane biophysical approach to the therapeutic effects of resveratrol and design of novel nutraceutical nanoformulations ", Faculdade de Farmácia da Universidade do Porto. May-15. Program: Doutoramento em Ciências Farmacêuticas. Supervisors: Salette Reis
- António Bugalho, "Ultrassonografia torácica: impacto no diagnóstico e estadiamento do cancro do pulmão", 2015. Supervisors: Paula Videira
- Bárbara Chagas , "Production and characterization of polymers from cellular wall of fungi and yeasts: development and validation at pilot scale", FCT-UNL. 2015. Program: Chemical and Biochemical Engineering. Supervisors: Bioeng (Ascensão Reis/ Filomena Freitas)
- Bruno Miguel Ribeiro Veigas, "Biosensors for cancer diagnostics: field-effect sensors for oncogene expression analysis". Universidade Nova de Lisboa. 2016. Program: PhD Programme in Biotechnology, FCT, UNL. Supervisor: Pedro Viana Baptista
- Carlos Alexandre Dias Araújo, "Probiotic potential of lactic acid bacteria isolated from rainbow trout (*Oncorhynchus mykiss*, Walbaum) and rearing environment. Importance in the prevention of fish diseases and public health", Tese de Doutoramento Europeu defendida na Universidade de Trás-os-Montes e Alto Douro. Dec-15. Program: Genética Molecular Comparativa e Tecnológica. Supervisors: Gilberto Igrejas / Patrícia Dinis Poeta
- Catarina Alexandra da Silva Chaves, "Mechanisms of regulation of P-glycoprotein and breast cancer resistance protein at the blood-brain barrier: focus on the role of morphine, and P-glycoprotein activation / Project: Study of the effects of opiates on the structure and functionality of the Blood-Brain Barrier: focus on drug transport, metabolism and integrity", Faculté de Pharmacie, Université Paris Descartes. Nov/15. Program: Programa Doutoral em Ciências Farmacêuticas da FFUP, na área da Toxicologia e o Programa Doutoral da Universidade Paris-Descartes. Supervisors: Fernando Remião / Xavier Déclèves
- Diana Madeira "Effects of ocean warming throughout the life cycle of *Sparus aurata*: a physiological and proteomic approach" Universidade NOVA de Lisboa. 2016.05.16 Program: Sustainable Chemistry. Supervisor: Mário Diniz, Co-supervisors: Catarina Vinagre and José Luis Capelo
- Diana Madeira, "Temperature effects on different life stages of tropical versus temperate fish: a proteomic approach", Universidade Nova de Lisboa. 2016-05-16. Program: Sustainable Chemistry. Supervisors: Mário Diniz (principal supervisor) e José Luis Capelo.
- Diana Manuel Mocho da Bastos Couto, "Biological effects of polyacrylic acid-coated and non-coated superparamagnetic iron oxide nanoparticles in in vitro and in vivo experimental models", Faculdade de Farmácia da Universidade do Porto. Jul-15. Program: Doutoramento em Ciências Farmacêuticas. Supervisors: Eduarda Fernandes / co-supervisor Félix Carvalho
- Eduardo Oliveira, "Mechanistic Diversity of PLP-dependent Enzymes (Computational models for enzymatic catalysis)", Universidade do Porto. 2016-04-18. Program: Chemistry. Supervisor: Maria João Ramos
- Elsa Marisa Ferreira Vieira, Student of the Sustainable Chemistry Doctoral Program: "Valorization of by-products from brewing and canned fish industry: characterization of hydrolysates with antihypertensive and antioxidant activity. Supervisor: Isabel Ferreira; Co-supervisor: Helena Carmo
- Fábio Alexandre Teixeira Ferreira Carlos, "Development of nanodiagnostics kit for characterisation of polymorphisms associated with obesity", 2015. Supervisors: Pedro Viana Baptista
- Filipe Almeida, "Functional analyses of inclusion membrane proteins of *Chlamydia trachomatis*", ITQB NOVA, 22-06-2016. Program: ITQB NOVA PhD programme - Chemical and Biological Sciences & Engineering. Supervisor: Jaime Mota (principal supervisor).
- Hélio Crespo "The role of α 2,3- and α 2,6-sialylation in functional aspects of dendritic cells" Universidade NOVA de Lisboa 2016-03-30 (SFRH/BD/61204/2009) Supervisors: Paula Videira (principal supervisor) and Joseph Lau
- Hernan Horácio Tournour, "Skin and seed grape extract as an antioxidant for mechanically deboned chicken meat, during frozen storage", Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto. Apr-15. Program: Doutoramento em Ciências do Consumo Alimentar e Nutrição. Supervisors: Marcela Segundo / Luís Miguel Cunha

20. Joana Mourão, "Contribution of biocides to the selection of *Salmonella* non-typhoid resistant to antibiotics: a multilayered approach", Faculdade de Farmácia do Porto, 2016-05-04. Program: Programa Doutoral em Ciências Farmacêuticas. Supervisors: Patrícia Antunes (principal supervisor), Luisa Peixe e Carla Novais.
21. Joana Raquel de Oliveira Durão, "Peptide-based hydrogels for sustained-release of bioactive compounds – improved approach for therapeutic angiogenesis with vascular endothelial growth factor (VEGF).", 2015. Program: Engenharia Biomédica. Supervisors: Paula Gomes (co-orientador)
22. Joana Rita Gonçalves Rolo, "Origin and evolution of the β -lactam resistance determinant in staphylococci", Universidade Nova de Lisboa. 2016-04-01. Supervisors: M. Miragaia (principal), H. de Lencastre and R.G. Sobral.
23. Joana Soares, "Targeting p53 in Cancer: From Innovative Yeast Screening Strategies to New Drugs", Universidade do Porto. 2016-04-21. PhD in Pharmaceutical Sciences. Supervisors: Lucília Saraiva (principal supervisor) and Alberto Inga
24. Juliana Cristina Venera Garcia, "DISCOVERY OF AN EFFECTIVE ANTIDOTE FOR AMANITA PHALLOIDES POISONING", 2015. Supervisors: Vera Costa
25. Larine Kupski, "Degradação de ocratoxina a: estudo de processo e toxicidade", Escola de Química e Alimentos, Universidade Federal do Rio Grande, Brasil, Doutorado sanduíche na FFUP. Jul-15. Program: Doutorado em Engenharia e Ciência de Alimentos. Supervisors: Eduarda Fernandes / supervisora Eliana Badiale Furlong, UFRG
26. Leonor Ricardo Soares, "Nanopartículas de ouro anisométricas como sondas para identificação de polimorfismos de DNA associados a doenças metabólicas", Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa. 2016-07-22. Program: Green and Sustainable Chemistry. Supervisors: Ricardo Franco (principal supervisor), Eulália Pereira (co-supervisor), and Orfeu Flores /Company STABVida supervisor)
27. Lia Dora David Domingues, "Manipulation of host cell functions by *Salmonella*: The role of the bacterial effector protein SteA", 2015-01-08. Supervisors: Jaime Mota
28. Lia Raquel Marques Godinho, Characterization of open reading frames of unknown function in *Bacillus subtilis*: gene regulation and functional analysis. Universidade Nova Lisboa. 2016-7-18. PhD in Biology Supervisor: Isabel Sá-Nogueira
29. Luís Carlos Oliveira Lima, "Factores preditivos de resposta à terapêutica intravesical com BCG", 2015. Supervisors: Paula Videira
30. Luís Manuel Redondo Raposo. "Transcriptome and proteome profiling of canine mammary tumors: dog as a genetic model for unrevealing mammary cancer molecular signatures". FCT_UNL, 2016-12-21, PhD em Biologia. Supervisors: Alexandra Fernandes; Armando Pombeiro.
31. Luiz Gonzaga do Nascimento Neto, "Efeito pró-cicatrizante de um triterpeno isolado de folhas de Combretum leprosum e atividade antitumoral de uma lectina isolada da esponja marinha *Haliclona caerulea*" Universidade Federal do Ceará, Brasil SWE 2016-03-18 CPF002.416.903-07, program CsF/CNPq, (202275/2014-0). Supervisors: Edson Teixeira (principal supervisor) and Paula Videira
32. Luz Catarina Fernandes "New approaches in sample treatment for fast procedures for mass spectrometry." Universidade NOVA de Lisboa. 2016.12.19. Program: Sustainable Chemistry. Supervisor: Jose Luis Capelo, Co-supervisors: Isabel Moura and Carlos Lodeiro Espiño
33. Madalena Cruz, "Production of polyhydroxyalkanoates from oil - containing substrates", FCT-UNL. 2015. Program: Sustainable Chemistry. Supervisors: Bioeng (Ascensão Reis/ Filomena Freitas)
34. Marcelo Dutra Arbo, "Avaliação toxicológica in vitro de derivados da piperazina", Faculdade de Farmácia da Universidade do Porto. 2015. Supervisors: Helena Carmo / Lurdes Bastos
35. Márcia de Jesus de Sá Monteiro - SFRH/BD/80518/2011 - Metabolomics Analysis for renal cell carcinoma. Detection and Biomarker Discovery - PhD in Pharmaceutical Sciences, Faculty Pharmacy, Porto University – Paula Guedes de Pinho (principal supervisor). Márcia Carvalho, Maria de Lourdes Bastos, Ana Maria Gil.
36. Margarida Carvalho, "Bioproduction of succinic acid from renewable feedstocks by *actinobacillus succinogenes* 1302", FCT-UNL. 2015. Program: Sustainable Chemistry. Supervisors: Bioeng (Ascensão Reis)
37. Maria Carina de Fátima Rodrigues, "Fatores que contribuem para a variação dos níveis plasmáticos de bilirrubina na população portuguesa", Faculdade de Farmácia da Universidade do Porto. Jan-15. Supervisors: Elsa Rocha (Co-orientação: Alice Santos Silva / Elisio Costa)
38. Maria da Cunha, "Identification and characterization of *Chlamydia trachomatis* type III secretion substrates", ITQB NOVA, 13-07-2016. Program: ITQB NOVA PhD programme - Chemical and Biological Sciences & Engineering. Supervisor: Jaime Mota (principal supervisor).
39. Maria do Rosário Neto dos Santos, "Perfil Genético e Epidemiologia de Distrofias Musculares em Portugal", Faculdade de Farmácia da Universidade do Porto. Jul-15. Supervisors: Elsa Rocha
40. Maria do Sameiro Pinto César Faria, "Risco de eventos cardiovasculares em doentes renais crónicos em hemodiálise. Perfil lipídico, anemia, acesso vascular e inflamação", Instituto de Ciências Biomédicas Abel Salazar (ICBAS). 2015. Supervisors: Luis Belo / Alice Santos-Silva / Alexandre Quintanilha

MSC THESES

53. Sílvia Alexandra Pinto Martins, "New Computational Methods to Calculate Drug-Receptor Binding Free Energies", 2015. Supervisors: Maria João Ramos / Pedro Fernandes
54. Sílvia Sequeira, "Estudo de uma alternativa não tóxica e económica para inibição de fungos em obras e documentos em papel: eficácia e efeitos secundários", Universidade Nova de Lisboa. 2016-07-24. Program: Doctoral Program in Conservation and Restoration FCT-UNL. Supervisors: Filomena Macedo, DCR, FCT/UNL, Eurico Cabrita, DQ, FCT/UNL and Alan Philips DCV, FCT/UNL)
55. Sónia Catarina da Silva Ramos, "Genomic and proteomic characterization of *Escherichia coli* and *Enterococcus* spp. from food-producing animals", Tese de Doutoramento Europeu defendida na Universidade de Trás-os-Montes e Alto Douro. Jul-15. Program: Ciências Veterinárias. Supervisors: Patrícia Dinis Poeta / Gilberto Igrejas / José Luís Capelo
56. Sónia Patrícia Seabra Campos - FCT: SFRH/BD/72360/2010 - Study and application of modelling in pharmacokinetics of propofol target-controlled anesthesia in Veterinary Medicine PHD in Veterinary Sciences, Faculty of Veterinary University of Trás-os-Montes e Alto Douro – Luís Antunes (principal supervisor) Joaquim Monteiro and Paula Guedes de Pinho.
57. Susana Isabel Conde Jesus Palma, "Engineered MRI nanoprobe based on superparamagnetic iron oxide nanoparticles", Dec-15. Program: Bioengineering MIT-Portugal program. Supervisors: Cecília Roque
58. Tânia Moniz, Design of novel 3-hydroxy-4-pyridinone iron chelators to fight mycobacterium infection, Universidade do Porto e Universidade Nova de Lisboa, Programa Doutoral em Química Sustentável, Supervisor Maria Rangel, Co-Supervisor Baltazar de Castro
59. Teresa Gonçalves Ribeiro, "Extending the knowledge on drivers of intrinsic and acquired resistance to cephalosporins and quinolones in *Enterobacteriaceae*", Faculdade de Farmácia do Porto, 2016-12-15. Program: Programa Doutoral em Ciências Farmacêuticas. Supervisors: Luisa Peixe (principal supervisor), Ângela Novais e Elisabete Machado.
60. Vijaykumar Laxman Dhadge, "High-Gradient-Magnetic-Separation and Aqueous-Two-Phase-Systems as Integrated Strategies for the purification of biopharmaceuticals", Universidade Nova de Lisboa. 2016-7-19. Program: MIT-Portugal program in Bioengineering Systems. Supervisors: Ana Cecília Roque (principal supervisor), Raquel Aires-Barros
1. Abigail Filipe Ferreira, "Development of New Peptide-Drug Conjugates for Cancer Therapy", Universidade do Porto. 2015-12-22. Program: MSc in Biochemistry. Supervisors: Nuno Vale Grid pak and Paula Gomes.
2. Agostinho Lemos, "Design and synthesis of aminoxanthone derivatives as promising disruptors of p53:MDM2 interaction", Universidade do Porto. 2015-09-25. Program: Master Degree in Pharmaceutical Chemistry. Supervisors: Emília Sousa (principal supervisor) and Lucília Saraiva.
3. Aline Canani Viecinski, "Development of biological and synthetic affinity ligands for Human serum albumin", Universidade Nova de Lisboa. 2015. Program: Master in Biochemistry. Supervisor: Ana Cecília Roque
4. Ana Bárbara de Sousa Carreira, 'Mechanisms underlying intracellular delivery', FCT NOVA. 2015. Program: Mbiotec, FCT/UNL. Pedro Viana Baptista (Co-supervisor)
5. Ana Carolina Magalhães Mota, 'Caracterização Biológica de Complexos de Ruténio como Potenciais Agentes Anti-tumorais'. 2015. Program:MGMB, FCT/UNL. Pedro Viana Baptista (Co-supervisor)
6. Ana Carolina Mota. "Identificação de novos compostos com potencial anticancerígeno, seus alvos biológicos e de novas combinações terapêuticas", Mestrado em Genética Molecular e Biomedicina da Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Co-orientação: Prof. Pedro Baptista, 2015.
7. Ana Filipa Sobral, Coimbra University of in " New steroidal aromatase inhibitors: biological effects in hormone-dependent breast cancer cell models", Universidade de Coimbra. 22-09-2015. Program: MSc in Cellular and Molecular Biology. Supervisors: Georgina Correia da Silva (principal supervisor) and Natércia Teixeira.
8. Ana Inês Relvinha dos Reis, "Desenvolvimento de um teste de diagnóstico rápido para a deteção de malária em amostras clínicas", Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa. Mestrado em Bioquímica. 2015-11-30. Ricardo Franco (principal supervisor Elvira Fortunato and Inês Games (co-supervisors).
9. Ana Rita Carvalho Gonçalves Veloso, "Estudo da Síntese de Péptidos Inibidores da Trombina da Mosca *Tsé-tsé*", Universidade do Porto. 2015-11-27. MSc in Chemistry. Supervisors: Paula Gomes and Nuno Vale.
10. Ana Rita Martins Lourenço de Oliveira, 'Agentes terapêuticos: importância biológica e caracterização preliminar de compostos de vanádio e de CORMs como potenciais fármacos', FCT NOVA. 2015. Program: Mbiotec, FCT/UNL. Pedro Viana Baptista (Co-supervisor).
11. André Monteiro Martins Monjardim Quelhas, 'Estudo da Permeabilidade da TX5 em Caco-2 e RBE4 – um potencial indutor/ativador da Glicoproteína-P', FFUP.11/19/2015. Supervisors: Fernando Remião (principal supervisor) and Filipa Ponte e Renata Silva
12. Andreia Marisa da Silva Fortuna, "Gold nanoprobe for assessing expression of critical genes in the infection pathway of MRSA", Universidade Nova de Lisboa. 2015-11-23. Program: Biotechnology, FCT-UNL. Supervisors: R.G. Sobral (principal) and P.V. Baptista.
13. António J. N. Neca, "The Desulfovibrio vulgaris Hildenborough ORP: isolation, cluster reconstitution and NMR resonance assignment", Faculty of Science and Technology, NOVA University of Lisbon. 2015-11-25. Program: Biochemistry. Supervisor: Sofia R. Pauleta
14. Bárbara Sofia Poléri da Silva, 'Enantiomeric separation of cathinones in drugs acquired in smartshops and in via internet', UP.Nov-15. Supervisors: Fernando Remião (principal supervisor) and Paula Guedes de Pinho e Carla Fernandes

15. Carina Brito, "Determination of Arginase 1 and Nitric Oxide Synthase expression during pregnancy and Toxoplasma gondii infection", Universidade de Aveiro 2015-12-4. Supervisor: Margarida Borges.
16. Carina Proença, "Potencial antioxidante de novas cromonas e xantonas", Universidade do Porto. 2015-06-22. Program: Mestrado em Controlo de Qualidade - Especialidade de Fármacos e Plantas Medicinais. Supervisors: Clementina Santos (principal supervisor) and Eduarda Fernandes.
17. Carina Vanessa Fernandes Brito, 'Determination of Arginase 1 and Nitric Oxide Synthase expression during pregnancy and Toxoplasma gondii infection', Instituição que conferiu o grau: Universidade de Aveiro. Dec-15. Supervisors: Margarida Maria Coutinho Nogueira Marta Borges (principal supervisor) and
18. Cláudia Matias, "Novas estratégias para entender o sistema de influxo de antibióticos e a resistência antimicrobiana a nível molecular.", Universidade de Aveiro, 2015. Mestrado em Bioquímica. (Biochemistry Master Aveiro University; Supervisors: Paula Gameiro (principal supervisor) and Pedro Domingues.
19. Daniela Filipa Pinto Ribeiro, "Assessment of anticancer drugs' effects on membrane biophysical properties using model membranes", Universidade do Porto. 2015-05-11. Integrated Master in Bioengineering. FEUP/ICBAS. Supervisors: Salette Reis (principal supervisor) and Cláudia Nunes
20. Diogo Neves, "Glycoproteomic characterization of Bladder Cancer Chemo-resistant Cells.", ICBAS e Faculdade de Ciências da Universidade do Porto, December 2015, Mestrado em Bioquímica. Supervisors: Alexandre Ferreira (principal supervisor) e André Silva.
21. Elisabeth Nelly Pires, "Estudos da organização do celulosoma: caracterização estrutural da proteína CipA por Cristalografia de Raios-X e estudo da diversidade das interações coesina-doquerina utilizando Microarrays", Universidade Nova de Lisboa, 2015-11-13. Program: Biochemistry. Supervisors: Benedita Pinheiro (principal supervisor) e Ana Luísa Carvalho.
22. Francisca Pereira. "Blocking tumour exosome release & uptake using nanovectorization systems", Mestrado em Genética Molecular e Biomedicina da Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Co-orientação: Prof. Pedro Baptista, 2015.
23. Francisca Sofia Rodrigues de Freitas Pereira, 'Blocking tumor exosome release using nanovectorization systems', FCT NOVA. 2015. Programa: MGB, FCT/UNL. Pedro Viana Baptista (Co-supervisor)
24. Helena Isabel Calejo, "Development of a GC-MS methodology for determination of volatile carbonyl compounds in biological matrices. Application to clinic and post-mortem samples", UP. Nov-15. Supervisors: Paula Guedes de Pinho (principal supervisor) and Márcia Carvalho e Maria de Lourdes Bastos
25. Helena Rocha, "Targeting p53 family in cancer: Search for inhibitors of the p53/p73 interaction with MDMs", Universidade do Porto. 2015-10-09. Program: Master Degree in Bioengineering - Molecular Biotechnology. Supervisors: Lucília Saraiva (principal supervisor) and Joana Soares.
26. Inês Ferreira "Study of glycosidic changes in lung cancer: potential effectors in hematogenous metastasis" Universidade NOVA de Lisboa 2015-10-31. Supervisors: Paula Videira (principal supervisor) and António Bugalho.
27. Inês Flores, "Iron storage and regulation at a molecular level", Universidade Nova de Lisboa, 2015-10-27
28. Isabel Cristina da Silva Tavares, 'Estudo Computacional de reações Químicas em nanoreatores', FCUP. Dec-15. Supervisors: Alexandre Lopes Magalhães (principal supervisor) and
29. Jamila Djafari, "Synthesis, characterization and functionalization of metallic nanoparticles for potential biomedical and environmental applications. 02-2015 to 08-2015. Master of Science in Chemical Science and Engineering .École Nationale Supérieure de Chimie de Paris, ENSCP, graduate school of chemical science and engineering., 75005, Paris, France. ERASMUS Master Thesis.
30. Joana Coimbra. "Identificação de novos compostos com potencial anticancerígeno, seus alvos biológicos e de novas combinações terapêuticas", Mestrado em Biologia Molecular e Genética, Faculdade de Ciências, Universidade de Lisboa, Co-orientação: Prof. Pedro Baptista, 2015.
31. Joana Daniela da Silva Costa, 'Síntese e caracterização toxicológica de diferentes tipos de nanopartículas de ouro. Estudos in vitro e in vivo.', FFUP. Nov-15. Supervisors: Maria de Lourdes Pinho de Almeida Souteiro Bastos (principal supervisor) and Helena Ferreira Carmo
32. Joana Isabel Ribeiro de Noronha, "Desenvolvimento de Líquidos Iônicos Baseados em Fármacos Antimaláricos", Universidade do Porto. 2015-12-11. MSc in Chemistry. Supervisors: Paula Gomes and Ricardo Ferraz.
33. Joana Moreira, "Promising caspases modulators with flavonoid scaffold", Universidade do Porto. 2015-10-05. Program: Master Degree in Pharmaceutical Chemistry. Supervisors: Honorina Cidade (principal supervisor) and Lucília Saraiva.
34. João Caço. "Estudo da expressão de genes de virulência em estirpes de Streptococcus e avaliação do potencial de infecção". Mestrado em Microbiologia Médica, IHMT/FCT, Universidade Nova de Lisboa, Orientação: Prof. Ilda Sanches, 2015.
35. João Santos, "Exploring the Boundaries of Porphyrin Materials Synthesis by Ionic Self-Assembly", University of Porto, September 2015. Program: Biochemistry. Supervisor: Craig Medforth.
36. João Silva, "G4 binders for cancer therapy", Faculdade de Ciências e Tecnologia, UNL. 2015-11. Program: Master in Biochemistry. Supervisors: Eurico Cabrita and Carla Cruz, FCS/UBI.
37. Leonor Rodrigues "Unravelling the role of alpha 2,6 sialic acid on mice dendritic cells' functions" Universidade NOVA de Lisboa 2015-11-21. Supervisors: Paula Videira (principal supervisor) and Joseph Lau
38. Lia Costa, "Cannabinoids impact on pregnancy: effects in trophoblast cells", Universidade de Aveiro. 04-12-2015. Program: MSc in Molecular and Cell Biology. Supervisors: Georgina Correia-da-Silva (principal supervisor) and Bruno Fonseca
39. Luiza Tonaco Silva, "Evaluating the potential of yeast strains to produce added value products for the food and/or pharmaceutical industries". 2015. Program: MSc in Biotechnology, FCT/UNL. Supervisors: Alexandre Paiva e Madalena Salema-Oom
40. Mara Alexandra Palhete Ferreira, "Nanostructured Lipid Carriers: A new approach for psoriasis dermal therapy", Universidade do Porto, 2015-07-14. Master Degree in Biomedical Engineering FEUP. Supervisor: Salette Reis (principal supervisor) and Sofia Lima
41. Márcia Gonçalves "Understanding how dendritic cell glycans affects antitumor specific responses" Universidade NOVA de Lisboa 2015-11-18. Supervisors: Paula Videira (principal supervisor) and Sandra Vliet, Yvette van Kooyk
42. Maria Inês Martins Lobo de Araújo Correia, 'Designing of nanocarriers for therapeutic applications', FFUP. Nov-15. Supervisors: Maria de Lourdes Pinho de Almeida Souteiro Bastos (principal supervisor) and Sangram Keshari Samal e Kevin Braeckmans,
43. Maria João Pires Manso Alves Dias, "Queratoconjuntivite Infecciosa Bovina". Orientadora da Dissertação de Mestrado Integrado em Medicina Veterinária, defendida na Universidade de Trás-os-Montes e Alto Douro, em Dezembro 2015. Patrícia Poeta (principal supervisor).
44. Maria João Quitoles de Oliveira, "Plasmonic substrates for ultrasensitive surface-enhanced Raman spectroscopy: application to the detection of food toxins", Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa, Mestrado em Biotecnologia. 2015-12-22. Hugo Águas (principal supervisor), Ricardo Franco (co-supervisor).
45. Mariana Ribeiro Coutinho, "Desenvolvimento de um teste de diagnóstico serológico rápido para a deteção de Pneumocystis jirovecii em amostras clínicas", Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa. Mestrado em Biotecnologia, 2015-11-27. Ricardo Franco (principal supervisor), Olga Matos and Inês Gomes (co-supervisors).
46. Mauro Monteiro "Optimization of production of anti-cancer vaccines based on Dendritic cells" 2015. Universidade NOVA de Lisboa 2015-11-18. Supervisors: Zélia Silva (principal supervisor) and Paula Videira
47. Micael Silva, "Design of bio-inspired ionic liquids for protein stabilization", Faculdade de Ciências e Tecnologia, UNL. 2015-11. Program: Master in Bioorganic Chemistry. Supervisors: Eurico Cabrita and Ângelo Figueiredo.
48. Miguel Diogo Horta. "Design and development of novel magnetic lipid nanoparticles for anti-cancer therapy." Universidade do Porto. 2015-10-22. Master Degree in Bioengineering - Molecular Biotechnology. Supervisors: Cláudia Nunes (principal supervisor) and Salette Reis.
49. Patrícia Raquel Reis Moreira, 'Estudo analítico das interações metabólicas entre piperazinas utilizadas como drogas de abuso', Instituição que conferiu o grau: Instituto de Ciências Biomédicas Abel Salazar, ICBAS. Oct-15. Supervisors: Helena Maria Ferreira da Costa Ferreira Carmo (principal supervisor) and Diana Cristina Dias da Silva
50. Pedro de Sousa-Martins, 'Risk factors for mortality in End-Stage Kidney Disease patients under online-hemodiafiltration: three-year follow-up study', Instituição que conferiu o grau: Instituto de Ciências Biomédicas Abel Salazar (ICBAS), Universidade do Porto. Jul-15. Supervisors: Elisio Costa (principal supervisor) and Luísa Lobato
51. Pedro José Santana Ribeiro Magalhães, "Identificação e sequenciação da acetilase mediada pelo plasmídeo recombinante pMdT1 em Escherichia coli", University of Trás-os-Montes and Alto Douro, November 2015. Program: Biotechnology for Health Sciences. Supervisors: Gilberto Igrejas (principal supervisor).
52. Rafael Queirós Fernandes, 'Estudo dos polimorfismos da região promotora do gene ELANE e dos seus efeitos na doença renal terminal', Instituição que conferiu o grau: Universidade de Aveiro. Jul-15. Supervisors: Elsa Bronze da Rocha (principal supervisor) and Alice Santos Silva e Rita Ferreira
53. Ricardo Martinho, "Development and application of water in CO₂ tailored stabilizers for polar solutes", Faculdade de Ciências e Tecnologia, UNL. 2015-11. Program: Master in Bioorganic Chemistry. Supervisors: Eurico Cabrita and Cesar Laia.
54. Rita Oliveira, "Complexos Organometálicos: caracterização preliminar de compostos de vanádio e de moléculas libertadoras de CO como potenciais fármacos", Universidade Nova de Lisboa. 2015-11-10. Program: Biotechnology. Supervisors: Teresa Santos-Silva.
55. Rui Pedro Fernandes Ribeiro, 'Development of a computational protocol to study passive diffusion through biological membranes', Oct-15. Supervisors: Pedro Alexandrino Fernandes (principal supervisor) and
56. Rui Ribeiro, "Development of a computational protocol to study passive diffusion through biological membranes", Universidade do Porto. 16-10-2015. Program: Biochemistry. Supervisor: Pedro Alexandrino Fernandes
57. Rui Sousa, "Computational Studies on Heparan Sulfate Sulfotransferases on the Context of the Herpes Simplex type I infection", Universidade do Porto. 13-11-2015. Program: Biochemistry. Supervisor: Natércia Fernandes Brás
58. Sarah Sadik Koch Jamal, "The contribution of drug-membrane biophysical studies for the development of safer NSAID: the case of diclofenac" Universidade do Porto. 2015-07-14. Integrated Masters in Bioengineering - Molecular Biotechnology. FEUP/ICBAS. Supervisors: Salette Reis (principal supervisor) and Cláudia Nunes
59. Sílvia Achilli "Design and biological evaluation of neoglycosylated collagen matrices" Universita' Degli Studi Di Milano - Bicocca 2015-01. Supervisors: Laura Cipola (principal supervisor) and Paula Videira
60. Sílvia Ferreira Carvalho, "Identificação e caracterização molecular da flora vaginal bacteriana do Burro de Miranda (Equus asinus)". Dissertação de Mestrado em Genética Molecular, Comparativa e Tecnológica defendida na Universidade de Trás-os-Montes e Alto Douro, em Junho 2015. Patrícia Poeta (principal supervisor).
61. Sílvia Sandra Pereira Vinhas, 'VITAMIN D: Study of new methodologies for the synthesis of new chiral precursors from $\alpha,\beta,\gamma,\delta$ -unsaturated esters', UP. 11-Dec-15. Supervisors: José Enrique Rodríguez-Borges (principal supervisor) and Antonio Mourinho (Universidade de Santiago de Compostela, Espanha)
62. Sofia Santos. "Identificação de novos compostos com potencial anticancerígeno, seus alvos biológicos e de novas combinações terapêuticas", Mestrado em Genética Molecular e Biomedicina da Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Co-orientação Prof. Luisa Martins, 2015.
63. Tiago Miguel Mestre Pereira "Desenvolvimento de novas estratégias baseadas em nanomateriais para aplicações biotecnológicas" Universidade NOVA de Lisboa. 2015.11.25. Program: Biotechnology. Supervisor: Dr. Hugo Miguel Santos, Co-supervisor: Prof. Dr. José Luis Capelo
64. Tiago Paiva, "Synthesis and characterization of azobenzene derived supramolecular systems", Faculdade de Ciências e Tecnologia, UNL. 2015-11. Program: Master in Bioorganic Chemistry. Supervisors: Eurico Cabrita and Marta Corvo.
65. Verónica Costa, "Searching for new potential small-molecule modulators of pro-apoptotic proteins using the yeast-based screening assay", Universidade do Porto. 2015-07-30. Program: Master Degree in Pharmaceutical Chemistry. Supervisors: Lucília Saraiva (principal supervisor), Honorina Cidade and Mariana Leão.
66. Ana Cláudia Ventura Costa, "Avaliação da qualidade e segurança microbiológica de suplementos alimentares comercializados no mercado Português", Faculdade de Ciências da Universidade do Porto e Faculdade de Ciências da Nutrição e Alimentação da Universidade do Porto. Program: Mestrado em Ciências do Consumo e Nutrição (MCCN). Supervisors: Patrícia Antunes (principal supervisor) e Luísa Peixe.
67. Ana Diniz, "Mimicking cell environment: carbohydrate-protein interactions under macromolecular crowding", Faculdade de Ciências e Tecnologia, UNL. 2016-05. Program: Master in Biochemistry. Supervisors: Eurico Cabrita and Filipo Marcelo.
68. Ana Lázaro Herrasti, "Uso de nanopartículas magnéticas como matriz de afinidad para la purificación de anticuerpos", Universidad Politécnica de Madrid. 2016. Program: Master in Chemical Engineering. Supervisors: Ana Cecilia Roque (principal supervisor), Maria del Puerto Morales
69. Ana Patrícia Traguedo, "Theoretical and experimental approaches towards the non-invasive and selective detection of microbial pathogens", Universidade Nova de Lisboa. 2016. Program: Master in Biochemistry. Supervisors: Ana Cecilia Roque (principal supervisor), Susana Palma
70. Ana Rita Couto Machado Lima, "GC - MS metabolomic studies in Prostate Cancer: a novel approach using in vitro models", Faculdade de Farmácia da Universidade do Porto. 2016-11-17. Program: Mestrado em Toxicologia Clínica, Analítica e Forense. Supervisors: Guedes de Pinho, P, (principal supervisor), Carvalho, M, and Maria de Lourdes Pinho de Almeida Souteiro Bastos.
71. Ana Rita Dias Inácio, "Study of genetic markers with forensic and ancestral interest in three populations of PALOP immigrants living in Lisbon", University of Trás-os-Montes and Alto Douro, April 2016. Program: Technologic, Comparative and Molecular Genetics. Supervisors: António Amorim (principal supervisor) and Gilberto Igrejas.
72. Ana Rita Isidoro da Cunha Leal, "Paclitaxel loaded hybrid magnetic-lipid nanoparticles as a novel approach for breast cancer therapy", Universidade do Porto. 2016-12-21. Master Degree in Bioengineering - Molecular Biotechnology. FEUP/ICBAS. Supervisor: Salette Reis (principal supervisor) and Cláudia Nunes
73. Ana Rita Mendes. "Silencing HSF1 in cancer using gold nanoparticles: from in vitro to in vivo effect". Mestrado em Genética Molecular e Biomedicina da Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Co-orientação: Prof. Pedro Baptista, 2016.
74. Ana Rita Oliveira Macedo Pinto, "Amoxicillin-loaded lipid nanoparticles against Helicobacter pylori infections", Universidade do Porto. 2016-07-21. Master Degree in Bioengineering - Molecular Biotechnology. FEUP/ICBAS. Supervisor: Salette Reis (principal supervisor) and Cláudia Nunes
75. Ana Santos, "Develop a nanoparticle based assay coupled with ARMS PCR amplification for the detection of mutations in Rpo β gene of Mycobacterium tuberculosis", FCT NOVA. 2016. Program: MBIotec, FCT/UNL. Pedro Viana Baptista (Supervisor)
76. Ana Teresa Coutinho Ribeiro Pereira "Acute Myeloid Leukemia in children: from diagnosis to prognosis", Universidade do Porto 2016. Supervisor: Alice Santos-Silva, Co-supervisor: Carlos Mendes
77. André Sotero Araújo Ferreira, "Variação dos Parâmetros Eritrocitários, do Ferro e na Hemocromatose Hereditária com Homozigotia para C282Y", Instituto de Ciências Biomédicas Abel Salazar da Universidade do Porto (ICBAS/UP), July 2016, Mestrado Integrado em Medicina. Supervisors: Graça Porto (principal supervisor) e André Silva

78. Andreia Almeida Granja, "Targeted nanosctructured lipid carriers based epigallocatechin gallate delivery system to cancer cells" Universidade do Porto. 2016-07-22. Master Degree in Bioengineering - Molecular Biotechnology. FEUP/ICBAS. University of Porto. Supervisor: Salette Reis (principal supervisor) and Marina Pinheiro
79. Armanda Manuela Henriques de Barros Ferreira, "Validação de um método analítico para quantificação de carboxihemoglobina: estudo da importância da preservação com o fluoreto de sódio", Faculdade de Farmácia da Universidade do Porto. 2016-06-24. Program: Mestrado em Toxicologia Clínica, Analítica e Forense. Supervisors: Ricardo Jorge Dinis Oliveira (principal supervisor), Maria de Lourdes Pinho de Almeida Souteiro Bastos and Ana Elisabete Pereira Correia de Oliveira.
80. Bárbara Abreu, "Caracterização de derivados de antibióticos em condições fisiológicas", Universidade do Porto, 2016. Mestrado em Química. Supervisors: Paula Gameiro (principal supervisor) e Peter Eaton.
81. Bárbara Ferreira, "Influência da esterificação de polifenóis na sua localização em lipossomas", Universidade do Porto, 2016. Mestrado em Química. Paula Gameiro (principal supervisor) e Sónia Barreiro.
82. Beatriz Jorge Coelho. 2016. Program: MSc in Micro and Nanotechnology. Pedro Viana Baptista (Co-supervisor)
83. Bernardo Matos Alves Costa Ferreira, "Paper Microfluidic platforms for ultrasensitive surface-enhanced raman spectroscopy [SERS]: application to the detection of food toxins", Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa, Mestrado Integrado em Engenharia de Micro e Nanotecnologias. 2016-12-07. Hugo Águas (principal supervisor), Ricardo Franco and Ana Pimentel (co-supervisors).
84. Carina Figueiredo, "
85. Catarina Cruz Vaz "Acquired Aplastic Anemia", Universidade do Porto 2016. Supervisor: Alice Santos-Silva, Co-supervisor: Susana Coimbra
86. Catarina Oliveira Andrade, "Morbid obesity: the role of the adiposity from visceral and subcutaneous adipose tissue in iron metabolism", Universidade do Porto 2016. Supervisor: Alice Santos-Silva, Co-supervisor: Cristina Catarino
87. Cátia Alexandra Campos Ferreira "Follow-up study following laparoscopic adjustable gastric banding. Hematologic and biochemical studies", Universidade do Porto 2016. Supervisor: Alice Santos-Silva, Co-supervisor: Susana Coimbra
88. Christopher Remtula, "Extraction of PHAs from bacterial biomass using supercritical carbon dioxide", FCT-Universidade Nova de Lisboa. 2016-11-10. Program: Chemical and Biochemical Engineering. Supervisors: Alexandre Paiva (principal supervisor) and Filomena Freitas.
89. Cindy N. Soares, "Isolation and characterization of novel Iron-sulfur proteins from DvH - An involvement in Cell Division?", Faculty of Science and Technology, NOVA University of Lisbon. 2016-11-15. Program: Biochemistry. Supervisor: Sofia R. Pauleta
90. Daniela Ferreira Garcia Rodrigues, " Volatile Organic Compounds for the Detection of Bladder Cancer: an in vitro metabolomic approach", Faculdade de Farmácia da Universidade do Porto. 2016-11-18. Program: Mestrado em Toxicologia Clínica, Analítica e Forense. Supervisors: Carvalho, M, (principal supervisor), Guedes de Pinho, P, and Maria de Lourdes Pinho de Almeida Souteiro Bastos.
91. Diana Sousa, "Improving the anti-tumor immune responses against cancer cells". Universidade NOVA de Lisboa 2016-11-24 Supervisors: Paula Videira (principal supervisor) and Zélia Silva
92. Fernanda Bernardo "Biological evaluation of new compounds as potential aromatase inhibitors for estrogen-dependent breast cancer", Universidade do Porto. 28-07-2016. Program: MSc Toxicologia Analítica, Clínica e Forense. Supervisors: Georgina Correia da Silva (principal supervisor) and Natércia Teixeira.
93. Filipa Trovão, "
94. Helena Isabel de Lemos Macedo, "Avaliação da atividade anti-biofilme de produtos naturais isolados de actinobactérias marinhas para o desenvolvimento de uma tinta antifouling", Universidade Nova de Lisboa. 2016-11-03. Program: Biochemistry, FCT-UNL. Supervisors: S. Gaudêncio (principal) and R.G. Sobral.
95. Henrique Fernandes, "Computational studies addressed to Histidine decarboxylase", Universidade do Porto. 08-07-2016. Program: Biochemistry. Supervisor: Nuno Cerqueira
96. Henry MacKeown (2016) Study of the degradation of Acid Red 14 by Polyphosphate Accumulating Organisms in a Sequencing Batch Reactor. Program: Erasmus, University of Lille. Supervisor: AdrianOehmen.
97. Inês Alves, "Estudo computacional de adsorção química de gases em nanotubos de carbono", Universidade do Porto. 14-07-2016. Program: Chemistry. Supervisor: Alexandre Magalhães
98. Isabel Loreto Barroso de Carvalho, "Antibiotic resistance in *Escherichia coli* and *Enterococcus* spp. isolated from the Asinine breed of Miranda do Douro (*Equus asinus*)", University of Trás-os-Montes and Alto Douro, April 2016. Program: Biotechnology for Health Sciences. Supervisors: Patrícia Poeta (principal supervisor) and Gilberto Igrejas.
99. Joana Gomes da Silva, "Characterization of the major autolysin of *Staphylococcus aureus*". Universidade Nova de Lisboa. 2016-01-04. Program: Medical Microbiology, ITQB-IHMT-FCM-FCT, UNL. Supervisors: R.G. Sobral (principal) and A.M. Ludovice.
100. Joana Loureiro, "Reactivation of p53: Searching for new small molecules anticancer candidates", Universidade do Porto. 2016-12-14. Program: Master Degree in Biochemistry. Supervisors: Lucília Saraiva (principal supervisor), Sara Gomes and Joana Soares.
101. João Maia, "Sex steroid hormones influence on endocannabinoid system in the female reproductive tract", Universidade do Porto. 30-11-2016. Program: MSc in Biochemistry. Supervisors: Bruno Fonseca (principal supervisor)
102. Joao Pereira, "Investigation of the adhesive properties of bacterial polyhydroxyalkanoates", FCT- Universidade Nova de Lisboa. 2016-11-21. Program: Biotechnology. Supervisors: Filomena Freitas.
103. Juliana Gomes de Sousa "New oral anticoagulants", Universidade do Porto 2016. Supervisor: Alice Santos-Silva, Co-supervisor: Luis Belo
104. Leonor Saavedra Barbosa Fernandes, " Development of FTIR method for screening of new psycocactive substances containing synthetic cathinones", Escola Superior de Biotecnologia da Universidade Católica do Porto. 2016-10-13. Program: Mestrado em Engenharia Biomédica. Supervisors: António César da Silva Ferreira (principal supervisor), Guedes de Pinho, P.,
105. Luís António da Silva, "A minimal version of a protein tyrosine phosphatase", Universidade Nova de Lisboa. 2016. Program: Master in Biotechnology. Supervisor: Ana Sofia Pina
106. Mafalda Barroso Capela Dias Pinto, "Desenvolvimento de um teste de diagnóstico serológico rápido para a deteção de *Pneumocystis jirovecii* em amostras clínicas", Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa. Mestrado em Genética Molecular e Biomedicina, 2016-10-26. Ricardo Franco (principal supervisor), Olga Matos and Inês Gomes (co-supervisors).
107. Margarida Martins (2016) Case Study for N2O Purification in aWastewater Treatment Plant, through anEconomic Analysis. Program:Chemical and Biochemical Engineering. Supervisors: Pedro Povoa(principal supervisor) and Adrian Oehmen.
108. Maria Beatriz Costa, "Characterization of the type III secretion signal of the *Chlamydia trachomatis* effector CT105", FCT NOVA. 2016-11-03. Program: Molecular Genetics and Biomedicine. Supervisor: Jaime Mota (principal supervisor).
109. Maria de Abreu Nunes da Silva "Itching physiopathology in cutaneous T-cell lymphoma. Role of interleukines 8 e 31", Universidade do Porto 2016. Supervisor: Margarida Lima, Co-supervisor: Alice Santos-Silva
110. Maria Miguel Castro, "Determination of macrophage activation profile and T cell populations in the context of congenital toxoplasmosis", Universidade do Porto 2016-11-30. Supervisor: Margarida Borges.
111. Maria Pia Vaz do Rego Pacheco Silva "Determinação da concentração de mercúrio, e outros elementos traço, em tecidos dos peixes-zebra (*Danio rerio*)", Universidade Nova de Lisboa. 2016-11-16. Program: Biomedical Engineering. Mauro Guerra (principal supervisor) e Mário Diniz
112. Mariana Alves de Sousa, "Conjugados de ácido lipídico com tensioativos derivados de serina: Novas metodologias de síntese e propriedades fisicoquímicas", Universidade do Porto. 2016-11-08. Program: MSc in Chemistry. Supervisor: Maria Luísa Cardoso do Vale.
113. Mariana Dos Santos, "Developing Synthetic Tools to Image and Modulate the Activity of Carboxyl terminus of Hsc70-Interacting Protein [CHIP]", Universidade do Porto. 2015-10-22. Program: Master Degree in Biochemistry. Supervisors: Ted Hupp (principal supervisor) and Lucília Saraiva.
114. Marisa Ferreira: "Elucidation of extracellular electron transfer pathways in *Geobacter sulfurreducens*". Faculdade de Ciências e Tecnologia – Universidade NOVA de Lisboa: 2016-11-23: Biochemistry Master Course: Carlos A. Salgueiro (Supervisor)
115. Marta Filipa Pereira Miranda Gonçalves "Patohphysiology of pruritus in cutaneous T-cell lymphoma, mastocytosis and psoriasis vulgaris", Universidade do Porto 2016. Supervisor: Alice Santos-Silva, Co-supervisor: Susana Coimbra
116. Marta Serra Giza, "A mixed Computational Modelling and Experimental approach to the Interaction between Gold Nanoparticles and Blood Proteins", Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa. Mestrado em Bioquímica. 2016-11-23. Ricardo Franco (principal supervisor), Ludwig Kripphal (co-supervisor).
117. Marta Silva, Nano in Micro Composite NanoParticles as Tools for Lung Cancer treatment using supercritical fluids "20 June 2016. University NOVA of Lisbon, FCT. Co-supervisors: Ana Isabel Ricardo, Teresa Casimiro, Carlos Lodeiro
118. Marta Vieira, "Arsenito oxidase bacteriana: caracterização a nível molecular", Universidade Nova de Lisboa. 2016-11-02. Program: Biochemistry. Supervisors: Teresa Santos-Silva.
119. Miguel Eduardo Magalhães Gouveia "Anemias associated with disturbances in iron metabolism", Universidade do Porto 2016. Supervisor: Alice Santos-Silva, Co-supervisor: Luís Belo
120. Natália Alyssa Papadopoulou Magalhães, "Stereoselective synthesis of olefins by oxidative rearrangement of allylic alcohols", Universidade do Porto. 2016-11-08. Program: MSc in Chemistry [Erasmus interchange with University of Santiago de Compostela]. Supervisor in Portugal: José Enrique Rodríguez Borges.
121. Nícia Filipa Rosário Ferreira, "Hair Metabolomics Applied to Gender Differentiation", Faculdade de Farmácia da Universidade do Porto. 2016-11-16. Program: Mestrado em Toxicologia Clínica, Analítica e Forense. Supervisors: Guedes de Pinho, P, (principal supervisor), Joana Pinto and Ana Oliveira.
122. Nuno Prego "Crosslinked Hyaluronic Acid nanoparticles as delivery vehicles for dendritic cell-targeted vaccines" Universidade NOVA de Lisboa 2016-05-20 Supervisors: Paula Videira (principal supervisor) and Vítor Espírito Santo.
123. Patrícia Ferreira de Castro "Thrombocytopenia and pseudo-thrombocytopenia. Case studies", Universidade do Porto 2016. Supervisor: Susana Coimbra, Co-supervisor: Alice Santos-Silva
124. Patricia Reis, "Optimization of FucoPal bioreactor production and exopolysaccharide applications", FCT- Universidade Nova de Lisboa. 2016-11-23. Program: Biotechnology. Supervisors: Filomena Freitas.
125. Raquel Costa, "Ligand discovery and structural-functional analysis of proteins involved in plant cell wall degradation", Universidade Nova de Lisboa. 2016-10-18. Program: Biochemistry. Supervisors: Angelina Palma (principal supervisor) e Ana Luísa Carvalho.
126. Renata Fernandes, "Effects of delta9-tetrahydrocannabinol in human endometrium regeneration & associated molecular mechanisms", Universidade do Porto. 29-09-2016. Program: MSc Toxicologia Analítica, Clínica e Forense. Supervisors: Bruno Fonseca (principal supervisor) and Natércia Teixeira
127. Ricardo Raposo (2016) Avaliação do impacto da implementação do controlo art-ICA na Estação de Tratamento de Águas Residuais de Chelas. Program:ChemicalandBiochemicalEngineering. Supervisors: Adrian Oehmen(principal supervisor) and Pedro Povoa.
128. Ricardo Silva, "Antimicrobial susceptibility of urinary tract pathogens of residents in a long-term and medium-term healthcare facility in North of Portugal", Faculdade de Farmácia do Porto. Program: Mestrado em Análises Clínicas. Supervisors: Luísa Peixe (principal supervisor) e Ângela Novais.
129. Risnita Vicky Listyarini, "Computational Studies Applied to Model Systems for Proteins and Materials", Universidade do Porto/University of Groningen. 04-11-2016. Program: Theoretical Chemistry and Molecular Modelling. Supervisor: Pedro Alexandrino Fernandes
130. Sara Loureiro Faria Vieira, "Methylphenidate effects after one-week exposure in adolescent rats", Faculdade de Farmácia da Universidade do Porto. 2016-11-07. Program: Mestrado em Toxicologia Clínica, Analítica e Forense. Supervisors: João Capela (principal supervisor), Vera Marisa Costa.
131. Sara Raquel Alçada Bragança Ribeiro, "Síntese de tripéptidos lipofílicos miméticos da prolina como potenciais neuroprotectores", Universidade do Porto. 2016-11-16. Program: MSc in Chemistry [Erasmus interchange with University of Santiago de Compostela]. Supervisor in Portugal: José Enrique Rodríguez Borges.
132. Sara Raquel Nascimento Santos Pereira da Silva. MsmX as model for functional studies of Multitask ATPases from pathogenic bacteria. FCT, Universidade Nova Lisboa, 2016-11-25, MSc in Biochemistry. Supervisor: Isabel Sá-Nogueira
133. Sérgio Bruno Ramos Rodrigues "In vitro evaluation of hemocompatibility of natural compounds, hidroxyapatite and chitosan", Universidade do Porto 2016. Supervisor: Elísio Costa, Co-supervisor: Alice Santos Silva
134. Sofia Isabel Baptista da Silva, "New marine natural products (NPs)-derivate polymeric composites with anti-biofilm activity against MRSA highly resistant strains". Universidade Nova de Lisboa. 2016-11-18. Program: Biotechnology, FCT-UNL. Supervisors: S. Gaudêncio (principal) and R.G. Sobral.
135. Tiago Augusto, "Aromatase inhibitors in breast cancer:signaling pathways involved in exemestane-acquired resistance", Universidade do Porto, 04-07-2016. Program: MSc in Biochemistry. Supervisors: Georgina Correia da Silva (principal supervisor) and Natércia Teixeira.
136. Tiago Filipe Mota Vieira, "Identificação de um potencial biomarcador de Malária", Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa". Mestrado em Genética Molecular e Biomedicina. 2016-10-28. Inês Gomes (principal supervisor), Ricardo Franco, Alexandra Fernandes and Miguel Prudêncio (co-supervisors).
137. Ana Filipa Machado Fradinho - Master in Molecular and Cellular Biology. Faculty of Biology from Aveiro University - Physiology and metabolic profile of *Moringa oleifera* and *Eucalyptus globulus* plants subjected to climate changes – Supervisors Conceição Santos (principal supervisor), Guedes de Pinho P.
138. António Jorge Ribeiro Neto da Silva - Mestrado em Ciências Forenses da Universidade do Porto; "Seasonal study of the Formicidae family communities and their dynamics in carcasses of pigs, in the Lisbon area" Orientador principal: Catarina Prado e Castro; co-orientador: Ricardo Jorge Dinis Oliveira;
139. Lúcia Catarina Ferreira da Costa - Mestrado em Ciências Forenses da Faculdade de Medicina da Universidade do Porto; "Preservação ou destruição de vestígios em caso de alegados crimes face à atuação dos bombeiros"; Orientador principal: Ricardo Jorge Dinis Oliveira; co-orientador Teresa Maria Salgado de Magalhães;
140. Maria João da Costa Martins - Mestrado em Toxicologia Clínica, Analítica e Forense da Faculdade de Farmácia da Universidade do Porto; "Cardiotoxicity of mixtures of cocaine and often co-consumed substances". Orientador principal: Prof. Doutora Diana Cristina Dias da Silva; co-orientador: Prof. Doutor Ricardo Jorge Dinis Oliveira;
141. Maria Oliveira - Mestrado em Toxicologia e Ecotoxicologia da Universidade de Aveiro; "Comparação da citotoxicidade de fármacos anticancerígenos e da sua mistura em células H9c2 diferenciadas" Orientadora principal: Vera Marisa Costa; co-orientadora: Maria de Lourdes Bastos;
142. Mariana Azevedo Soares - Mestrado em Toxicologia Clínica, Analítica e Forense da Faculdade de Farmácia da Universidade do Porto; "Toxicology of orellanine"; Orientador principal: Ricardo Jorge Dinis Oliveira; Félix Dias Carvalho; Coorientadora: Prof. Doutora Maria Carolina Rocha e Pinho Pereira Meireles de Amorim.
143. Rita Roque da Silva Bravo - Mestrado em Toxicologia Analítica, Clínica e Forense da FFUP; "Cardiotoxic, nephrotoxic and neurotoxic effects of amphetamine-type stimulants after liver metabolism". Orientador: Diana Cristina Dias da Silva; co-orientador: Helena Maria Ferreira Carmo

8

PUBLICATIONS

TOP 20 RESEARCH PUBLICATIONS BY IMPACT FACTOR

Goncalves, C, Coelho, MA, Salema-Oom, M, Goncalves, P. 2016. Stepwise Functional Evolution in a Fungal Sugar Transporter Family. *MOL BIOL EVOL*, 33, 352-366. DOI: 10.1093/molbev/msv220. IF: 13.649

Coelho, H, Matsushita, T, Artigas, G, Hinou, H, Canada, FJ, Lo-Man, R, Leclerc, C, Cabrera, EJ, Jimenez-Barbero, J, Nishimura, S, Garcia-Martin, F, Marcelo, F. 2015. The Quest for Anticancer Vaccines: Deciphering the Fine-Epitope Specificity of Cancer-Related Monoclonal Antibodies by Combining Microarray Screening and Saturation Transfer Difference NMR. *J AM CHEM SOC*, 137, 12438-12441. DOI: 10.1021/jacs.5b06787. IF: 13.038

Maia, LB, Fonseca, L, Moura, I, Moura, JGG. 2016. Reduction of carbon dioxide by a molybdenum-containing formate dehydrogenase: a kinetic and mechanistic study. *J AM CHEM SOC*, Vol. 138, 8834-8846. DOI: 10.1021/jacs.6b03941. IF: 13.038

Coelho, C, Foti A, Hartmann T, Santos-Silva T, Leimkuehler S, Romao MJ. 2015. Structural insights into xenobiotic and inhibitor binding to human aldehyde oxidase. *NATURE CHEM BIOL*, 11(10):779-83. DOI: 10.1038/nchembio.1895. IF: 12.709

Monteiro, JM, Fernandes, PB, Vaz, F, Pereira, AR, Tavares, AC, Ferreira, MT, Pereira, PM, Veiga, H, Kuru, E, VanNieuwenhze, MS, Brun, YV, Filipe, SR, Pinho, MG. 2015. Cell shape dynamics during the staphylococcal cell cycle. *NATURE COMMUNICATIONS*, 6. DOI: 10.1038/ncomms9055. IF: 11.329

Ribeiro, AJM, Santos-Martins, D, Russo, N, Ramos, MJ, Fernandes, PA. 2015. Enzymatic Flexibility and Reaction Rate: A QM/MM Study of HIV-1 Protease. *ACS CATALYSIS*, 5, 5617-5626. DOI: 10.1021/acscatal.5b00759. IF: 9.307

Ribeiro, AJM, Yang, LF, Ramos, MJ, Fernandes, PA, Liang, ZX, Hirao, H. 2015. Insight into Enzymatic Nitrile Reduction: QM/MM Study of the Catalytic Mechanism of QueF Nitrile Reductase. *ACS CATALYSIS*, 5, 3740-3751. DOI: 10.1021/acscatal.5b00528. IF: 9.307

Sousa, SF, Ramos, MJ, Lim, C, Fernandes, PA. 2015. Relationship between Enzyme/Substrate Properties and Enzyme Efficiency in Hydrolases. *ACS CATALYSIS*, 5, 5877-5887. DOI: 10.1021/acscatal.5b00923. IF: 9.307

Neves, RPP, Pedro A. Fernandes, Maria J. Ramos. 2016. Unveiling the Catalytic Mechanism of NADP+-Dependent Isocitrate Dehydrogenase with QM/MM Calculations. *ACS CATALYSIS*, 357-368. DOI: 10.1021/acscatal.5b01928. IF: 9.307

Johnston, EM, Dell'Acqua, S, Pauleta, SR, Moura, I, Solomon, EI. 2015. Protonation state of the Cu4S2 Cu-Z site in nitrous oxide reductase: redox dependence and insight into reactivity. *CHEMICAL SCIENCE*, 6, 5670-5679. DOI: 10.1039/c5sc02102b. IF: 9.144

Goncalves, M, Pontes, A, Almeida, P, Barbosa, R, Serra, M, Libkind, D, Hutzler, M, Goncalves, P, Sampaio, JP. 2016. Distinct Domestication Trajectories in Top-Fermenting Beer Yeasts and Wine Yeasts. *CURRENT BIOLOGY*, 26, 2750-2761. DOI: 10.1016/j.cub.2016.08.040. IF: 8.983

Araujo, JE, Lodeiro, C, Capelo, JL, Rodriguez-Gonzalez, B, dos Santos, AA, Santos, HM, Fernandez-Lodeiro, J. 2015. Novel nanocomposites based on a strawberry-like gold-coated magnetite (Fe@Au) for protein separation in multiple myeloma serum samples. *NANO RESEARCH*, 8, 1189-1198. DOI: 10.1007/s12274-014-0599-4. IF: 8.893

McCully, M, Hernandez, Y, Conde, J, Baptista, PV, de la Fuente, JM, Hursthouse, A, Stirling, D, Berry, CC. 2015. Significance of the balance between intracellular glutathione and polyethylene glycol for successful release of small interfering RNA from gold nanoparticles. *NANO RESEARCH*, 8, 3281-3292. DOI: 10.1007/s12274-015-0828-5. IF: 8.893

Costa, F, Maia S, Gomes P, Martins MCL. 2015. Dhvar5 antimicrobial peptide (AMP) chemoselective covalent immobilization results on higher antiadherence effect than simple physical adsorption. *BIOMATERIALS*, Vol. 52, 531-538. DOI: 10.1016/j.biomaterials.2015.02.049. IF: 8.387

Conde, J, Tian, FR, Hernandez, Y, Bao, CC, Baptista, PV, Cui, DX, Stoeger, T, de la Fuente, JM. 2015. RNAi-based glyconanoparticles trigger apoptotic pathways for in vitro and in vivo enhanced cancer-cell killing. *NANOSCALE*, 7, 9083-9091. DOI: 10.1039/c4nr05742b. IF: 7.76

Palma, SICJ, Rodrigues, CAV, Carvalho, A, Morales, MD, Freitas, F, Fernandes, AR, Cabral, JMS, Roque, ACA. 2015. A value-added exopolysaccharide as a coating agent for MRI nanoprobes. *NANOSCALE*, 7, 14272-14283. DOI: 10.1039/c5nr01979f. IF: 7.76

Cunha-Reis, C, Machado, A, Barreiros, L, Araujo, F, Nunes, R, Seabra, V, Ferreira, D, Segundo, MA, Sarmento, B, das Neves, J. 2016. Nanoparticles-in-film for the combined vaginal delivery of anti-HIV microbicide drugs. *JOURNAL OF CONTROLLED RELEASE*, Vol. 243, 43-53. DOI: 10.1016/j.jconrel.2016.09.020. IF: 7.441

Fernandes, CSM, Goncalves, B, Sousa, M, Martins, DL, Barroso, T, Pina, AS, Peixoto, C, Aguiar-Ricardo, A, Roque, ACA. 2015. Biobased Monoliths for Adenovirus Purification. *ACS APPLIED MATERIALS & INTERFACES*, 7, 6605-6612. DOI: 10.1021/am508907b. IF: 7.145

Corvo, MC, J Sardinha, T Casimiro, G Marin, M Seferin, S Einloft, SC Menezes, J Dupont, EJ Cabrera. 2015. A rational approach to sustainable CO2-capture by imidazolium ionic liquids: tuning CO2 solubility by cation alkyl branching. *CHEM SUS CHEM*, Vol. 8, 1935-1946. DOI: 10.1002/cssc.201500104. IF: 7.116

Carvalho, F, Atilano, ML, Pombinho, R, Covas, G, Gallo, RL, Filipe, SR, Sousa, S, Cabanes, D. 2015. L-Rhamnosylation of *Listeria monocytogenes* Wall Teichoic Acids Promotes Resistance to Antimicrobial Peptides by Delaying Interaction with the Membrane. *PLOS PATHOGENS*, 11. DOI: 10.1371/journal.ppat.1004919. IF: 7.003

PEER REVIEWED PUBLICATIONS

2015

1. Aguiar, A, Leite, A, Silva, AMN, Tome, AC, Cunha-Silva, L, de Castro, B, Rangel, M, Silva, AMG. 2015. Isoxazolidine-fused meso-tetraarylchlorins as key tools for the synthesis of mono- and bis-annulated chlorins. *ORGANIC AND BIOMOLECULAR CHEMISTRY*, 13, 7131-7135. DOI: 10.1039/C5OB00800J
2. Albuquerque, J, Moura, CC, Sarmento, B, Reis, S. 2015. Solid Lipid Nanoparticles: A Potential Multifunctional Approach towards Rheumatoid Arthritis Therapeutics. *MOLECULES*, 20, 1103-1118. DOI: 10.3390/molecules200611103
3. Alexandre, N, Costa, E, Coimbra, S, Silva, A, Lopes, A, Rodrigues, M, Santos, M, Mauricio, AC, Santos, JD, Luis, AL. 2015. In vitro and in vivo evaluation of blood coagulation activation of polyvinyl alcohol hydrogel plus dextran-based vascular grafts. *JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART A*, 103, 1366-1379. DOI: 10.1002/jbm.a.35275
4. Almada, M, Domingues, MR, Doria, ML, Fonseca, BM, Teixeira, NA, Correia-da-Silva, G. 2015. Lipidomic Approach Towards Deciphering Anandamide Effects in Rat Decidual Cell. *JOURNAL OF CELLULAR PHYSIOLOGY*, 230, 1549-1557. DOI: 10.1002/jcp.24901
5. Almada, M, Piscitelli, F, Fonseca, BM, Di Marzo, V, Correia-da-Silva, G, Teixeira, N. 2015. Anandamide and decidual remodelling: COX-2 oxidative metabolism as a key regulator. *BIOCHIMICA ET BIOPHYSICA ACTA-MOLECULAR AND CELL BIOLOGY OF LIPIDS*, 1851, 1473-1481. DOI: 10.1016/j.bbali.2015.08.011
6. Almeida, IF, Pinto, AS, Monteiro, C, Monteiro, H, Belo, L, Fernandes, J, Bento, AR, Duarte, TL, Garrido, J, Bahia, MF, Lobo, JMS, Costa, PC. 2015. Protective effect of C-sativa leaf extract against UV mediated-DNA damage in a human keratinocyte cell line. *JOURNAL OF PHOTOCHEMISTRY AND PHOTOBIOLOGY B-BIOLOGY*, 144, 28-34. DOI: 10.1016/j.jphotobiol.2015.01.010
7. Almeida, JMGC, Cisse, OH, Fonseca, A, Pagni, M, Hauser, PM. 2015. Comparative Genomics Suggests Primary Homothallism of Pneumocystis Species. *MBIO*, 6. DOI: 10.1128/mBio.02250-14
8. Almeida, P, Barbosa, R, Zalar, P, Imanishi, Y, Shimizu, K, Turchetti, B, Legras, JL, Serra, M, Dequin, S, Couloux, A, Guy, J, Bensasson, D, Goncalves, P, Sampaio, JP. 2015. A population genomics insight into the Mediterranean origins of wine yeast domestication. *MOLECULAR ECOLOGY*, 24, 5412-5427. DOI: 10.1111/mec.13341
9. Alves, BM, Borlido, L, Rosa, SASL, Silva, MFF, Aires-Barros, MR, Roque, ACA, Azevedo, AM. 2015. Purification of human antibodies from animal cell cultures using gum arabic coated magnetic particles. *JOURNAL OF CHEMICAL TECHNOLOGY AND BIOTECHNOLOGY*, 90, 838-846. DOI: 10.1002/jctb.4378
10. Alves, EA, Grund, JPC, Afonso, CM, Netto, ADP, Carvalho, F, Dinis-Oliveira, RJ. 2015. The harmful chemistry behind krokodil (desomorphine) synthesis and mechanisms of toxicity. *FORENSIC SCIENCE INTERNATIONAL*, 249, 207-213. DOI: 10.1016/j.forsciint.2015.02.001
11. Alves, EA, Soares, JX, Afonso, CM, Grund, JPC, Agonia, AS, Cravo, SM, Netto, ADP, Carvalho, F, Dinis-Oliveira, RJ. 2015. The harmful chemistry behind "krokodil": Street-like synthesis and product analysis. *FORENSIC SCIENCE INTERNATIONAL*, 257, 76-82. DOI: 10.1016/j.forsciint.2015.07.042
12. Alves, J, Madureira, P, Baltazar, MT, Barros, L, Oliveira, L, Dinis-Oliveira, RJ, Andrade, EB, Ribeiro, A, Vieira, LM, Trieu-Cuot, P, Duarte, JA, Carvalho, F, Ferreira, P. 2015. A Safe and Stable Neonatal Vaccine Targeting GAPDH Confers Protection against Group B Streptococcus Infections in Adult Susceptible Mice. *PLOS ONE*, 10. DOI: 10.1371/journal.pone.0144196
13. Amado, L, Ferreira, N, Miranda, V, Meireles, P, Povera, V, Ferreira, R, Fazendeiro-Matos, J, Teixeira, L, Paul, C, Santos-Silva, A, Costa, E. 2015. Self-Reported Medication Adherence in Patients with End-stage Kidney Disease Undergoing Online-Haemodiafiltration. *JOURNAL OF RENAL CARE*, 41, 231-238. DOI: 10.1111/jorc.12127
14. Amaral, C, Lopes A, Varela CL, da Silva ET, Roleira FM, Correia-da-Silva G, Teixeira N. 2015. Exemestane metabolites suppress growth of estrogen receptor-positive breast cancer cells by inducing apoptosis and autophagy: A comparative study with Exemestane. *INT J BIOCHEM CELL BIOL*, Dec;69:183-95. DOI: 10.1016/j.biocel.2015.10.024
15. Amaral, C, Lopes, A, Varela, CL, da Silva, ET, Roleira, FM, Correia-da-Silva, G, Teixeira, N. 2015. Exemestane metabolites suppress growth of estrogen receptor-positive breast cancer cells by inducing apoptosis and autophagy: A comparative study with Exemestane. *INTERNATIONAL JOURNAL OF BIOCHEMISTRY & CELL BIOLOGY*, 69, 183-195. DOI: 10.1016/j.biocel.2015.10.024
16. Antunes, S, Freitas, F, Alves, VD, Grandfils, C, Reis, MAM. 2015. Conversion of cheese whey into a fucose- and glucuronic acid-rich extracellular polysaccharide by Enterobacter A47. *JOURNAL OF BIOTECHNOLOGY*, 210, 1-7. DOI: 10.1016/j.jbiotec.2015.05.013
17. Appelberg, R, Moreira, D, Barreira-Silva, P, Borges, M, Silva, LDinis-Oliveira, R, Oliveira, Ricardo Jorge, Resende, M, Correia-Neves, M, Jordan, MB, Ferreira, NC, Abruñhosa, AJ, Silvestre, R. 2015. The Warburg effect in mycobacterial granulomas is dependent on the recruitment and activation of macrophages by interferon-gamma. *IMMUNOLOGY*, None, 498-507. DOI: 10.1111/imm.12464
18. Aquino, AS, Bernard, FL, Borges, JV, Mafra, L, Dalla Vecchia, F, Vieira, MO, Ligabue, R, Seferin, M, Chaban, VV, Cabrita, EJ, Einloft, S. 2015. Rationalizing the role of the anion in CO2 capture and conversion using imidazolium-based ionic liquid modified mesoporous silica. *RSC ADVANCES*, 5, 64220-64227. DOI: 10.1039/c5ra07561k
19. Araújo C, E. Munoz-Atienza, P. E. Hernandez, C. Herranz, L. M. Cintas, G. Igrejas, P. Poeta. 2015. Evaluation of Enterococcus spp. from Rainbow Trout (*Oncorhynchus mykiss*, Walbaum), Feed, and Rearing Environment Against Fish Pathogens. *FOODBORNE PATHOGENS AND DISEASE*, 12(4):311-22. DOI: 10.1089/fpd.2014.1906
20. Araujo, AM, Carvalho, F, Bastos, MD, de Pinho, PG, Carvalho, M. 2015. The hallucinogenic world of tryptamines: an updated review. *ARCHIVES OF TOXICOLOGY*, 89, 1151-1173. DOI: 10.1007/s00204-015-1513-x
21. Araujo, AM, Valente, MJ, Carvalho, M, da Silva, DD, Gaspar, H, Carvalho, F, Bastos, MD, de Pinho, PG. 2015. Raising awareness of new psychoactive substances: chemical analysis and in vitro toxicity screening of 'legal high' packages containing synthetic cathinones. *ARCHIVES OF TOXICOLOGY*, 89, 757-771. DOI: 10.1007/s00204-014-1278-7
22. Araújo, C, Muñoz-Atienza, E, Pérez-Sánchez, T, Poeta, P, Igrejas, G, Hernández, P.E, Herranz, C, Ruiz-Zarzuola, I, Cintas, L.M. 2015. Nisin Z Production by *Lactococcus lactis* subsp. *cremoris* WA2-67 of Aquatic Origin as a Defense Mechanism to Protect Rainbow Trout (*Oncorhynchus mykiss*, Walbaum) Against *Lactococcus garvieae*. *MARINE BIOTECHNOLOGY*, 17(6):820-830. DOI: 10.1007/s10126-015-9660-x
23. Araujo, JE, Lodeiro, C, Capela, JL, Rodriguez-Gonzalez, B, dos Santos, AA, Santos, HM, Fernandez-Lodeiro, J. 2015. Novel nanocomposites based on a strawberry-like gold-coated magnetite (Fe@Au) for protein separation in multiple myeloma serum samples. *NANO RESEARCH*, 8, 1189-1198. DOI: 10.1007/s12274-014-0599-4
24. Araujo, JE, Santos, T, Jorge, S, Pereira, TM, Reboiro-Jato, M, Pavon, R, Magrica, R, Teixeira-Costa, F, Ramos, A, Santos, HM. 2015. Matrix-assisted laser desorption/ionization time-of-flight mass spectrometry-based profiling as a step forward in the characterization of peritoneal dialysis effluent. *ANALYTICAL METHODS*, 7, 7467-7473. DOI: 10.1039/c5ay00620a
25. Barbosa, DJ, Capela, JP, Bastos, MD, Carvalho, F. 2015. In vitro models for neurotoxicology research. *TOXICOLOGY RESEARCH*, 4, 801-842. DOI: 10.1039/c4tx00043a
26. Barbosa, DJ, Capela, JP, Feio-Azevedo, R, Teixeira-Gomes, A, Bastos, MD, Carvalho, F. 2015. Mitochondria: key players in the neurotoxic effects of amphetamines. *ARCHIVES OF TOXICOLOGY*, 89, 1695-1725. DOI: 10.1007/s00204-015-1478-9
27. Bernacka-Wojcik, I, Aguas, H, Carlos, FF, Lopes, P, Wojcik, PJ, Costa, MN, Veigas, B, Igreja, R, Fortunato, E, Baptista, PV, Martins, R. 2015. Single Nucleotide Polymorphism Detection Using Gold Nanoprobes and Bio-Microfluidic Platform With Embedded Micro lenses. *BIOTECHNOLOGY AND BIOENGINEERING*, 112, 1210-1219. DOI: 10.1002/bit.25542
28. Berto, A, Ribeiro, AB, de Souza, NE, Fernandes, E, Chisté, RC. 2015. Bioactive compounds and scavenging capacity of pulp, peel and seed extracts of the Amazonian fruit *Quararibea cordata* against ROS and RNS. *FOOD RESEARCH INTERNATIONAL*, 77, 236-243. DOI: 10.1016/j.foodres.2015.06.018
29. Berto, A, Ribeiro, AB, Sentandreu, E, de Souza, NE, Mercadante, AZ, Chiste, RC, Fernandes, E. 2015. The seed of the Amazonian fruit *Couepia bracteosa* exhibits higher scavenging capacity against ROS and RNS than its shell and pulp extracts. *FOOD & FUNCTION*, 6, 3081-3090. DOI: 10.1039/c5fo00722d
30. Blazquez-Sanchez, MT, Marcelo, F, Fernandez-Alonso, MD, del Villar-Guerra, R, Samadi, A, Canada, FJ, Jimenez-Barbero, J, Vicent, C. 2015. D- and L-Mannose-Containing glyco-Oligoamides Show Distinct Recognition Properties When Interacting with DNA. *EUROPEAN JOURNAL OF ORGANIC CHEMISTRY*, None, 6180-6193. DOI: 10.1002/ejoc.201500740
31. Borges, V, Pinheiro, M, Antelo, M, Sampaio, DA, Vieira, L, Ferreira, R, Nunes, A, Almeida, F, Mota, LJ, Borrego, MJ, Gomes, JP. 2015. Chlamydia trachomatis In Vivo to In Vitro Transition Reveals Mechanisms of Phase Variation and Down-Regulation of Virulence Factors. *PLOS ONE*, 10. DOI: 10.1371/journal.pone.0133420
32. Bugalhão, JN, Mota, LJ, Franco, IS. 2015. Bacterial nucleators: actin' on actin. *PATHOGENS AND DISEASE*, 73. DOI: 10.1093/femspd/ftv078
33. Bugalho, A, Martins C, Silva Z, Nunes G, Mendes AS, Ferreira I, Videira PA. 2015. Immature Myeloid Cells and Tolerogenic Cytokine Profile in Lung Adenocarcinoma Metastatic Lymph Nodes Assessed by Endobronchial Ultrasound. *TUMOR BIOLOGY*, pp 1-9. DOI: 10.1007/s13277-015-3885-1
34. Campos, J, Gil, J, Mourao, J, Peixe, L, Antunes, P. 2015. Ready-to-eat street-vended food as a potential vehicle of bacterial pathogens and antimicrobial resistance: An exploratory study in Porto region, Portugal. *INTERNATIONAL JOURNAL OF FOOD MICROBIOLOGY*, 206, 1-6. DOI: 10.1016/j.ijfoodmicro.2015.04.016
35. Cardoso, AM, Morais, CM, Cruz, AR, Cardoso, AL, Silva, SG, do Vale, LM, Marques, EF, de Lima, MCP, Jurado, AS. 2015. Gemini Surfactants Mediate Efficient Mitochondrial Gene Delivery and Expression. *MOLECULAR PHARMACEUTICS*, 12, 716-730. DOI: 10.1021/mp5005349
36. Cardoso, AM, Morais, CM, Cruz, AR, Silva, SG, do Vale, MLC, Marques, EF, Pedroso de Lima, MC, Jurado AS. 2015. New serine-derived gemini surfactants as gene delivery systems. *EUROPEAN JOURNAL OF PHARMACEUTICS AND BIOPHARMACEUTICS*, 89, 347-356. DOI: 10.1016/j.ejpb.2014.12.013
37. Cardoso, MS, Silva, TM, Resende, M, Appelberg, R, Borges, M. 2015. Lack of the Transcription Factor Hypoxia-Inducible Factor 1 alpha (HIF-1 alpha) in Macrophages Accelerates the Necrosis of Mycobacterium avium-Induced Granulomas. *INFECTION AND IMMUNITY*, None, 83-3534. DOI: 10.1128/IAI.00144-15
38. Carvalho, F, Atilano, ML, Pombinho, R, Covas, G, Gallo, RL, Filipe, SR, Sousa, S, Cabanes, D. 2015. L-Rhamnosylation of *Listeria monocytogenes* Wall Teichoic Acids Promotes Resistance to Antimicrobial Peptides by Delaying Interaction with the Membrane. *PLOS PATHOGENS*, 11. DOI: 10.1371/journal.ppat.1004919
39. Carvalho, HF, Roque, ACA, Iranzo, O, Branco, RJF. 2015. Comparison of the Internal Dynamics of Metalloproteases Provides New Insights on Their Function and Evolution. *PLOS ONE*, 10. DOI: 10.1371/journal.pone.0138118
40. Carvalho, LCR, Ribeiro, D, Seixas, RSGR, Silva, AMS, Nave, M, Martins, AC, Erhardt, S, Fernandes, E, Cabrita, EJ, Marques, MMB. 2015. Synthesis and evaluation of new benzimidazole-based COX inhibitors: a naproxen-like interaction detected by STD-NMR. *RSC ADVANCES*, 5, 49098-49109. DOI: 10.1039/c5ra04984a
41. Catarino, C, Coimbra, S, Gomes, D, Belo, L, Rocha, S, Bicho, M, Rebelo, I, Santos-Silva, A. 2015. [134-POS]: Cell free DNA in Portuguese preeclamptic pregnancy. *PREGNANCY HYPERTENSION*, 5, 70-71. DOI: 10.1016/j.preghy.2014.10.140
42. Cerqueira, N, Gonzalez, P, Fernandes, PA, Moura, JGG, Ramos, MJ. 2015. Periplasmic nitrate reductase and formate dehydrogenase: similar molecular architectures with very different enzymatic activities. *ACC CHEM RES*, Vol. 48, 2875-2884. DOI: 10.1021/acs.accounts.5b00333
43. Cerqueira, NMFSA, Coelho, C, Bras, NF, Fernandes, PA, Garattini, E, Terao, M, Romao, MJ, Ramos, MJ. 2015. Insights into the structural determinants of substrate specificity and activity in mouse aldehyde oxidases. *JOURNAL OF BIOLOGICAL INORGANIC CHEMISTRY*, 20, 209-217. DOI: 10.1007/s00775-014-1198-2
44. Cerqueira, NMFSA, Gesto, D, Oliveira, EF, Santos-Martins, D, Bras, NF, Sousa, SF, Fernandes, PA, Ramos, MJ. 2015. Receptor-based virtual screening protocol for drug discovery. *ARCHIVES OF BIOCHEMISTRY AND BIOPHYSICS*, 582, 56-67. DOI: 10.1016/j.abb.2015.05.011
45. Cerqueira, NMFSA, Gonzalez, PJ, Fernandes, PA, Moura, JGG, Ramos, MJ. 2015. Periplasmic Nitrate Reductase and Formate Dehydrogenase: Similar Molecular Architectures with Very Different Enzymatic Activities. *ACCOUNTS OF CHEMICAL RESEARCH*, 48, 2875-2884. DOI: 10.1021/acs.accounts.5b00333
46. Charro, N, Mota, LJ. 2015. Approaches targeting the type III secretion system to treat or prevent bacterial infections. *EXPERT OPINION ON DRUG DISCOVERY*, 10, 373-387. DOI: 10.1517/17460441.2015.1019860
47. Chaves, LL, Vieira, ACC, Ferreira, D, Sarmento, B, Reis, S. 2015. Rational and precise development of amorphous polymeric systems with dapsone by response surface methodology. *INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES*, 81, 662-671. DOI: 10.1016/j.ijbiomac.2015.08.009
48. Child, HW, Hernandez, Y, Conde, J, Mullin, M, Baptista, P, de la Fuente, JM, Berry, CC. 2015. Gold nanoparticle-siRNA mediated oncogene knockdown at RNA and protein level, with associated gene effects. *NANOMEDICINE*, 10, 2513-2525. DOI: 10.2217/NNM.15.95

49. Chiste, RC, Freitas, M, Mercadante, AZ, Fernandes, E. 2015. Superoxide Anion Radical: Generation and Detection in Cellular and Non-Cellular Systems. CURRENT MEDICINAL CHEMISTRY, 61, 4234-4256. DOI: 10.2174/0929867322666151029104311
50. Cid, A, Picado, A, Correia, JB, Chaves, R, Silva, H, Caldeira, J, de Matos, APA, Diniz, MS. 2015. Oxidative stress and histological changes following exposure to diamond nanoparticles in the freshwater Asian clam *Corbicula fluminea* (Muller, 1774). JOURNAL OF HAZARDOUS MATERIALS, 284, 27-34. DOI: 10.1016/j.jhazmat.2014.10.055
51. Coelho, C, Foti, A, Hartmann T, Santos-Silva T, Leimkuehler S, Romao MJ. 2015. Structural insights into xenobiotic and inhibitor binding to human aldehyde oxidase. NATURE CHEM BIOL, 11(10):779-83. DOI: 10.1038/nchembio.1895
52. Coelho, C, Romao, MJ. 2015. Structural and mechanistic insights on nitrate reductases. PROTEIN SCIENCE, 24, 1901-1911. DOI: 10.1002/pro.2801
53. Coelho, H, Matsushita, T, Artigas, G, Hinou, H, Canada, FJ, Lo-Man, R, Leclerc, C, Cabrita, EJ, Jimenez-Barbero, J, Nishimura, S, Garcia-Martin, F, Marcelo, F. 2015. The Quest for Anticancer Vaccines: Deciphering the Fine-Epitope Specificity of Cancer-Related Monoclonal Antibodies by Combining Microarray Screening and Saturation Transfer Difference NMR. JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, 137, 12438-12441. DOI: 10.1021/jacs.5b06787
54. Coelho, SC, Rangel, M, Pereira, MC, Coelho, MAN, Ivanova, G. 2015. Structural characterization of functionalized gold nanoparticles for drug delivery in cancer therapy: a NMR based approach. PHYSICAL CHEMISTRY CHEMICAL PHYSICS, 17, 18971-18979. DOI: 10.1039/c5cp02717a
55. Coimbra, S, Santos-Silva, Alice. 2015. A specific molecular signature for psoriasis and eczema. ANNALS OF TRANSLATIONAL MEDICINE, 3, 76. DOI: 10.3978/j.issn.2305-5839.2015.01.24
56. Conde, J, Ambrosone, A, Hernandez, Y, Tian, FR, McCully, M, Berry, CC, Baptista, PV, Tortiglione, C, de la Fuente, JM. 2015. 15 years on siRNA delivery: Beyond the State-of-the-Art on inorganic nanoparticles for RNAi therapeutics. NANO TODAY, 10, 421-450. DOI: 10.1016/j.nantod.2015.06.008
57. Conde, J, Tian, FR, Hernandez, Y, Bao, CC, Baptista, PV, Cui, DX, Stoeger, T, de la Fuente, JM. 2015. RNAi-based glyconanoparticles trigger apoptotic pathways for in vitro and in vivo enhanced cancer-cell killing. NANOSCALE, 7, 9083-9091. DOI: 10.1039/c4nr05742b
58. Correia, HD, Marangon J, Brondino CD, Moura JGG, Romao MJ, Gonzalez PJ, Santos-Silva T. 2015. Aromatic aldehydes at the active site of aldehyde oxidoreductase from *Desulfobrevibacter gigas*: reactivity and molecular details of the enzyme-substrate and enzyme-product interaction. J BIOL INORG CHEM, 20:219-229, (2015). DOI:10.1007/s00775-014-1196-4
59. Corvo, MC, J Sardinha, T Casimiro, G Marin, M Seferin, S Einloft, SC Menezes, J Dupont, EJ Cabrita. 2015. A rational approach to sustainable CO₂-capture by imidazolium ionic liquids: tuning CO₂ solubility by cation alkyl branching. CHEM SUS CHEM, Vol. 8, 1935-1946. DOI: 10.1002/cssc.201500104
60. Costa, C, Brandão, F, Bessa, MJ, Costa, S, Valdiglesias, V, Kiliç, G, Fernández-Bertólez, N, Quaresma, P, Pereira, E, Pásaro, E, Laffon, B, Teixeira, JP. 2015. In vitro cytotoxicity of superparamagnetic iron oxide nanoparticles on neuronal and glial cells. Evaluation of nanoparticle interference with viability tests. JOURNAL OF APPLIED TOXICOLOGY, Vol 36, 361-372. DOI: 10.1002/jat.3213
61. Costa, C, Francisco, V, Silva, SG, do Vale, MLC, Garcia-Rio, L, Marques, EF. 2015. Supramolecular self-assembly between an amino acid-based surfactant and a sulfonatocalixarene driven by electrostatic interactions. COLLOIDS AND SURFACES: PHYSICOCHEMICAL AND ENGINEERING ASPECTS, 480, 71-78. DOI: 10.1016/j.colsurfa.2015.03.054
62. Costa, E, Giardini, A, Savin, M, Menditto, E, Lehane, E, Laosa, O, Pecorelli, S, Monaco, A, Marengoni, A. 2015. Interventional tools to improve medication adherence: review of literature. PATIENT PREFERENCE AND ADHERENCE, 9. DOI:10.2147/PPA.S87551
63. Costa, F, Maia S, Gomes P, Martins MCL. 2015. Dhar5 antimicrobial peptide (AMP) chemoselective covalent immobilization results on higher antiadherence effect than simple physical adsorption. BIOMATERIALS, Vol. 52, 531-538. DOI: 10.1016/j.biomaterials.2015.02.049
64. Costa, I, Carvalho, F, Magalhaes, T, de Pinho, PG, Silvestre, R, Dinis-Oliveira, RJ. 2015. Promising blood-derived biomarkers for estimation of the postmortem interval. TOXICOLOGY RESEARCH, 4, 1443-1452. DOI: 10.1039/c5tx00209e
65. Costa, MA, Fonseca, BM, Marques, F, Teixeira, NA, Correia-da-Silva, G. 2015. The psychoactive compound of Cannabis sativa, Delta(9)-tetrahydrocannabinol (THC) inhibits the human trophoblast cell turnover. TOXICOLOGY, 334, 94-103. DOI: 10.1016/j.tox.2015.06.005
66. Costa, MA, Fonseca, BM, Mendes, A, Braga, J, Teixeira, NA, da Silva, GC. 2015. The endocannabinoid anandamide affects the synthesis of human syncytiotrophoblast-related proteins. CELL AND TISSUE RESEARCH, 362, 441-446. DOI: 10.1007/s00441-015-2236-2
67. Costa, MA, Fonseca, BM, Teixeira, NA, Correia-Da-Silva, G. 2015. The endocannabinoid anandamide induces apoptosis in cytotrophoblast cells: Involvement of both mitochondrial and death receptor pathways. PLACENTA, 36, 69-76. DOI: 10.1016/j.placenta.2014.10.011
68. Costa, MA, Keating, E, Fonseca, BM, Teixeira, NA, Correia-da-Silva, G. 2015. 2-Arachidonoylglycerol impairs human cytotrophoblast cells syncytialization: Influence of endocannabinoid signalling in placental development. MOLECULAR AND CELLULAR ENDOCRINOLOGY, 399, 386-394. DOI: 10.1016/j.mce.2014.09.005
69. Coutinho, IB, Freitas, A, Macanita, AL, Lima, JC. 2015. Effect of water content on the acid-base equilibrium of cyanidin-3-glucoside. FOOD CHEMISTRY, 172, 476-480. DOI: 10.1016/j.foodchem.2014.09.060
70. Couto, D, Freitas, M, Carvalho, F, Fernandes, E. 2015. Iron Oxide Nanoparticles: An Insight into their Biomedical Applications. CURRENT MEDICINAL CHEMISTRY, 22, 1808-1828. DOI: 10.2174/0929867322666150311151403
71. Couto, D, Freitas, M, Porto, G, Lopez-Quintela, MA, Rivas, J, Freitas, P, Carvalho, F, Fernandes, E. 2015. Polyacrylic acid-coated and non-coated iron oxide nanoparticles induce cytokine activation in human blood cells through TAK1, p38 MAPK and JNK pro-inflammatory pathways. ARCHIVES OF TOXICOLOGY, 89, 1759-1769. DOI: 10.1007/s00204-014-1325-4
72. Couto, D, Sousa, R, Andrade, L, Leander, M, Lopez-Quintela, MA, Rivas, J, Freitas, P, Lima, M, Porto, G, Porto, B, Carvalho, F, Fernandes, E. 2015. Polyacrylic acid coated and non-coated iron oxide nanoparticles are not genotoxic to human T lymphocytes. TOXICOLOGY LETTERS, 234, 67-73. DOI: 10.1016/j.toxlet.2015.02.010
73. Cruz, MV, Sarraguca, MC, Freitas, F, Lopes, JA, Reis, MAM. 2015. Online monitoring of P(3HB) produced from used cooking oil with near-infrared spectroscopy. JOURNAL OF BIOTECHNOLOGY, 194, 1-9. DOI: 10.1016/j.jbiotec.2014.11.022
74. da Silva, AFF, Barata, JFB, Silva, AMG, Neves, MGPMS, Tome, AC, Silva, AMS, Cavaleiro, JAS. 2015. Reactivity of tetrapyrrolyl nitrones towards dipolarophiles bearing electron-withdrawing groups. TETRAHEDRON LETTERS, 56, 2878-2881. DOI: 10.1016/j.tetlet.2015.04.066
75. Dantas, JM, Campelo, LM, Duke, NEC, Salgueiro, CA, Pokkuluri, PR. 2015. The structure of Poch from *Geobactersulfurreducens*-a novel low reduction potential monoheme cytochrome essential for accepting electrons from an electrode. FEBS JOURNAL, 282, 2215-2231. DOI: 10.1111/febs.13269
76. Dantas, JM, Kokhan, O, Pokkuluri, PR, Salgueiro, CA. 2015. Molecular interaction studies revealed the bifunctional behavior of triheme cytochrome PpcA from *Geobacter sulfurreducens* toward the redox active analog of humic substances. BIOCHIMICA ET BIOPHYSICA ACTA-BIOENERGETICS, 1847, 1129-1138. DOI: 10.1016/j.bbabi.2015.06.004
77. Dantas, JM, Margado, L, Aklujkar, M, Bruix, M, Londer, YY, Schiffer, M, Pokkuluri, PR, Salgueiro, CA. 2015. Rational engineering of *Geobacter sulfurreducens* electron transfer components: a foundation for building improved *Geobacter*-based bioelectrochemical technologies. FRONTIERS IN MICROBIOLOGY, 6. DOI: 10.3389/fmicb.2015.00752
78. Dantas, JM, Salgueiro, CA, Bruix, M. 2015. Backbone, side chain and heme resonance assignments of the triheme cytochrome PpcD from *Geobacter sulfurreducens*. BIOMOLECULAR NMR ASSIGNMENTS, 9, 211-214. DOI: 10.1007/s12104-014-9576-9
79. Dantas, JM, Sousa, MSE, Salgueiro, CA, Bruix, M. 2015. Backbone, side chain and heme resonance assignments of cytochrome OmcF from *Geobacter sulfurreducens*. BIOMOLECULAR NMR ASSIGNMENTS, 9, 365-368. DOI: 10.1007/s12104-015-9611-5
80. de Araujo, AR, Quelemes, PV, Perfeito, MLG, de Lima, LI, Sa, MC, Nunes, PHM, Joonitti, GA, Eaton, P, Soares, MJDS, Leite, JRDD. 2015. Antibacterial, antibiofilm and cytotoxic activities of Terminalia fagifolia Mart. extract and fractions. ANNALS OF CLINICAL MICROBIOLOGY AND ANTIMICROBIALS, 14. DOI: 10.1186/s12941-015-0084-2
81. de Garcia, V, Coelho, MA, Maia, TM, Rosa, LH, Vaz, AM, Rosa, CA, Sampaio, JP, Goncalves, P, van Broock, M, Libkind, D. 2015. Sex in the cold: taxonomic reorganization of psychrotolerant yeasts in the order Leucosporidiales. FEMS YEAST RESEARCH, 15. DOI: 10.1093/femsyr/fov019
82. De Schutter, A, Correia, HD, Freire, DM, Rivas, MG, Rizzi, A, Santos-Silva, T, Gonzalez, PJ, Van Doorslaer, S. 2015. Ligand Binding to Chlorite Dismutase from *Magnetospirillum* sp.. JOURNAL OF PHYSICAL CHEMISTRY B, 119, 13859-13869. DOI: 10.1021/acs.jpcc.5b04141
83. Dias-da-Silva, D, Arbo, MD, Valente, MJ, Bastos, ML, Carmo, H. 2015. Hepatotoxicity of piperazine designer drugs: Comparison of different in vitro models. TOXICOLOGY IN VITRO, 29, 987-996. DOI: 10.1016/j.tiv.2015.04.001
84. Dias, AMGC, Iranzo, O, Roque, ACA. 2015. An in silico and chemical approach towards small protein production and application in phosphoproteomics. RSC ADVANCES, 5, 19743-19751. DOI: 10.1039/c4ra16934d
85. Dinis-Oliveira, Ricardo J, Magalhaes, T. 2015. The Inherent Drawbacks of the Pressure to Publish in Health Sciences: Good or Bad Science. F1000 RESEARCH, 4, 419. DOI: 10.12688/f1000research.6809.2
86. Dinis-Oliveira, RJ, Magalhaes, T, Queiros, O, Proenca, JB, Moreira, R, de Lourdes Bastos, M, Carvalho, F. 2015. Signs and Related Mechanisms of Ethanol Hepatotoxicity. CURRENT DRUG ABUSE REVIEWS, 8, 86-103. DOI: 10.2174/1874473708666150916113352
87. Dinis-Oliveira, RJ, Ricardo Jorge, Carvalho, F, Moreira, R, Proenca, JB, Santos, A, Duarte, JA, Bastos, MD, Magalhaes, T. 2015. Clinical and forensic signs related to chemical burns: A mechanistic approach. BURNS, 41, 658-679. DOI: 10.1016/j.burns.2014.09.002
88. Dinis-Oliveira, RJ. 2015. Metabolomics of cocaine: implications in toxicity. TOXICOLOGY MECHANISMS AND METHODS, 25, 494-500. DOI: 10.3109/15376516.2015.1072612
89. Diniz, MS, Salgado R, Pereira, VJ, Carvalho G, Oehmen, A, Reis M.A.M, Noronha, J.P. 2015. Ecotoxicity of ketoprofen, diclofenac, atenolol and their photolysis byproducts in zebrafish (*Danio rerio*). SCI TOT ENVIRON, 505, 282-289. DOI: 10.1016/j.scitotenv.2014.09.103
90. Dores-Sousa, Jose Luis, Duarte, Jose Alberto, Seabra, Vitor, Bastos, Maria de Lourdes, Carvalho, Felix, Costa, Vera Marisa. 2015. The age factor for mitoxantrone's cardiotoxicity: multiple doses render the adult mouse heart more susceptible to injury. TOXICOLOGY, 329, 106-119. DOI: 10.1016/j.tox.2015.01.006
91. Farias, EAD, dos Santos, MC, Dionisio, ND, Quelemes, PV, Leite, JRDA, Eaton, P, da Silva, DA, Eiras, C. 2015. Layer-by-Layer films based on biopolymers extracted from red seaweeds and polyaniline for applications in electrochemical sensors of chromium VI. MATERIALS SCIENCE & ENGINEERING B, 200, 9-21. DOI: 10.1016/j.mseb.2015.05.004
92. Farinha, I, Duarte, P, Pimentel, A, Plotnikova, E, Chagas, B, Mafra, L, Grandfils, C, Freitas, F, Fortunato, E, Reis, MAM. 2015. Chitin-glucon complex production by *Komagataella pastoris*: Downstream optimization and product characterization. CARBOHYDRATE POLYMERS, 130, 455-464. DOI: 10.1016/j.carbpol.2015.05.034
93. Fava, F, Totaro, G, Diels, L, Reis, M, Duarte, J, Carioca, OB, Poggi-Valardo, HM, Ferreira, BS. 2015. Biowaste biorefinery in Europe: opportunities and research & development needs. NEW BIOTECHNOLOGY, 32, 100-108. DOI: 10.1016/j.nbt.2013.11.003
94. Fernandes, AR, Bras, NF, Mateus, N, de Freitas, V. 2015. A study of anthocyanin self-association by NMR spectroscopy. NEW JOURNAL OF CHEMISTRY, 39, 2602-2611. DOI:10.1039/c4nj02339k
95. Fernandes, CSM, Goncalves, B, Sousa, M, Martins, DL, Barroso, T, Pina, AS, Peixoto, C, Aguiar-Ricardo, A, Roque, ACA. 2015. Biobased Monoliths for Adenovirus Purification. ACS APPLIED MATERIALS & INTERFACES, 7, 6605-6612. DOI: 10.1021/am508907b
96. Ferreira, M, Chaves, LL, Lima, SAC, Reis, S. 2015. Optimization of nanostructured lipid carriers loaded with methotrexate: A tool for inflammatory and cancer therapy. INTERNATIONAL JOURNAL OF PHARMACEUTICS, 2, 65-72. DOI: 10.1016/j.ijpharm.2015.07.013
97. Ferreira, M, Gameiro, P. 2015. Ciprofloxacin metalloantibiotic: an effective antibiotic with an influx route strongly dependent on lipid interaction?. J MEMB BIOL, 248, 125-136. DOI: 10.1007/s00232-014-9749-6
98. Ferreira, S, Carvalho, J, Valente, JFA, Corvo, MC, Cabrita, EJ, Sousa, F, Queiroz, JA, Cruz, C. 2015. Affinity analysis and application of dipeptides derived from L-tyrosine in plasmid purification. JOURNAL OF CHROMATOGRAPHY B-ANALYTICAL TECHNOLOGIES IN THE BIOMEDICAL AND LIFE SCIENCES, 1006, 47-58. DOI: 10.1016/j.jchromb.2015.10.025
99. Ferrer-Gallego, R, Quijada-Morin, N, Bras, NF, Gomes, P, de Freitas, V, Rivas-Gonzalo, JC, Escribano-Bailon, MT. 2015. Characterization of Sensory Properties of Flavanols-A Molecular Dynamic Approach. CHEMICAL SENSES, 40, 381-390. DOI: 10.1093/chemse/bjv018
100. Folgosa, F, Camacho, I, Penas, D, Guilherme, M, Frois, J, Ribeiro, PA, Tavares, P, Pereira, AS. 2015. UV radiation effects on a DNA repair enzyme: Conversion of a [4Fe-4S]²⁺ cluster into a [2Fe-2S]²⁺. RADIATION AND ENVIRONMENTAL BIOPHYSICS, Vol. 54, 111-121. DOI:10.1007/s00411-014-0569-y
101. Folgosa, F, Tavares, P, Pereira, AS. 2015. Iron management and production of electricity by microorganisms. APPLIED MICROBIOLOGY AND BIOTECHNOLOGY, Vol. 99, 8329-8336. DOI:10.1007/s00253-015-6897-2
102. Fonseca, J, Tomada, N, Magalhaes, A, Rodrigues, AR, Gouveia, AM, Neves, D. 2015. Effect of Aging and Cardiovascular Risk Factors on Receptor Tiel Expression in Human Erectile Tissue. JOURNAL OF SEXUAL MEDICINE, 12, 876-886. DOI: 10.1111/jsm.12794
103. Fonseca, SM, Correia-da-Silva, G, Teixeira, NA. 2015. Anandamide restricts uterine stromal differentiation and is critical for complete decidualization. MOLECULAR AND CELLULAR ENDOCRINOLOGY, 411, 167-176. DOI: 10.1016/j.mce.2015.04.024
104. Fonte, P, Araujo, F, Seabra, V, Reis, S, van de Weert, M, Sarmento, B. 2015. Co-encapsulation of lyoprotectants improves the stability of protein-loaded PLGA nanoparticles upon lyophilization. INTERNATIONAL JOURNAL OF PHARMACEUTICS, 496, 850-862. DOI: 10.1016/j.ijpharm.2015.10.032
105. Franca, RDG, Vieira, A, Mata, AMT, Carvalho, GS, Pinheiro, HM, Laurenco, ND. 2015. Effect of an azo dye on the performance of an aerobic granular sludge sequencing batch reactor treating a simulated textile wastewater. WATER RESEARCH, 85, 327-336. DOI: 10.1016/j.watres.2015.08.043
106. Freire, DM, Rivas, MG, Dias, AM, Lopes, AT, Costa, C, Santos-Silva, T, Van Doorslaer, S, Gonzalez, PJ. 2015. The homopentameric chlorite dismutase from *Magnetospirillum* sp.. JOURNAL OF INORGANIC BIOCHEMISTRY, 151, 1-9. DOI: 10.1016/j.jinorgbio.2015.07.006
107. Freitas, LFD, Barbosa, R, Sampaio, JP, Lachance, MA, Rosa, CA. 2015. *Starmera pilosocereana* sp nov., a yeast isolated from necrotic tissue of cacti in a sandy coastal dune ecosystem. INTERNATIONAL JOURNAL OF SYSTEMATIC AND EVOLUTIONARY MICROBIOLOGY, 65, 4474-4478. DOI: 10.1099/ijsem.0.000596
108. Frison, N, Katsou, E, Malamis, S, Oehmen, A, Fatone, F. 2015. Development of a Novel Process Integrating the Treatment of Sludge Reject Water and the Production of Polyhydroxyalkanoates (PHAs). ENVIRONMENTAL SCIENCE & TECHNOLOGY, 49, 10877-10885. DOI: 10.1021/acs.est.5b01776

109. Frison, N, Katsou, E, Malamis, S, Oehmen, A, Fatone, F. 2015. Nutrient removal via nitrite from reject water and polyhydroxyalkanoate (PHA) storage during nitrifying conditions. JOURNAL OF CHEMICAL TECHNOLOGY AND BIOTECHNOLOGY, 90, 1802-1810. DOI: 10.1002/jctb.4487
110. Gales, L, Amorim, R, Afonso, CMM, Carvalho, F, Dinis-Oliveira, RJ. 2015. Decreasing the toxicity of paraquat through the complexation with sodium salicylate: Stoichiometric analysis. TOXICOLOGY, 336, 96-98. DOI: 10.1016/j.tox.2015.08.005
111. Garcia, J, Costa, VM, Baptista, P, Bastos, MD, Carvalho, F. 2015. Quantification of alpha-amanitin in biological samples by HPLC using simultaneous UV- diode array and electrochemical detection. JOURNAL OF CHROMATOGRAPHY B-ANALYTICAL TECHNOLOGIES IN THE BIOMEDICAL AND LIFE SCIENCES, 997, 85-95. DOI: 10.1016/j.jchromb.2015.06.001
112. Garcia, J, Costa, VM, Carvalho, A, Baptista, P, de Pinho, PG, Bastos, MD, Carvalho, F. 2015. Amanita phalloides poisoning: Mechanisms of toxicity and treatment. FOOD AND CHEMICAL TOXICOLOGY, 86, 41-55. DOI: 10.1016/j.fct.2015.09.008
113. Garcia, J, Costa, VM, Carvalho, ATP, Silvestre, R, Duarte, JA, Dourado, DFAR, Arbo, MD, Baltazar, T, Dinis-Oliveira, RJ, Baptista, P, Bastos, MD, Carvalho, F. 2015. A breakthrough on Amanita phalloides poisoning: an effective antidotal effect by polymyxin B. ARCHIVES OF TOXICOLOGY, 89, 2305-2323. DOI: 10.1007/s00204-015-1582-x
114. Garcia, J, Costa, VM, Costa, AE, Andrade, S, Carneiro, AC, Conceicao, F, Paiva, JA, de Pinho, PG, Baptista, P, Bastos, MD, Carvalho, F. 2015. Co-ingestion of amatoxins and isoxazoles-containing mushrooms and successful treatment: A case report. TOXICON, 103, 55-59. DOI: 10.1016/j.toxicon.2015.06.012
115. Garcia, J, Oliveira, A, de Pinho, PG, Freitas, V, Carvalho, A, Baptista, P, Pereira, E, Bastos, MDL, Carvalho, F. 2015. Determination of amatoxins and phallotoxins in Amanita phalloides mushrooms from northeastern Portugal by HPLC-DAD-MS. MYCOLOGIA, 107, 679-687. DOI: 10.3852/14-253
116. Garrido, P, Ribeiro, S, Fernandes, J, Vala, H, Bronze-Da-Rocha, E, Rocha-Pereira, P, Belo, L, Costa, E, Santos-Silva, A, Reis, F. 2015. Iron-Hepcidin Dysmetabolism, Anemia and Renal Hypoxia, Inflammation and Fibrosis in the Remnant Kidney Rat Model. PLOS ONE, 10. DOI: 10.1371/journal.pone.0124048
117. Garrido, P, Ribeiro, S, Fernandes, J, Vala, H, Rocha-Pereira, P, Bronze-da-Rocha, E, Belo, L, Costa, E, Santos-Silva, A, Reis, F. 2015. Resistance to Recombinant Human Erythropoietin Therapy in a Rat Model of Chronic Kidney Disease Associated Anemia. INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES, 17. DOI: 10.3390/ijms17010028
118. Gaudencio, SP, Pereira, F. 2015. Dereplication: racing to speed up the natural products discovery process. NATURAL PRODUCT REPORTS, 32, 779-810. DOI: 10.1039/c4np00134f
119. Gheorghie, I, Novais, A, Grossa, F, Rodrigues, C, Chifiriuc, MC, Lazar, V, Peixe, L. 2015. Snapshot on carbapenemase-producing Pseudomonas aeruginosa and Acinetobacter baumannii in Bucharest hospitals reveals unusual clones and novel genetic surroundings for bla(OXA-23). JOURNAL OF ANTIMICROBIAL CHEMOTHERAPY, 70, 1016-1020. DOI: 10.1093/jac/dku527
120. Gil, AM, de Pinho, PG, Monteiro, MS, Duarte, IF. 2015. NMR metabolomics of renal cancer: an overview. BIOANALYSIS, 7, 2361-2374. DOI: 10.4155/bio.15.167
121. Gomes, A, Capela, JP, Ribeiro, D, Freitas, M, Silva, AMS, Pinto, DCGA, Santos, CMM, Cavaleiro, JAS, Lima, JLFC, Fernandes, E. 2015. Inhibition of NF-κB Activation and Cytokines Production in THP-1 Monocytes by 2-Styrylchromones. MEDICINAL CHEMISTRY, 11, 560-566. DOI: 10.2174/1573406411666150209114702
122. Gomes, A, Machado, M, Lobo, L, Nogueira, F, Prudencio, M, Teixeira, C, Gomes, P. 2015. N-Cinnamoylation of Antimalarial Classics: Effects of Using Acyl Groups Other than Cinnamoyl toward Dual-Stage Antimalarials. CHEMMEDECHEM, 10, 1344-1349. DOI: 10.1002/cmdc.201500164
123. Gomes, FCO, Safar, SVB, Marques, AR, Medeiros, AO, Santos, ARD, Carvalho, C, Lachance, MA, Sampaio, JP, Rosa, CA. 2015. The diversity and extracellular enzymatic activities of yeasts isolated from water tanks of Vriesea minarum, an endangered bromeliad species in Brazil, and the description of Occultifur brasiliensis f.a. sp nov.. ANTONIE VAN LEEUWENHOEK INTERNATIONAL JOURNAL OF GENERAL AND MOLECULAR MICROBIOLOGY, 107, 597-611. DOI: 10.1007/s10482-014-0356-4
124. Gomez, MC, Neuman, NI, Dalosto, SD, Gonzalez, PJ, Moura, JGG, Rizzi, AC, Brondino, CD. 2015. Isotropic exchange interaction between Mo and the proximal FeS center in the xanthine oxidase family member aldehyde oxidoreductase from Desulfurovibrio gigas on native and polyalcohol inhibited samples: an EPR and QM/MM study. JOURNAL OF BIOLOGICAL INORGANIC CHEMISTRY, 20, 233-242. DOI: 10.1007/s00775-014-1204-8
125. Gouveia, VM, Lima, Sofia CA, Nunes, C, Reis, S. 2015. Non-Biologic Nanodelivery Therapies for Rheumatoid Arthritis. JOURNAL OF BIOMEDICAL NANOTECHNOLOGY, 11, 1701-1721. DOI: 10.1166/jbn.2015.2159
126. Greene, NG, Narciso, AR, Filipe, SR, Camilli, A. 2015. Peptidoglycan Branched Stem Peptides Contribute to Streptococcus pneumoniae Virulence by Inhibiting Pneumolysin Release. PLOS PATHOGENS, 11. DOI: 10.1371/journal.ppat.1004996
127. Grosso, F, Silva, L, Sousa, C, Ramos, H, Quinteira, S, Peixe, L. 2015. Extending the reservoir of bla (IMP-5): the emerging pathogen Acinetobacter bereziniae. FUTURE MICROBIOLOGY, 10, 1609-1613. DOI: 10.2217/fmb.15.88
128. Guimaraes, MA, de Oliveira, RN, Veras, LMC, Lima, DF, Campelo, YDM, Campos, SA, Kuckelhaus, SAS, Pinto, PLS, Eaton, P, Mafud, AC, Mascarenhas, YP, Allegretti, SM, de Moraes, J, Lolic, A, Verbic, T, Leite, JRSA [Leite, Jose Roberto S A. 2015. Anthelmintic Activity In Vivo of Epiisopiloturine against Juvenile and Adult Worms of Schistosoma mansoni. PLOS NEGLECTED TROPICAL DISEASES, 9. DOI: 10.1371/journal.pntd.0003656
129. Guimarães, MA, R. N. de Oliveira, L. M. C. Vêras, D. F. Lima, Y. D. M. Campelo, S. A. Campos, S. Kuckelhaus, P. L. S. Pinto, P. Eaton, A. C. Mafud, Y. P. Mascarenhas, S. M. Allegretti, J. de Moraes, A. Lolic, T. Verbic, J. R. S. A. Leite. 2015. Activity In Vivo of Epiisopiloturine against Juvenile and Adult Worms of Schistosoma mansoni. PLOS NEGLECTED TROPICAL DISEASES, 9(3): e0003656
130. Hernán H Tournour, Marcela A Segundo, Luís M Magalhães, Luísa Barreiros, Jorge Queiroz, Luís M Cunha. 2015. Valorization of grape pomace: Extraction of bioactive phenolics with antioxidant properties. INDUSTRIAL CROPS AND PRODUCTS, 74, 397-406. DOI: 10.1016/j.indcrop.2015.05.055
131. Hittinger, CT, Rokas, A, Bai, FY, Boekhout, T, Goncalves, P, Jeffries, TW, Kominek, J, Lachance, MA, Libkind, D, Rosa, CA, Sampaio, JP, Kurtzman, CP. 2015. Genomics and the making of yeast biodiversity. CURRENT OPINION IN GENETICS & DEVELOPMENT, 35, 100-109. DOI: 10.1016/j.gde.2015.10.008
132. Huecas, S, Marcelo, F, Perona, A, Ruiz-Avila, LB, Morreale, A, Canada, FJ, Jimenez-Barbero, J, Andreu, JM. 2015. Beyond a Fluorescent Probe: Inhibition of Cell Division Protein FtsZ by mant-GTP Elucidated by NMR and Biochemical Approaches. ACS CHEMICAL BIOLOGY, 10, 2382-2392. DOI: 10.1021/acschembio.5b00444
133. Inácio, A, Afonso Costa, H, Vieira da Silva, C, Ribeiro, T, Porto, M.J, Costa Santos, J, Igrejas, G, Amorim, A. 2015. Study of InDel genetic markers with forensic and ancestry informative interest in PALOP's immigrant populations in Lisboa. INT J LEGAL MED. DOI 10.1007/s00414-016-1484-3.
134. Jayasiri, SC, Hyde, KD, Ariyawansa, HA, Bhat, J, Buyck, B, Cai, L, Dai, YC, Abd-Elsalam, KA, Ertz, D, Hidayat, I, Jeewon, R, Jones, EBG, Bahkali, AH, Karunarathna, SC, Liu, JK, Luangsa-Ard, JJ, Lumbsch, HT, Maharachchikumbura, SSN, McKenzie, EHC, Moncalvo, JM, Ghabad-Nejhad, M, Nilsson, H, Pang, KL, Pereira, OL, Phillips, AJL, Raspe, O, Rollins, AW, Romero, AI, Etayo, J, Selcuk, F, Stephenson, SL, Suetrong, S, Taylor, JE, Tsui, CKM, Vizzini, A, Abdel-Wahab, MA, Wen, TC, Boonmee, S, Dai, DQ, Daranagama, DA, Dissanayake, AJ, Ekanayaka, AH, Fryar, SC, Hongsonan, S, Jayawardena, RS, Li, WJ, Perera, RH, Phookamsak, R, De Silva, NI, Thambugala, KM, Tian, Q, Wijayawardena, NN, Zhao, RL, Zhao, Q, Kang, JC, Promputtha, I. 2015. The Faces of Fungi database: fungal names linked with morphology, phylogeny and human impacts. FUNGAL DIVERSITY, 74, 3-18. DOI: 10.1007/s13225-015-0351-8
135. Johnston, EM, Dell'Acqua, S, Pauleta, SR, Moura, I, Solomon, EI. 2015. Protonation state of the Cu4S2 Cu-Z site in nitrous oxide reductase: redox dependence and insight into reactivity. CHEMICAL SCIENCE, 6, 5670-5679. DOI: 10.1039/c5sc02102b
136. Kemsawad, V, Branco, P, Almeida, MG, Caldeira, J, Albergaria, H, Arneborg, N. 2015. Cell-to-cell contact and antimicrobial peptides play a combined role in the death of Lachancea thermotolerans during mixed-culture alcoholic fermentation with Saccharomyces cerevisiae. FEMS MICROBIOLOGY LETTERS, 362. DOI: 10.1093/femsle/fnv103
137. Kowacz, M, Marchel, M, Juknaite, L, Esperanca, JMSS, Romao, MJ, Carvalho, AL, Rebelo, LPN. 2015. Ionic-Liquid-Functionalized Mineral Particles for Protein Crystallization. CRYSTAL GROWTH & DESIGN, 15, 2994-3003. DOI: 10.1021/acs.cgd.5b00403
138. Larginho, M, Canto, R, Cordeiro, M, Pedrosa, P, Fortuna, A, Vinhas, R, Baptista, PV. 2015. Gold nanoprobe-based non-crosslinking hybridization for molecular diagnostics. EXPERT REVIEW OF MOLECULAR DIAGNOSTICS, 15, 1355-1368. DOI: 10.1586/14737159.2015.1077704
139. Larginho, M, Santos, S, Almeida, J, Baptista, PV. 2015. DNA adduct identification using gold-aptamer nanopores. IET NANOBIOENGINEERING, 9, 95-101. DOI: 10.1049/iet-nbt.2014.0007
140. Leao, M, Soares, J, Gomes, S, Raimundo, L, Ramos, H, Bessa, C, Queiroz, G, Domingos, S, Pinto, M, Inga, A, Cidade, H, Saraiva, L. 2015. Enhanced cytotoxicity of prenylated chalcone against tumour cells via disruption of the p53-MDM2 interaction. LIFE SCIENCES, 142, 60-65. DOI: 10.1016/j.lfs.2015.10.015
141. Lima, SAC, Reis, S. 2015. Temperature-responsive polymeric nanospheres containing methotrexate and gold nanoparticles: A multi-drug system for theranostic in rheumatoid arthritis. COLLOIDS AND SURFACES B-BIOTERFACES, 133, 378-387. DOI: 10.1016/j.colsurfb.2015.04.048
142. Linhares, M, Rebelo, SLH, Biernacki, K, Magalhaes, AL, Freire, C. 2015. Biomimetic One-Pot Route to Acridine Epoxides. JOURNAL OF ORGANIC CHEMISTRY, 80, 281-289. DOI: 10.1021/jo5023525
143. Lopes, S C, Ferreira, M, Sousa, C F, Gameiro, P. 2015. A fast way to track functional OmpF reconstitution in liposomes: Escherichia coli total lipid extract. ANALYTICAL BIOCHEMISTRY, 479, 54-59. DOI: 10.1016/j.ab.2015.03.026
144. Lopez-Fernandez, H, Santos, HM, Capelo, JL, Fdez-Riverola, F, Glez-Pena, D, Reboiro-Jato, M. 2015. Mass-Up: an all-in-one open software application for MALDI-TOF mass spectrometry knowledge discovery. BMC BIOINFORMATICS, 16. DOI: 10.1186/s12859-015-0752-4
145. Loureiro, LR, Carrascal, MA, Barbas, A, Ramalho, JS, Novo, C, Delannoy, P, Videira, PA. 2015. Challenges in Antibody Development against Tn and Sialyl-Tn Antigens. BIOMOLECULES, 5, 1783-1809. DOI: 10.3390/biom5031783
146. Madariaga, D, Martinez-Saez, N, Somovilla, VJ, Coelho, H, Valero-Gonzalez, J, Castro-Lopez, J, Asensio, JL, Jimenez-Barbero, J, Busto, JH, Avenoz, A, Marcelo, F, Hurtado-Guerrero, R, Corzana, F, Peregrina, JM. 2015. Detection of Tumor-Associated Glycopeptides by Lectins: The Peptide Context Modulates Carbohydrate Recognition. ACS CHEMICAL BIOLOGY, 10, 747-756. DOI: 10.1021/cb500855x
147. Madeira, C, Madeira, D, Vinagre, C, Diniz, M. 2015. Octacorals in a changing environment: Seasonal response of stress biomarkers in natural populations of Veretillum cynomorium. JOURNAL OF SEA RESEARCH, 103, 120-128. DOI: 10.1016/j.seares.2015.07.008
148. Madeira, D, Mendonca, V, Dias, M, Roma, J, Costa, PM, Larginho, M, Vinagre, C, Diniz, MS. 2015. Physiological, cellular and biochemical thermal stress response of intertidal shrimps with different vertical distributions: Palaemon elegans and Palaemon serratus. COMPARATIVE BIOCHEMISTRY AND PHYSIOLOGY A-MOLECULAR & INTEGRATIVE PHYSIOLOGY, 183, 107-115. DOI: 10.1016/j.cbpa.2014.12.039
149. Magalhaes, T, Dinis-Oliveira, RJ, Silva, B, Corte-Real, F, Vieira, DN. 2015. Biological Evidence Management for DNA Analysis in Cases of Sexual Assault. THE SCIENTIFIC WORLD JOURNAL, 2015. DOI: 10.1155/2015/365674
150. Maia, LB, Moura, JGG, Moura, I. 2015. Molybdenum and tungsten-dependent formate dehydrogenases. JOURNAL OF BIOLOGICAL INORGANIC CHEMISTRY, 20, 287-309. DOI: 10.1007/s00775-014-1218-2
151. Maia, LB, Moura, JGG. 2015. Nitrite reduction by molybdoenzymes: a new class of nitric oxide-forming nitrite reductases. JOURNAL OF BIOLOGICAL INORGANIC CHEMISTRY, 20, 403-433. DOI: 10.1007/s00775-014-1234-2
152. Maia, LB, Pereira, V, Mira, L, Moura, JGG. 2015. Nitrite Reductase Activity of Rat and Human Xanthine Oxidase, Xanthine Dehydrogenase, and Aldehyde Oxidase: Evaluation of Their Contribution to NO Formation in Vivo. BIOCHEMISTRY, 54, 685-710. DOI: 10.1021/bi500987w
153. Maia, TM, Lopes, ST, Almeida, JMGC, Rosa, LH, Sampaio, JP, Goncalves, P, Coelho, MA. 2015. Evolution of Mating Systems in Basidiomycetes and the Genetic Architecture Underlying Mating-Type Determination in the Yeast Leucosporidium scottii. GENETICS, 201, 75-+. DOI: 10.1534/genetics.115.177717
154. Maiti, BK, Maia, LB, Silveira, CM, Todorovic, S, Carreira, C, Carepo, MSP, Grazina, R, Moura, I, Pauleta, SR, Moura, JGG. 2015. Incorporation of molybdenum in rubredoxin: models for mononuclear molybdenum enzymes. JOURNAL OF BIOLOGICAL INORGANIC CHEMISTRY, 20, 821-829. DOI: 10.1007/s00775-015-1268-0
155. Marani, MM, Dourado, FS, Quelemes, PV, de Araujo, AR, Perfeito, MLG, Barbosa, EA, Veras, LMC, Coelho, ALR, Andrade, EB, Eaton, P, Longo, JPF, Azevedo, RB, Delerue-Matos, C, Leite, JRSA. 2015. Characterization and Biological Activities of Ocellatin Peptides from the Skin Secretion of the Frog Leptodactylus pustulatus. JOURNAL OF NATURAL PRODUCTS, 78, 1495-1504. DOI: 10.1021/np500907
156. Marques, AC, Santos L, Costa MN, Dantas JM, Duarte P, Gonçalves A, Martins R, Salgueiro CA, Fortunato E. 2015. Office Paper Platform for Bioelectrochromic Detection of Electrochemically Active Bacteria using Tungsten Trioxide Nanoprobes. SCIENTIFIC REPORTS - NATURE, Vol. 5, 9910. DOI: 10.1038/srep09910
157. Marques, R, Oehmen, A, Carvalho, G, Reis, MAM. 2015. Modelling the biodegradation kinetics of the herbicide propanil and its metabolite 3,4-dichloroaniline. ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH, 22, 6687-6695. DOI: 10.1007/s11356-014-3870-z
158. Marques, SS, Magalhaes, LM, Mota, AIP, Soares, TRP, Korsak, B, Reis, S, Segundo, MA. 2015. Myoglobin microplate assay to evaluate prevention of protein peroxidation. JOURNAL OF PHARMACEUTICAL AND BIOMEDICAL ANALYSIS, 114, 305-311. DOI: 10.1016/j.jpba.2015.06.006
159. Martins, E, Novais, C, Freitas, AR, Dias, AR, Ribeiro, TG, Antunes, P, Peixe, L. 2015. Filling the map for antimicrobial resistance in sub-Saharan Africa: ampicillin-resistant Enterococcus from non-clinical sources in Angola. JOURNAL OF ANTIMICROBIAL CHEMOTHERAPY, 70, 2914-2916. DOI: 10.1093/jac/dkv172
160. Martins, F, Goncalves, R, Oliveira, J, Cruz-Monteagudo, M, Nieto-Villar, JM, Paz-y-Mino, C, Rebelo, I, Tejera, E. 2015. Unravelling the relationship between protein sequence and low-complexity regions entropies: Interactome implications. JOURNAL OF THEORETICAL BIOLOGY, 382, 320-327. DOI: 10.1016/j.jtbi.2015.06.049
161. Martins, M, Santos, JM, Diniz, MS, Ferreira, AM, Costa, MH, Costa, PM. 2015. Effects of carcinogenic versus non-carcinogenic AHR-active PAHs and their mixtures: Lessons from ecological relevance. ENVIRONMENTAL RESEARCH, 138, 101-111. DOI: 10.1016/j.envres.2015.02.010
162. Martins, P, Jesus, J, Santos, S, Raposo, LR, Roma-Rodrigues, C, Baptista, PV, Fernandes, AR. 2015. Heterocyclic Anticancer Compounds: Recent Advances and the Paradigm Shift towards the Use of Nanomedicine's Tool Box. MOLECULES, 20, 16852-16891. DOI: 10.3390/molecules200916852
163. Matos, A, da Silva, AP, Gil, A, Beatriz, C, Portelinho, A, Rebelo, I, Areias, MJ, Bicho, M. 2015. [70-OR]: Myeloperoxidase and endothelial nitric oxide synthase genetic polymorphisms and its modulation of some cardiovascular risk parameters in women with previous pregnancy hypertension. PREGNANCY HYPERTENSION, 5, 38. DOI: 10.1016/j.preghy.2014.10.074

164. Matos, A, da Silva, AP, Maia, H, Bicho, MC, Rebelo, I, Areias, MJ, Bicho, M. 2015. [137-POS]: MTHFR and COMT possible epistatic and epigenetic interactions and its modulation of some cardiovascular risk parameters in women with previous pregnancy hypertension. PREGNANCY HYPERTENSION, 5, 71-72. DOI: 10.1016/j.preghy.2014.10.143
165. McCully, M, Hernandez, Y, Conde, J, Baptista, PV, de la Fuente, JM, Hursthouse, A, Stirling, D, Berry, CC. 2015. Significance of the balance between intracellular glutathione and polyethylene glycol for successful release of small interfering RNA from gold nanoparticles. NANO RESEARCH, 8, 3281-3292. DOI: 10.1007/s12274-015-0828-5
166. Mendes, R, Santos, S, Taveira, F, Dinis-Oliveira, RJ, Santos, A, Magalhaes, T. 2015. Child Suicide in the North of Portugal. JOURNAL OF FORENSIC SCIENCES, 60, 471-475. DOI: 10.1111/1556-4029.12685
167. Mendo, AS, Figueiredo, S, Roma-Rodrigues, C, Videira, PA, Ma, Z, Diniz, M, Larginho, M, Costa, PM, Lima, JC, Pombeiro, AJL, Baptista, PV, Fernandes, AR. 2015. Characterization of antiproliferative potential and biological targets of a copper compound containing 4'-phenyl terpyridine. JOURNAL OF BIOLOGICAL INORGANIC CHEMISTRY, 20, 935-948. DOI: 10.1007/s00775-015-1277-z
168. Mesquita, DP, Amaral, AL, Leal, C, Oehmen, A, Reis, MAM, Ferreira, EC. 2015. Polyhydroxyalkanoate granules quantification in mixed microbial cultures using image analysis: Sudan Black B versus Nile Blue A staining. ANALYTICA CHIMICA ACTA, 865, 8-15. DOI: 10.1016/j.aca.2015.01.018
169. Mesquita, RBR, Moniz, T, Miranda, JLA, Gomes, V, Silva, AMN, Rodriguez-Borges, JE, Rangel, AOSS, Rangel, M. 2015. Synthesis and characterization of a 3-hydroxy-4-pyridinone chelator functionalized with a polyethylene glycol (PEG) chain aimed at sequential injection determination of iron in natural waters. POLYHEDRON, 101, 171-178. DOI: 10.1016/j.poly.2015.09.015
170. Moniz, T, Silva, D, Silva, T, Gomes, MS, Rangel, M. 2015. Antimycobacterial activity of rhodamine 3,4-HPO iron chelators against *Mycobacterium avium*: analysis of the contribution of functional groups and of chelator's combination with ethambutol. MEDCHEMCOMM, 6, 2194-2203. DOI: 10.1039/c5md00456j
171. Monteiro, C, Fernandes, M, Pinheiro, M, Maia, S, L Seabra, C, Ferreira-da-Silva, F, Costa, F, Reis, S, Gomes, P, Cristina L Martins, M. 2015. Antimicrobial properties of membrane-active dodecapeptides derived from MSI-78. BIOCHIMICA ET BIOPHYSICA ACTA-MOLECULAR-BIOMEMBRANES, 5, 1139-1146. DOI: 10.1016/j.bbmem.2015.02.001
172. Monteiro, C, Pinheiro, M, Fernandes, M, Maia, S, Seabra, CL, Ferreira-Da-Silva, F, Reis, S, Gomes, P, Martins, MCL. 2015. A 17-mer Membrane-Active MSI-78 Derivative with Improved Selectivity toward Bacterial Cells. MOLECULAR PHARMACEUTICS, 12, 2904-2911. DOI: 10.1021/acs.molpharmaceut.5b00113
173. Monteiro, JM, Fernandes, PB, Vaz, F, Pereira, AR, Tavares, AC, Ferreira, MT, Pereira, PM, Veiga, H, Kuru, E, VanNieuwenhze, MS, Brun, YV, Filipe, SR, Pinho, MG. 2015. Cell shape dynamics during the staphylococcal cell cycle. NATURE COMMUNICATIONS, 6. DOI: 10.1038/ncomms9055
174. Monteiro, T, Rodrigues, PR, Goncalves, AL, Moura, JG, Jubete, E, Anorga, L, Pikhova, B, Schechter, AN, Silveira, CM, Almeida, MG. 2015. Construction of effective disposable biosensors for point of care testing of nitrite. TALANTA, 142, 246-251. DOI: 10.1016/j.talanta.2015.04.057
175. Moorthy, NSHN, Cerqueira, NMFSA, Ramos, MJ, Fernandes, PA. 2015. Ligand based analysis on HMG-CoA reductase inhibitors. CHEMOMETRICS AND INTELLIGENT LABORATORY SYSTEMS, 140, 102-116. DOI: 10.1016/j.chemolab.2014.11.009
176. Moreira, ASP, Coimbra, MA, Nunes, FM, Passos, CP, Santos, SAO, Silvestre, AJD, Silva, AMN, Rangel, M, Domingues, MRM. 2015. Chlorogenic acid-arabinose hybrid domains in coffee melanoidins: Evidences from a model system. FOOD CHEMISTRY, 185, 135-144. DOI: 10.1016/j.foodchem.2015.03.086
177. Moreira, IS, Martins, JM, Coimbra, JTS, Ramos, MJ, Fernandes, PA. 2015. A new scoring function for protein-protein docking that identifies native structures with unprecedented accuracy. PHYSICAL CHEMISTRY CHEMICAL PHYSICS, 17, 2378-2387. DOI: 10.1039/c4cp04688a
178. Moura, A, Madureira, J, Alija, P, Fernandes, JC, Oliveira, JG, Lopez, M, Filgueiras, M, Amado, L, Sameiro-Faria, M, Miranda, V, Mesquita, E, Santos-Silva, A, Costa, E. 2015. Predictors of health-related quality of life perceived by end-stage renal disease patients under online hemodiafiltration. QUALITY OF LIFE RESEARCH, 24, 1327-1335. DOI: 10.1007/s11136-014-0854-x
179. Moura, A, Madureira, J, Alija, P, Fernandes, JC, Oliveira, JG, Lopez, M, Filgueiras, M, Amado, L, Sameiro-Faria, M, Miranda, V, Santos-Silva, A, Costa, E. 2015. Effect of Aging in the Perception of Health-Related Quality of Life in End-Stage Renal Disease Patients under Online-Hemodiafiltration. AGING AND DISEASE, 6, 17-26. DOI: dx.doi.org/10.1155/2015/871656
180. Mourão, J, J Machado, C Novais, P Antunes, L Peixe. 2015. Characterization of the emerging clinically-relevant multidrug-resistant *Salmonella* enterica serotype 4,[5],12:i:- (monophasic variant of *S. Typhimurium*) clones. EUROPEAN JOURNAL OF CLINICAL MICROBIOLOGY AND INFECTIOUS DISEASES, 33, 2249-2257. DOI: 10.1007/s10096-014-2180-1
181. Mourao, J, Novais, C, Machado, J, Peixe, L, Antunes, P. 2015. Metal tolerance in emerging clinically relevant multidrug-resistant *Salmonella* enterica serotype 4,[5],12:i:- clones circulating in Europe. INTERNATIONAL JOURNAL OF ANTIMICROBIAL AGENTS, 45, 610-616. DOI: 10.1016/j.ijantimicag.2015.01.013
182. Nair, RR, Silveira, CM, Diniz, MS, Almeida, MG, Moura, JG, Rivas, MG. 2015. Changes in metabolic pathways of *Desulfovibrio alaskensis* G20 cells induced by molybdate excess. JOURNAL OF BIOLOGICAL INORGANIC CHEMISTRY, 20, 311-322. DOI: 10.1007/s00775-014-1224-4
183. Nascimento, H, Alves, AI, Coimbra, S, Catarino, C, Gomes, D, Bronze-Da-Rocha, E, Costa, E, Rocha-Pereira, P, Aires, L, Mota, J, Mansilha, HF, Rego, C, Santos-Silva, A, Belo, L. 2015. Bilirubin is independently associated with oxidized LDL levels in young obese patients. DIABETOLOGY AND METABOLIC SYNDROME, 7. DOI: 10.1186/1758-5996-7-4
184. Nascimento, H, Catarino, C, Mendonca, D, Oliveira, P, Alves, AI, Medeiros, AF, Pereira, PR, Rego, C, Mansilha, HF, Aires, L, Mota, J, Quintanilha, A, Santos-Silva, A, Belo, L. 2015. Comparison between CDC and WHO BMI z-score and their relation with metabolic risk markers in Northern Portuguese obese adolescents. DIABETOLOGY & METABOLIC SYNDROME, 7. DOI: 10.1186/s13098-015-0022-7
185. Neves, AR, Nunes, C, Reis, S. 2015. New Insights on the Biophysical Interaction of Resveratrol with Biomembrane Models: Relevance for Its Biological Effects. JOURNAL OF PHYSICAL CHEMISTRY, 119, 11664-11672. DOI: 10.1021/acs.jpcc.5b05419
186. Neves, AR, Queiroz, JF, Weksler, B, Romero, IA, Couraud, PD, Reis S. 2015. Solid lipid nanoparticles as a vehicle for brain-targeted drug delivery: two new strategies of functionalization with apolipoprotein E. NANOTECHNOLOGY, 26. DOI: 10.1088/0957-4484/26/49/495103
187. Neves, AR, Reis, S, Segundo, MA. 2015. Development and Validation of a HPLC Method Using a Monolithic Column for Quantification of trans-Resveratrol in Lipid Nanoparticles for Intestinal Permeability Studies. JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY, 63, 3114-3120. DOI: 10.1021/acs.jafc.5b00390
188. Nogueira, D, Rocha, S, Abreu, E, Costa, E, Santos-Silva, A. 2015. Biochemical and Cellular Changes in Leukocyte-Depleted Red Blood Cells Stored for Transfusion. TRANSFUSION MEDICINE AND HEMOTHERAPY, 42, 46-51. DOI: 10.1159/000370140
189. Novais, A, Brilhante, M, Pires, J, Peixe, L. 2015. Evaluation of the Recently Launched Rapid Carb Blue Kit for Detection of Carbapenemase-Producing Gram-Negative Bacteria. JOURNAL OF CLINICAL MICROBIOLOGY, 53, 3105-3107. DOI: 10.1128/JCM.01170-15
190. Nunes, CD, Vaz, PD, Felix, V, Veiros, LF, Moniz, T, Rangel, M, Realista, S, Mourato, AC, Calhorda, MJ. 2015. Vanadyl cationic complexes as catalysts in olefin oxidation. DALTON TRANSACTIONS, 44, 5125-5138. DOI: 10.1039/c4dt03174a
191. Oliveira, BL, Morais, M, Mendes, F, Moreira, IS, Cordeiro, C, Fernandes, PA, Ramos, MJ, Alberto, R, Santos, I, Correia, JDG. 2015. Re(I) and Tc(I) Complexes for Targeting Nitric Oxide Synthase: Influence of the Chelator in the Affinity for the Enzyme. CHEMICAL BIOLOGY & DRUG DESIGN, 86, 1072-1086. DOI: 10.1111/cbdd.12575
192. Oliveira, E, Nunez, C, Santos, HM, Fernandez-Lodeiro, J, Fernandez-Lodeiro, A, Capelo, JL, Lodeiro, C. 2015. Revisiting the use of gold and silver functionalised nanoparticles as colorimetric and fluorometric chemosensors for metal ions. SENSORS AND ACTUATORS B-CHEMICAL, 212, 297-328. DOI: 10.1016/j.snb.2015.02.026
193. Oliveira, H, Fernandes, I, Bras, NF, Faria, A, De Freitas, V, Cahau, C, Mateus, N. 2015. Experimental and Theoretical Data on the Mechanism by Which Red Wine Anthocyanins Are Transported through a Human MKN-28 Gastric Cell Model. JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY, 63, 7685-7692. DOI: 10.1021/acs.jafc.5b00412
194. Oliveira, J, Negro, L, Fineza, I, Taipa, R, Melo-Pires, M, Fortuna, AM, Goncalves, AR, Froufe, H, Egas, C, Santos, R, Sousa, M. 2015. New splicing mutation in the choline kinase beta (CHKB) gene causing a muscular dystrophy detected by whole-exome sequencing. JOURNAL OF HUMAN GENETICS, 60, 305-312. DOI: 10.1038/jhg.2015.20
195. Oliveira, M, Pereira, C, Bessa, C, Araujo, R, Saraiva, L. 2015. Chronological aging in conidia of pathogenic *Aspergillus*: Comparison between species. JOURNAL OF MICROBIOLOGICAL METHODS, 118, 57-63. DOI: 10.1016/j.mimet.2015.08.021
196. Paiva-Martins, F, Goncalves, P, Borges, JE, Przybyska, D, Ibbá, F, Fernandes, J, Santos-Silva, A. 2015. Effects of the olive oil phenol metabolite 3,4-DHPEA-EDA(H2) on human erythrocyte oxidative damage. FOOD & FUNCTION, 6, 2350-2356. DOI: 10.1039/c5fo00203f
197. Palma, AS, Liu, Y, Zhang, HT, Zhang, YB, McCleary, BV, Yu, GL, Huang, QL, Guidolin, LS, Ciocchini, AE, Torosantucci, A, Wang, DN, Carvalho, AL, Fontes, CMGA, Mulloy, B, Childs, RA, Feizi, T, Chai, WG. 2015. Unravelling Glucan Recognition Systems by Glycome Microarrays Using the Designer Approach and Mass Spectrometry. MOLECULAR & CELLULAR PROTEOMICS, 14, 974-988. DOI: 10.1074/mcp.M115.048272
198. Palma, SI, Marciello M, Carvalho A, Veintemillas-Verdaguer S, Morales PM, Roque ACA. 2015. Effects of phase transfer ligands on monodisperse iron oxide magnetic nanoparticles. JOURNAL OF COLLOID & INTERFACE SCIENCE, 437(1):147-155
199. Palma, SI, Rodrigues CA, Carvalho A, Morales PM, Freitas F, Fernandes AR, Cabral JS, Roque ACA. 2015. A value-added exopolysaccharide as a coating agent for MRI nanoprob. NANOSCALE, (7):14272-14283
200. Palma, SICJ, Carvalho, A, Silva, J, Martins, P, Marciello, M, Fernandes, AR, Morales, MD, Roque, ACA. 2015. Covalent coupling of gum arabic onto superparamagnetic iron oxide nanoparticles for MRI cell labeling: physicochemical and in vitro characterization. CONTRAST MEDIA & MOLECULAR IMAGING, 10, 320-328. DOI: 10.1002/cmmi.1635
201. Palma, SICJ, Marciello, M, Carvalho, A, Veintemillas-Verdaguer, S, Morales, MD, Roque, ACA. 2015. Effects of phase transfer ligands on monodisperse iron oxide magnetic nanoparticles. JOURNAL OF COLLOID AND INTERFACE SCIENCE, 437, 147-155. DOI: 10.1016/j.jcis.2014.09.019
202. Palma, SICJ, Rodrigues, CAV, Carvalho, A, Morales, MD, Freitas, F, Fernandes, AR, Cabral, JMS, Roque, ACA. 2015. A value-added exopolysaccharide as a coating agent for MRI nanoprob. NANOSCALE, 7, 14272-14283. DOI: 10.1039/c5nr01979f
203. Pancrazio, G, Cunha, SC, De Pinho, PG, Loureiro, M, Ferreira, IMPLVO, Pinho, O. 2015. Physical and Chemical Characteristics of Cooked Ham: Effect of Tumbling Time and Modifications during Storage. JOURNAL OF FOOD QUALITY, 38, 359-368. DOI: 10.1111/jffq.12153
204. Parthiban, A, Muthukumaran, J, Manhas, A, Srivastava, K, Krishna, R, Rao, HSP. 2015. Synthesis, in vitro and in silico antimalarial activity of 7-chloroquinoline and 4H-chromene conjugates. BIOORGANIC & MEDICINAL CHEMISTRY LETTERS, 25, 4657-4663. DOI: 10.1016/j.bmcl.2015.08.030
205. Páscoa, RNMJ, Sandia Machado, Luis M Magalhães, João A Lopes. 2015. Value Adding to Red Grape Pomace Exploiting Eco-friendly FT-NIR Spectroscopy Technique. FOOD AND BIOPROCESS TECHNOLOGY, 8, 865-874. DOI: 10.1007/s11947-014-1454-z
206. Pedrosa, P, Vinhas, R, Fernandes, A, Baptista, PV. 2015. Gold Nanotheranostics: Proof-of-Concept or Clinical Tool?. NANOMATERIALS, 5, 1853-1879. DOI: 10.3390/nano5041853
207. Pereira, C, Costa, V, Martins, LM, Saraiva, L. 2015. A yeast model of the Parkinson's disease-associated protein Parkin. EXPERIMENTAL CELL RESEARCH, 333, 73-79. DOI: 10.1016/j.yexcr.2015.02.018
208. Pereira, DM, Valentao, P, Correia-da-Silva, G, Teixeira, N, Andrade, PB. 2015. Translating endoplasmic reticulum biology into the clinic: a role for ER-targeted natural products?. NATURAL PRODUCT REPORTS, 32, 705-722. DOI: 10.1039/c4np00102h
209. Pessoa, JC, Garrriba, E, Santos, MFA, Santos-Silva, T. 2015. Vanadium and proteins: Uptake, transport, structure, activity and function. COORDINATION CHEMISTRY REVIEWS, 301, 49-86. DOI: 10.1016/j.ccr.2015.03.016
210. Picado, A, Paixao, SM, Moita, L, Silva, L, Diniz, M, Lourenco, J, Peres, I, Castro, L, Correia, JB, Pereira, J, Ferreira, I, Matos, APA, Barquinha, P, Mendonca, E. 2015. A multi-integrated approach on toxicity effects of engineered TiO2 nanoparticles. FRONTIERS OF ENVIRONMENTAL SCIENCE & ENGINEERING, 9, 793-803. DOI: 10.1007/s11783-015-0775-0
211. Piccirillo, C, Pullar, RC, Costa, E, Santos-Silva, A, Pintado, MME, Castro, PML. 2015. Hydroxyapatite-based materials of marine origin: A bioactivity and sintering study. MATERIALS SCIENCE & ENGINEERING C-MATERIALS FOR BIOLOGICAL APPLICATIONS, 51, 309-315. DOI: 10.1016/j.msec.2015.03.020
212. Pimentel, MS, Faleiro, F, Diniz, M, Machado, J, Pousao-Ferreira, P, Peck, MA, Portner, HO, Rosa, R. 2015. Oxidative Stress and Digestive Enzyme Activity of Flatfish Larvae in a Changing Ocean. PLOS ONE, 10. DOI: 10.1371/journal.pone.0134082
213. Pina, AS, Dias, AMGC, Ustak, FI, El Khoury, G, Fernandes, CSM, Branco, RJF, Lowe, CR, Roque, ACA. 2015. Mild and cost-effective green fluorescent protein purification employing small synthetic ligands. JOURNAL OF CHROMATOGRAPHY A, 1418, 83-93. DOI: 10.1016/j.chroma.2015.09.036
214. Pinheiro, M, Silva, AS, Reis, S. 2015. Molecular interactions of rifabutin with membrane under acidic conditions. INTERNATIONAL JOURNAL OF PHARMACEUTICS, 479, 63-69. DOI: 10.1016/j.ijpharm.2014.12.042
215. Pinto, GP, Bras, NF, Perez, MAS, Fernandes, PA, Russo, N, Ramos, MJ, Toscano, M. 2015. Establishing the Catalytic Mechanism of Human Pancreatic alpha-Amylase with QM/MM Methods. JOURNAL OF CHEMICAL THEORY AND COMPUTATION, 11, 2508-2516. DOI: 10.1021/acs.jctc.5b00222
216. Pinto, GP, Ribeiro, AJM, Ramos, MJ, Fernandes, PA, Toscano, M, Russo, N. 2015. New insights in the catalytic mechanism of tyrosine ammonia-lyase given by QM/MM and QM cluster models. ARCHIVES OF BIOCHEMISTRY AND BIOPHYSICS, 582, 107-115. DOI: 10.1016/j.abb.2015.03.002
217. Pinto, J, Silva, VLM, Silva, AMG, Silva, AMS. 2015. Synthesis of [E]-2-Styrylchromones and Flavones by Base-Catalyzed Cyclodehydration of the Appropriate beta-Diketones Using Water as Solvent. MOLECULES, 20, 11418-11431. DOI: 10.3390/molecules200611418
218. Pinto, J, Vera L M Silva, Ana M G Silva, Luis M N B F Santos, and Artur M S Silva. 2015. Ohmic Heating-Assisted Synthesis of 3-Arylquinolin-4(1H)-ones by a Reusable and Ligand-Free Suzuki-Miyaura Reaction in Water. JOURNAL OF ORGANIC CHEMISTRY, 13, 6649-6659. DOI: 10.1021/acs.joc.5b00793
219. Portugal, C, Pinto, L, Ribeiro, L, Tenorio, C, Igrejas, G, Ruiz-Larrea, F. 2015. Potential spoilage yeasts in winery environments: Characterization and proteomic analysis of *Trigonopsis cantarellii*. INTERNATIONAL JOURNAL OF FOOD MICROBIOLOGY, 210: 113-120. DOI: 10.1016/j.ijfoodmicro.2015.06.005
220. Queiros, C, Leite, A, Cunha-Silva, L, Barone, G, de Castro, B, Rangel, M, Silva, AMN, Silva, AMG. 2015. The Influence of the Amide Linkage in the Fe-III-Binding Properties of Catechol-Modified Rosamine Derivatives. CHEMISTRY-A EUROPEAN JOURNAL, 21, 15692-15704. DOI: 10.1002/chem.201502093
221. Queiros, C, Leite, A, MG Silva, A, Gameiro, P, de Castro, B, Rangel, M. 2015. Synthesis and spectroscopic characterization of a new tripodal hexadentate iron chelator incorporating catechol units. POLYHEDRON, 87, 1-7. DOI: 10.1016/j.poly.2014.10.003
222. Quelemes, PV, Perfeito, MLG, Guimaraes, MA, dos Santos, RC, Lima, DF, Nascimento, C, Silva, MPN, Soares, MJD, Ropke, CD, Eaton, P, de Moraes, J, Leite, JRSA. 2015. Effect of neem (*Azadirachta indica* A. Juss) leaf extract on resistant *Staphylococcus aureus* biofilm formation and *Schistosoma mansoni* worms. JOURNAL OF ETHNOPHARMACOLOGY, 175, 287-294. DOI: 10.1016/j.jep.2015.09.026

223. Quelhas-Santos, J, Serrao, MP, Soares-Silva, I, Fernandes-Cerqueira, C, Simoes-Silva, L, Pinho, MJ, Remiao, F, Sampaio-Maia, B, Desir, GV, Pestana, M. 2015. Renalase regulates peripheral and central dopaminergic activities. *AMERICAN JOURNAL OF PHYSIOLOGY-RENAL PHYSIOLOGY*, 308, 84-91. DOI: 10.1152/ajprenal.00274.2014
224. Ramos, S, Chafsey, I, Silva, N, Hebraud, M, Santos, H, Capela-Martinez, JL, Poeta, P, Igrejas, G. 2015. Effect of vancomycin on the proteome of the multiresistant *Enterococcus faecium* SU18 strain. *JOURNAL OF PROTEOMICS*, 113, 378-387. DOI: 10.1016/j.jprot.2014.10.012
225. Reed, P, Atilano, ML, Alves, R, Hoiczky, E, Sher, X, Reichmann, NT, Pereira, PM, Roemer, T, Filipe, SR, Pereira-Leal, JB, Ligoxygakis, P, Pinho, MG. 2015. *Staphylococcus aureus* Survives with a Minimal Peptidoglycan Synthesis Machine but Sacrifices Virulence and Antibiotic Resistance. *PLOS PATHOGENS*, 11. DOI: 10.1371/journal.ppat.1004891
226. Restani, RB, Conde, J, Pires, RF, Martins, P, Fernandes, AR, Baptista, PV, Bonifacio, VDB, Aguiar-Ricardo, A. 2015. POxylated Polyurea Dendrimers: Smart Core-Shell Vectors with IC50 Lowering Capacity. *MACROMOLECULAR BIOSCIENCE*, 15, 1045-1051. DOI: 10.1002/mabi.201500131
227. Ribeiro, AB, Berto, A, Chisté, RC, Freitas, M, Visentainer, JV, Fernandes, E. 2015. Bioactive compounds and scavenging capacity of extracts from different parts of *Vismia cauliflora* against reactive oxygen and nitrogen species. *PHARMACEUTICAL BIOLOGY*, 53, 1267-1276. DOI: 10.3109/13880209.2014.974063
228. Ribeiro, AB, Berto, A, Ribeiro, D, Freitas, M, Chiste, RC, Visentainer, JV, Fernandes, E. 2015. Stem bark and flower extracts of *Vismia cauliflora* are highly effective antioxidants to human blood cells by preventing oxidative burst in neutrophils and oxidative damage in erythrocytes. *PHARMACEUTICAL BIOLOGY*, 53, 1691-1698. DOI: 10.3109/13880209.2014.1001407
229. Ribeiro, AJ, M, Santos-Martins, D, Russo, N, Ramos, M, J, Fernandes, PA. 2015. Enzymatic Flexibility and Reaction Rate: A QM/MM Study of HIV-1 Protease. *ACS CATAL*, 5 (9), 5617-5626. DOI: 10.1021/acscatal.5b00759
230. Ribeiro, AJM, Santos-Martins, D, Russo, N, Rarnos, MJ, Fernandes, PA. 2015. Enzymatic Flexibility and Reaction Rate: A QM/MM Study of HIV-1 Protease. *ACS CATALYSIS*, 5, 5617-5626. DOI: 10.1021/acscatal.5b00759
231. Ribeiro, AJM, Yang, LF, Ramos, MJ, Fernandes, PA, Liang, ZX, Hirao, H. 2015. Insight into Enzymatic Nitrile Reduction: QM/MM Study of the Catalytic Mechanism of QueF Nitrile Reductase. *ACS CATALYSIS*, 5, 3740-3751. DOI: 10.1021/acscatal.5b00528
232. Ribeiro, D, Freitas, M, Lima, JLFC, Fernandes, E. 2015. Proinflammatory Pathways: The Modulation by Flavonoids. *MEDICINAL RESEARCH REVIEWS*, 35, 877-936. DOI: 10.1002/med.21347
233. Ribeiro, D, Freitas, M, M Tomé, S, M S Silva, A, Laufer, S, L F C Lima, J, Fernandes, E. 2015. Flavonoids Inhibit COX-1 and COX-2 Enzymes and Cytokine/Chemokine Production in Human Whole Blood. *INFLAMMATION*, 38, 858-870. DOI: 10.1007/s10753-014-9995-x
234. Ribeiro, M, Nunes, FM, Guedes, S, Domingues, P, Silva, AM, Carrillo, JM, Rodriguez-Quijano, M, Branlard, G, Igrejas, G. 2015. Efficient chemo-enzymatic gluten detoxification: reducing toxic epitopes for celiac patients improving functional properties. *SCIENTIFIC REPORTS*, 5. DOI: 10.1038/srep18041
235. Ribeiro, TG, Novais, A, Branquinho, R, Machado, E, Peixe, L. 2015. Phylogeny and Comparative Genomics Unveil Independent Diversification Trajectories of *qnrB* and Genetic Platforms within Particular *Citrobacter* Species. *ANTIMICROBIAL AGENTS AND CHEMOTHERAPY*, 59, 5951-5958. DOI: 10.1128/AAC.00027-15
236. Roca, C, Alves, VD, Freitas, F, Reis, MAM. 2015. Exopolysaccharides enriched in rare sugars: bacterial sources, production, and applications. *FRONTIERS IN MICROBIOLOGY*, 6. DOI: 10.3389/fmicb.2015.00288
237. Rocha J, Figueira ME, Barateiro A, Fernandes A, Brites D, Pinto R, Freitas M, Fernandes E, Mota-Filipe H, Sepodes B. 2015. Inhibition of Glycogen Synthase Kinase-3 Beta Attenuates Organ Injury and Dysfunction Associated with Liver Ischemia-Reperfusion and Thermal Injury in the Rat. *SHOCK*, 43, 369-378. DOI: 10.1097/SHK.0000000000000298
238. Rocha, J, Eduardo-Figueira, M, Barateiro, A, Fernandes, A, Brites, D, Pinto, R, Freitas, M, Fernandes, E, Mota-Filipe, H, Sepodes B. 2015. Erythropoietin Reduces Acute Lung Injury and Multiple Organ Failure/Dysfunction Associated to a Scald-Burn Inflammatory Injury in the Rat. *INFLAMMATION*, 38, 312-326. DOI: 10.1007/s10753-014-0035-7
239. Rocha, J, Eduardo-Figueira, M, Barateiro, A, MM Duarte, C, Serra, AT, Pinto, R, Freitas, M, Fernandes, E, Silva-Lima, B, Mota-Filipe, H, Sepodes B. 2015. Anti-inflammatory Effect of Rosmarinic Acid and an Extract of *Rosmarinus officinalis* in Rat Models of Local and Systemic Inflammation. *BASIC & CLINICAL PHARMACOLOGY & TOXICOLOGY*, 116, 398-413. DOI: 10.1111/bcpt.12335
240. Rocha, S, Gomes, D, Lima, M, Bronze-da-Rocha, E, Santos-Silva, A. 2015. Peroxiredoxin 2, glutathione peroxidase, and catalase in the cytosol and membrane of erythrocytes under H2O2-induced oxidative stress. *FREE RADICAL RESEARCH*, 49, 990-1003. DOI: 10.3109/10715762.2015.1028402
241. Rodrigues, C, Machado, E, Pires, J, Ramos, H, Novais, A, Peixe, L. 2015. Increase of widespread A, B1 and D *Escherichia coli* clones producing a high diversity of CTX-M-types in a Portuguese hospital. *FUTURE MICROBIOLOGY*, 10, 1125-1131. DOI: 10.2217/fmb.15.38
242. Rodrigues, C, Santos-Silva, A, Costa, E, Bronze-da-Rocha, E. 2015. Performance of In Silico Tools for the Evaluation of UGT1A1 Missense Variants. *HUMAN MUTATION*, 36, 1215-1225. DOI: 10.1002/humu.22903
243. Rodriguez, I, Novais, A, Lira, F, Valverde, A, Curiao, T, Martinez, JL, Baquero, F, Canton, R, Coque, TM. 2015. Antibiotic-Resistant *Klebsiella pneumoniae* and *Escherichia coli* High-Risk Clones and an IncFIIk Mosaic Plasmid Hosting Tn1 [bla(TEM-4)] in Isolates from 1990 to 2004. *ANTIMICROBIAL AGENTS AND CHEMOTHERAPY*, 59, 2904-2908. DOI: 10.1128/AAC.00296-15
244. Roma-Rodrigues, C, Raposo, LR, Fernandes, AR. 2015. MicroRNAs Based Therapy of Hypertrophic Cardiomyopathy: The Road Traveled So Far. *BIOMED RESEARCH INTERNATIONAL*. DOI: 10.1155/2015/983290
245. Rosa, M, Marcelo, F, Calle, LP, Rougeot, C, Jimenez-Barbero, J, Arsequell, G, Valencia, G. 2015. Influence of polar side chains modifications on the dual enkephalinase inhibitory activity and conformation of human opioidin, a pain perception related peptide. *BIOORGANIC & MEDICINAL CHEMISTRY LETTERS*, 25, 5190-5193. DOI: 10.1016/j.bmcl.2015.09.071
246. S Silva, B Sepodes, J Rocha, R Direito, A Fernandes, D Brites, M Freitas, E Fernandes, MR Bronze. 2015. Protective effects of hydroxytyrosol-supplemented refined olive oil in animal models of acute inflammation and rheumatoid arthritis. *JOURNAL OF NUTRITIONAL BIOCHEMISTRY*, 26, 360-368. DOI: 10.1016/j.jnutbio.2014.11.011
247. Sa, SI, Fonseca, BM, Teixeira, N, Madeira, MD. 2015. Estrogen receptors alpha and beta have different roles in the induction and trafficking of progesterone receptors in hypothalamic ventromedial neurons. *FEBS JOURNAL*, 282, 1126-1136. DOI: 10.1111/febs.13207
248. Sandra G Silva, M Luísa C do Vale, Eduardo F Marques. 2015. Size, Charge, and Stability of Fully Serine-Based Catanionic Vesicles: Towards Versatile Biocompatible Nanocarriers. *CHEMISTRY-A EUROPEAN JOURNAL*, 21, 4092-4101. DOI: 10.1002/chem.201406111
249. Santos, CIM, Oliveira, E, Santos, HM, Menezes, JCMDS, Faustino, MAF, Cavaleiro, JAS, Capelo, JL, Neves, MDPMS, Lodeiro, C. 2015. Untangling interactions of a zinc(II) complex containing a coumarin-porphyrin unit with alkaloids in water solutions: a photophysical study. *PHOTOCHEMICAL & PHOTOBIOLOGICAL SCIENCES*, 14, 757-764. DOI: 10.1039/c4pp00359d
250. Santos, T, Capelo, JL, Santos, HM, Oliveira, I, Marinho, C, Goncalves, A, Araujo, JE, Poeta, P, Igrejas, G. 2015. Use of MALDI-TOF mass spectrometry fingerprinting to characterize *Enterococcus* spp. and *Escherichia coli* isolates. *JOURNAL OF PROTEOMICS*, 127, 321-331. DOI: 10.1016/j.jprot.2015.02.017
251. Santos, TC, de Oliveira, AR, Dantas, JM, Salgueiro, CA, Cordas, CM. 2015. Thermodynamic and kinetic characterization of PccH, a key protein in microbial electrosynthesis processes in *Geobacter sulfurreducens*. *BIOCHIMICA ET BIOPHYSICA ACTA-BIOENERGETICS*, 1847, 1113-1118. DOI: 10.1016/j.bbabi.2015.06.005
252. Santos, TC, Silva, MA, Margado, L, Dantas, JM, Salgueiro, CA. 2015. Diving into the redox properties of *Geobacter sulfurreducens* cytochromes: a model for extracellular electron transfer. *DALTON TRANSACTIONS*, 44, 9335-9344. DOI: 10.1039/c5dt00556f
253. Seixas, JD, Santos, MFA, Mukhopadhyay, A, Coelho, AC, Reis, PM, Veiros, LF, Marques, AR, Penacho, N, Goncalves, AML, Romao, MJ, Bernardes, GJL, Santos-Silva, T, Romao, CC. 2015. A contribution to the rational design of Ru(CO)[3]Cl2L complexes for in vivo delivery of CO. *DALTON TRANSACTIONS*, 44, 5058-5075. DOI: 10.1039/c4dt02966f
254. Sena, FV, Batista, AP, Catarino, T, Brito, JA, Archer, M, Vierler, M, Madl, T, Cabrita, EJ, Pereira, MM. 2015. Type-II NADH:quinone oxidoreductase from *Staphylococcus aureus* has two distinct binding sites and is rate limited by quinone reduction. *MOLECULAR MICROBIOLOGY*, 98, 272-288. DOI: 10.1111/mmi.13120
255. Shi, YX, Liang, RZ, Martin, KA, Weston, N, Gonzalez-Calera, S, Ganguly, R, Li, YX, Lu, YP, Ribeiro, AJM, Ramos, MJ, Fernandes, PA, Garcia, F. 2015. Synthesis and Hydrolytic Studies on the Air-Stable [[4-CN-PhO](E)P(mu)-(NBU)-Bu-t)](2) [E = O, S, and Se] Cyclophosphazanes. *INORGANIC CHEMISTRY*, 54, 6423-6432. DOI: 10.1021/acs.inorgchem.5b00735
256. Silva, P, Fernandes, E, Carvalho, F. 2015. Dual effect of red wine on liver redox status: a concise and mechanistic review. *ARCHIVES OF TOXICOLOGY*, 89, 1681-1693. DOI: 10.1007/s00204-015-1538-1
257. Silva, R, Carmo, H, Vilas-Boas, V, Barbosa, DJ, Monteiro, M, de Pinho, PG, Bastos, MD, Remiao, F. 2015. Several transport systems contribute to the intestinal uptake of Paraquat, modulating its cytotoxic effects. *TOXICOLOGY LETTERS*, 232, 271-283. DOI: 10.1016/j.toxlet.2014.10.015
258. Silva, R, Palmeira, A, Carmo, H, Barbosa, DJ, Gameiro, M, Gomes, A, Paiva, AM, Sousa, E, Pinto, M, Bastos, MD, Remiao, F. 2015. P-glycoprotein induction in Caco-2 cells by newly synthesized thioxanthenes prevents paraquat cytotoxicity. *ARCHIVES OF TOXICOLOGY*, 89, 1783-1800. DOI: 10.1007/s00204-014-1333-4
259. Silva, R, Vilas-Boas, V, Carmo, H, Dinis-Oliveira, RJ, Carvalho, F, Bastos, MD, Remiao, F. 2015. Modulation of P-glycoprotein efflux pump: induction and activation as a therapeutic strategy. *PHARMACOLOGY & THERAPEUTICS*, 149, 1-123. DOI: 10.1016/j.pharmthera.2014.11.013
260. Silva, SG,Vale M. L. C, Marques EF. 2015. Size, Charge, and Stability of Fully Serine-Based Catanionic Vesicles: Towards Versatile Biocompatible Nanocarriers. *CHEMISTRY, A EUROPEAN JOURNAL*, Vol. 21, 4092-4101. DOI: 10.1002/chem.201406111
261. Silva, T, Bravo, J, Summavielle, T, Remiao, F, Perez, C, Gil, C, Martinez, A, Borges, F. 2015. Biology-oriented development of novel lipophilic antioxidants with neuroprotective activity. *RSC ADVANCES*, 5, 15800-15811. DOI: 10.1039/c4ra15164j
262. Silva, Z, Verissimo, T, Videira, PA, Novo, C. 2015. Protein disulfide isomerases: Impact of thapsigargin treatment on their expression in melanoma cell lines. *INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES*, 79, 44-48. DOI: 10.1016/j.ijbiomac.2015.04.029
263. Silveira, CM, Quintas, PO, Moura, I, Moura, JGG, Hildebrandt, P, Almeida, MG, Todorovic, S. 2015. SERR Spectroelectrochemical Study of Cytochrome cd(1) Nitrite Reductase Co-Immobilized with Physiological Redox Partner Cytochrome c(552) on Biocompatible Metal Electrodes. *PLOS ONE*, 10. DOI: 10.1371/journal.pone.0129940
264. Silveira, E, Marques, P, Freitas, AR, Mourao, J, Coque, TM, Antunes, P, Peixe, L, Novais, C. 2015. A hospital sewage ST17 *Enterococcus faecium* with a transferable Inc18-like plasmid carrying genes coding for resistance to antibiotics and quaternary ammonium compounds [qacZ]. *JOURNAL OF GLOBAL ANTIMICROBIAL RESISTANCE*, 3, 49-51. DOI: 10.1016/j.jgar.2014.11.005
265. Soares, AS, Costa, VM, Diniz, C, Fresco, P. 2015. Inosine Strongly Enhances Proliferation of Human C32 Melanoma Cells through PLC-PKC-MEK1/2-ERK1/2 and PI3K Pathways. *BASIC & CLINICAL PHARMACOLOGY & TOXICOLOGY*, 116, 25-36. DOI: 10.1111/bcpt.12280
266. Soares, J, Raimundo, L, Pereira, NAL, dos Santos, DJVA, Perez, M, Queiroz, G, Leao, M, Santos, MMM, Saraiva, L. 2015. A tryptophanol-derived oxazolopiperidone lactam is cytotoxic against tumors via inhibition of p53 interaction with murine double minute proteins. *PHARMACOLOGICAL RESEARCH*, 95-96, 42-52. DOI: 10.1016/j.phrs.2015.03.006
267. Sousa, C, Botelho, J, Grosso, F, Silva, L, Lopes, J, Peixe, L. 2015. Unsuitability of MALDI-TOF MS to discriminate *Acinetobacter baumannii* clones under routine experimental conditions. *FRONTIERS IN MICROBIOLOGY*, 6. DOI: 10.3389/fmicb.2015.00481
268. Sousa, CAD, Pereira, C, Rodriguez-Borges, JE, Freire, C. 2015. L-Serine functionalized clays: Preparation and characterization. *POLYHEDRON*, 102, 121-129. DOI: 10.1016/j.poly.2015.08.008
269. Sousa, CAD, Sampaio-Dias, IE, Rizzo-Aguiar, F, Garcia-Mera, X, Rodriguez-Borges, JE. 2015. Enantiopure synthesis of 7-[1-pyrindany]propargyl ethers as rasagiline analogues via chemical or enzymatic resolution of 1-pyrindan-7-ol. *RSC ADVANCES*, 5, 104509-104515. DOI: 10.1039/c5ra24868j
270. Sousa, CF, Ferreira, M, Abreu B, Medfoth C.J, Gameiro P. 2015. Interactions of a Non-Fluorescent Fluoroquinolone with Biological Membrane Models: A Multi-Technique Approach. *INT J PHARMAC*, 495, 761-770. DOI: 10.1016/j.ijpharm.2015.09.037
271. Sousa, CF, M, Ferreira, B, Abreu, C, J, Medforth, and P. Gameiro. 2015. Interactions of a Non-fluorescent Fluoroquinolone with Biological Membrane Models: A Multi-technique Approach. *INTERNATIONAL JOURNAL OF PHARMACEUTICS*, Vol.495,761-770, 2015. DOI:10.1016/j.ijpharm.2015.09.037
272. Sousa, S, Santos, L, Dinis-Oliveira, RJ, Magalhaes, T, Santos, A. 2015. Pedestrian Fatalities Resulting From Train-Person Collisions. *TRAFFIC INJURY PREVENTION*, 16, 208-212. DOI: 10.1080/15389588.2014.914181
273. Sousa, SF, Ramos, MJ, Lim, C, Fernandes, PA. 2015. Relationship between Enzyme/Substrate Properties and Enzyme Efficiency in Hydrolases. *ACS CATALYSIS*, 5, 5877-5887. DOI: 10.1021/acscatal.5b00923
274. Suarez, R, Mesquita, RBR, Rangel, M, Cerda, V, Rangel, AOSS. 2015. Iron speciation by microsequential injection solid phase spectrometry using 3-hydroxy-1-[H]-2-methyl-4-pyridinone as chromogenic reagent. *TALANTA*, 133, 15-20. DOI: 10.1016/j.talanta.2014.03.059
275. Teixeira-Gomes, A, Costa, VM, Feio-Azevedo, R, Bastos, MDL, Carvalho, F, Capela, JP. 2015. The neurotoxicity of amphetamines during the adolescent period. *INTERNATIONAL JOURNAL OF DEVELOPMENTAL NEUROSCIENCE*, 41, 44-62. DOI: 10.1016/j.ijdevneu.2014.12.001
276. Teixeira, RS, Cova, TFGG, Silva, SMC, Oliveira, R, do Vale, MLC, Marques, EF, Pais, AAC, Veiga, FJB. 2015. Novel serine-based gemini surfactants as chemical permeation enhancers of local anesthetics: A comprehensive study on structure-activity relationships, molecular dynamics and dermal delivery. *EUROPEAN JOURNAL OF PHARMACEUTICS AND BIOPHARMACEUTICS*, 93, 205-213. DOI: 10.1016/j.ejpb.2015.02.024
277. Tempera, C, Franco, R, Caro, C, Andre, V, Eaton, P, Burke, P, Hanscheid, T. 2015. Characterization and optimization of the haemozoin-like crystal (HLC) assay to determine Hz inhibiting effects of anti-malarial compounds. *MALARIA JOURNAL*, 14. DOI: 10.1186/s12936-015-0913-y
278. Tian, Q, Liu, JK, Hyde, KD, Wanasinghe, DN, Boonmee, S, Jayasiri, SC, Luo, ZL, Taylor, JE, Phillips, AJL, Bhat, DJ, Li, WJ, Ariyawansa, H, Thambugala, KM, Jones, EBG, Chomnunti, P, Bahkali, AH, Xu, JC, Camporesi, E. 2015. Phylogenetic relationships and morphological reappraisal of Melanommataceae (Pleosporales). *FUNGAL DIVERSITY*, 74, 267-324. DOI: 10.1007/s13225-015-0350-9
279. Torres, CAV, Ferreira, ARV, Freitas, F, Reis, MAM, Coelho, I, Sousa, I, Alves, VD. 2015. Rheological studies of the fucose-rich exopolysaccharide FucoPol. *INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES*, 79, 611-617. DOI: 10.1016/j.ijbiomac.2015.05.029
280. Tsouko, E, Kourmentza, C, Ladakis, D, Kopsahelis, N, Mandola, I, Papanikolaou, S, Paloukis, F, Alves, V, Koutinas, A. 2015. Bacterial Cellulose Production from Industrial Waste and by-Product Streams. *INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES*, 16, 14832-14849. DOI: 10.3390/ijms160714832

281. Vale, N, Veloso, RC, Gomes, P. 2015. Exploring the Solid-Phase Synthesis of Sulfotyrosine Peptides. EUROPEAN JOURNAL OF ORGANIC CHEMISTRY, None, 7413-7425. DOI: 10.1002/ejoc.201500715

282. Vasilyeva, A, Sanches, IS, Florindo, C, Dmitriev, A. 2015. Natural Mutations in Streptococcus agalactiae Resulting in Abrogation of beta Antigen Production. PLOS ONE, 10. DOI: 10.1371/journal.pone.0128426

283. Veigas, B, Fortunato, E, Baptista, PV. 2015. Field Effect Sensors for Nucleic Acid Detection: Recent Advances and Future Perspectives. SENSORS, 15, 10380-10398. DOI: 10.3390/s150510380

284. Veigas, B, Pedrosa, P, Carlos, FF, Mancio-Silva, L, Grosso, AR, Fortunato, E, Mota, MM, Baptista, PV. 2015. One nanoprobe, two pathogens: gold nanoprobe multiplexing for point-of-care. JOURNAL OF NANOBIO TECHNOLOGY, 13. DOI: 10.1186/s12951-015-0109-1

285. Veigas, B, Portugal, C, Valerio, R, Fortunato, E, Crespo, JG, Baptista, PV. 2015. Scalable approach for the production of functional DNA based gold nanoprobe. JOURNAL OF MEMBRANE SCIENCE, 492, 528-535. DOI: 10.1016/j.memsci.2015.06.042

286. Viegas, CSB, Rafael, MS, Enriquez, JL, Teixeira, A, Vitorino, R, Luis, IM, Costa, RM, Santos, S, Cavaco, S, Neves, J, Macedo, AL, Willems, BAG, Vermeer, C, Simes, DC. 2015. Gla-Rich Protein Acts as a Calcification Inhibitor in the Human Cardiovascular System. ARTERIOSCLEROSIS THROMBOSIS AND VASCULAR BIOLOGY, 35, 399-408. DOI: 10.1161/ATVBAHA.114.304823

287. Vilas-Boas, V, Gueldris, N, Carbo-Argibay, E, Stroppa, DG, Cerqueira, MF, Espina, B, Rivas, J, Rodriguez-Abreu, C, Kolen'ko, YV. 2015. Straightforward phase-transfer route to colloidal iron oxide nanoparticles for protein immobilization. RSC ADVANCES, 5, 47954-47958. DOI: 10.1039/c5ra08200e

288. Zamora-Carreras, H, Torres, M, Bustamante, N, Macedo, AL, Rodriguez, R, Villalba, M, Bruix, M. 2015. The C-terminal domains of two homologous Oleaceae beta-1,3-galactanases recognise carbohydrates differently: Laminarin binding by NMR. ARCHIVES OF BIOCHEMISTRY AND BIOPHYSICS, 580, 93-101. DOI: 10.1016/j.abb.2015.07.004

2016

289. Aire, s L, Silva G, Martins C, Marques E, Lagoa MJ, Ribeiro JC, Rêgo C, Nascimento H, Rocha-Pereira P, Santos-Silva A, Belo L, Mota J. 2016. Exercise intervention and cardiovascular risk factors in obese children. Comparison between obese youngsters taking part of a physical activity school-based program with and without individualized diet counseling: The ACORDA Project. ANNALS OF HUMAN BIOLOGY, 43:183-190

290. Alexandre, N, Amorim I, Caseiro AR, Pereira T, Alvites R, Rêma A, Gonçalves A, Valadares G, Costa E, Santos-Silva A, Rodrigues M, Lopes MA, Almeida A, Santos JD, Maurício AC, Luís AL. 2016. Long term performance evaluation of small-diameter vascular grafts based on polyvinyl alcohol hydrogel and dextran and MSCs-based therapies using the ovine pre-clinical animal model. INTERNATIONAL JOURNAL OF PHARMACEUTICS, 513:332-346. DOI: 10.1016/j.ijpharm.2016.09.045

291. Almada, M, Amaral, C, Diniz-da-Costa, M, Correia-da-Silva, G, Teixeira, NA, Fonseca, BM. 2016. The endocannabinoid anandamide impairs in vitro decidualization of human cells. REPRODUCTION, 152: 351-361. DOI: 10.1530/REP-16-0364

292. Almada, M, Piscitelli, F, Fonseca, BM, Di Marzo, V, Correia-da-Silva, G, Teixeira N. 2016. Anandamide interferes with human endometrial stromal derived-cell differentiation: an effect dependent on inhibition of COX-2 expression and PGE2 release. BIOFACTORS, 42: 277-86. DOI: 10.1002/biof.1270

293. Almeida, A, Alves-Barroco, C, Sauvage, E, Bexiga, R, Albuquerque, P, Tavares, F, Santos-Sanches, I, Glaser, P. 2016. Persistence of a dominant bovine lineage of group B Streptococcus reveals genomic signatures of host adaptation. ENVIRONMENTAL MICROBIOLOGY, 18, 4216-4229. DOI: 10.1111/1462-2920.13550

294. Almeida, C, El Maddah, F, Kehraus, S, Schnakenburg, G, König, GM. 2016. Endolides A and B, Vasopressin and Serotonin-Receptor Interacting N-Methylated Peptides from the Sponge-Derived Fungus Stachylidium sp.. ORGANIC LETTERS, 18, 528-531. DOI: 10.1021/acs.orglett.5b03553

295. Almeida, RM, Dell'Acqua, S, Krippahl, L, Moura, JJG, Pauleta, SR. 2016. Predicting Protein-Protein Interactions Using BiGGER: Case Studies. MOLECULES, 21. DOI: 10.3390/molecules21081037

296. Alves, AC, Ribeiro, D, Nunes, C, Reis, S. 2016. Biophysics in cancer: The relevance of drug-membrane interaction studies. BIOCHIMICA ET BIOPHYSICA ACTA-BIOMEMBRANES, Vol. 1858, 2231-2244. DOI: 10.1016/j.bbammem.2016.06.025

297. Alves, EA, Ana Sofia Agonia, Sara Manuela Cravo, Carlos Manuel Afonso, Annibal Duarte Pereira Netto, Maria de Lourdes Bastos, Félix Carvalho, Ricardo Jorge Dinis-Oliveira. 2016. GC-MS method for the quantification of thirteen opioids, cocaine and cocaethylene in whole blood based on a modified QuEChERS extraction. CURRENT PHARMACEUTICAL ANALYSIS, 12: 1-9

298. Alves, MN, Fernandes, AP, Salgueiro, CA, Paquete, CM. 2016. Unraveling the electron transfer processes of a nanowire protein from *Geobacter sulfurreducens*. BIOCHIMICA ET BIOPHYSICA ACTA-BIOENERGETICS, 1857, 7-13. DOI: 10.1016/j.bbambio.2015.09.010

299. Alves, VD, Torres, CAV, Freitas, F. 2016. Bacterial polymers as materials for the development of micro/nanoparticles. INTERNATIONAL JOURNAL OF POLYMERIC MATERIALS AND POLYMERIC BIOMATERIALS, 65, 211-224. DOI: 10.1080/00914037.2015.1103239

300. Antunes, P, Mourão, J, Campos, J, Peixe, L. 2016. Salmonellosis: the role of poultry meat. CLIN MICROBIOL INFECT, Vol. 22(2):110-21. DOI: 10.1016/j.cmi.2015.12.004

301. Araújo D, Alves VD, Campos J, Coelho I, Sevrin C, Grandfils C, Freitas F, Reis MAM. 2016. Assessment of the adhesive properties of the bacterial polysaccharide FucoPol. INT J BIOLMACROMOL, 92, 383-9. DOI:10.1016/j.ijbiomac.2016.07.035

302. Araujo, C, Munoz-Atienza, E, Poeta, P, Igrejas, G, Hernandez, PE, Herranz, C, Cintas, LM. 2016. Characterization of *Pediococcus acidilactici* strains isolated from rainbow trout (*Oncorhynchus mykiss*) feed and larvae: safety, DNA fingerprinting, and bacteriocinogenicity. DISEASES OF AQUATIC ORGANISMS, 119, 129-143. DOI: 10.3354/dao02992

303. Araujo, D, Alves, VD, Campos, J, Coelho I, Sevrin, C, Grandfils, C, Freitas, F, Reis, MAM. 2016. Assessment of the adhesive properties of the bacterial polysaccharide FucoPol. INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES, 92, 383-389. DOI: 10.1016/j.ijbiomac.2016.07.035

304. Araújo, J.E, Jorge, S, Teixeira e Costa, F, Ramos, A, Lodeiro, C, Santos, H.M, Capelo, J.L. 2016. A cost-effective method to get insight into the peritoneal dialysate effluent proteome. JOURNAL OF PROTEOMICS, 145, pp. 207-213. DOI: 10.1016/j.jprot.2016.05.010

305. Araujo, JE, Jorge, S, Magrico, R, Costa, TE, Ramos, A, Reboiro-Jato, M, Fdez-Riverola, F, Lodeiro, C, Capelo, JL, Santos, HM. 2016. Classifying patients in peritoneal dialysis by mass spectrometry-based profiling. TALANTA, 152, 364-370. DOI: 10.1016/j.talanta.2016.02.026

306. Arbo, MD, Melega S, Stöber R, Schug M, Rempel E, Rahnführer J, Godoy P, ReifR, Cadenas C, de Lourdes Bastos M, Carmo H, Hengstler JG. 2016. Hepatotoxicity of piperazine designer drugs: up-regulation of key enzymes of cholesterol and lipidbiosynthesis. ARCH TOXICOL, 90(12):3045-3060

307. Aroso, IM, Silva, JC, Mano, F, Ferreira, ASD, Dionisio, M, Sa-Nogueira, I, Barreiros, S, Reis, RL, Paiva, A, Duarte, ARC. 2016. Dissolution enhancement of active pharmaceutical ingredients by therapeutic deep eutectic systems. EUROPEAN JOURNAL OF PHARMACEUTICS AND BIOPHARMACEUTICS, 98, 57-66. DOI: 10.1016/j.ejpb.2015.11.002

308. Baptista, PV. 2016. Editorial: Precision nanomedicine in cancer: how far are we from personalization? EXPERT REV. PRECISION MEDICINE AND DRUG DEVELOPMENT. DOI:10.1080/23808993.2016.1174063

309. Barbosa, J, Faria J, Queirós O, Moreira R, Carvalho F, Dinis-Oliveira RJ. 2016. Comparative metabolism of tramadol and tapentadol: a toxicological perspective. DRUG METAB REV, 48(4):577-592

310. Barbosa, JP, Neves, AR, Silva, AM, Barbosa, MA, Reis, MS, Santos, SG. 2016. Nanostructured lipid carriers loaded with resveratrol modulate human dendritic cells. INTERNATIONAL JOURNAL OF NANOMEDICINE, Vol. 11, 3501-3516. DOI: 10.2147/IJN.S108694

311. Barbosa, R, Almeida, P, Safar, SVB, Santos, R0, Morais, PB, Nielly-Thibault, L, Leducq, JB, Landry, CR, Goncalves, P, Rosa, CA, Sampaio, JP. 2016. Evidence of Natural Hybridization in Brazilian Wild Lineages of *Saccharomyces cerevisiae*. GENOME BIOLOGY AND EVOLUTION, 8, 317-329. DOI: 10.1093/gbe/evv263

312. Barizao, EO, Visentainer, JV, Almeida, VD, Ribeiro, D, Chiste, RC, Fernandes, E. 2016. *Citharexylum solanaceum* fruit extracts: Profiles of phenolic compounds and carotenoids and their relation with ROS and RNS scavenging capacities. FOOD RESEARCH INTERNATIONAL, Vol. 86, 24-33. DOI: 10.1016/j.foodres.2016.05.007

313. Barreiros, L, Queiroz, JF, Magalhães, LM, Silva, AMT, Segundo, MA. 2016. Analysis of 17-β-estradiol and 17-α-ethinylestradiol in biological and environmental matrices - A review. MICROCHEMICAL JOURNAL, Vol. 126, 243-262. DOI: 10.1016/j.microc.2015.12.003

314. Batalha, IL, Roque, ACA. 2016. Petasis-Ugi ligands: New affinity tools for the enrichment of phosphorylated peptides. JOURNAL OF CHROMATOGRAPHY B-ANALYTICAL TECHNOLOGIES IN THE BIOMEDICAL AND LIFE SCIENCES, 1031, 86-93. DOI: 10.1016/j.jchromb.2016.07.035

315. Batalha, IL, Zhou, HJ, Lilley, K, Lowe, CR, Roque, ACA. 2016. Mimicking nature: Phosphopeptide enrichment using combinatorial libraries of affinity ligands. JOURNAL OF CHROMATOGRAPHY A, 1457, 76-87. DOI: 10.1016/j.chroma.2016.06.032

316. Bellora, N, Moline, M, David-Palma, M, Coelho, MA, Hittinger, CT, Sampaio, JP, Goncalves, P, Libkind, D. 2016. Comparative genomics provides new insights into the diversity, physiology, and sexuality of the only industrially exploited tremellomycete: *Phaffia rhodozyma*. BMC GENOMICS, 17. DOI: 10.1186/s12864-016-3244-7

317. Belo, L, Ribeiro S, Sameiro-Faria M, Miranda V, Santos-Silva A. 2016. ARC Obesity-related pathways to Chronic Kidney Disease. ACR JOURNAL OF NEPHROLOGY, 1 (1): 1-4

318. Benavides, M, Fernandez-Lodeiro, J, Coelho, P, Lodeiro, C, Diniz, MS. 2016. Single and combined effects of aluminum [Al2O3] and zinc [ZnO] oxide nanoparticles in a freshwater fish, *Carassius auratus*. ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH, 23, 24578-24591. DOI: 10.1007/s11356-016-7915-3

319. Bordelo, J, Viegas, C, Coelho, C, Poeta, P. 2016. First report of bacteremia caused by *Elizabethkingia meningoseptica* in a dog. CANADIAN VETERINARY JOURNAL-REVUE VETERINAIRE CANADIENNE, 57, 994-994.

320. Bras, JLA, Pinheiro, BA, Cameron, K, Cuskin, F, Viegas, A, Najmudin, S, Bule, P, Pires, VMR, Romao, MJ, Bayer, EA, Spencer, HL, Smith, S, Gilbert, HJ, Alves, VD, Carvalho, AL, Fontes, CMGA. 2016. Diverse specificity of cellulosome attachment to the bacterial cell surface. SCIENTIFIC REPORTS, 6. DOI: 10.1038/srep38292

321. Brás, NF, Ferreira, P, Calixto, AR, Jaspars, M, Houssen, W, Naismith, JH, Fernandes, PA, Ramos, M.J. 2016. The catalytic mechanism of the marine-derived Macrocytase PatGmac. CHEMISTRY - A EUROPEAN JOURNAL. DOI:10.1002/chem.201601670

322. Bugalhão, JN, Mota, LJ, Franco, IS. 2016. Identification of regions within the *Legionella pneumophila* VipA effector protein involved in actin binding and polymerization and in interference with eukaryotic organelle trafficking. MICROBIOLOGYOPEN, 5, 118-133. DOI: 10.1002/mbo3.316

323. Burgaud, G, Coton, M, Jacques, N, Debaets, S, Maciel, NOP, Rosa, CA, Gadanho, M, Sampaio, JP, Casaregola, S. 2016. *Yamadazyma barbieri* f.a. sp nov., an ascomycetous anamorphic yeast isolated from a Mid-Atlantic Ridge hydrothermal site (-2300m) and marine coastal waters. INTERNATIONAL JOURNAL OF SYSTEMATIC AND EVOLUTIONARY MICROBIOLOGY, 66, 3600-3606. DOI: 10.1099/ijssem.0.001239

324. Calejo, I, Moreira N, Araújo AM, Carvalho M, Bastos Mde L, de Pinho PG. 2016. Optimisation and validation of a HS-SPME-GC-IT/MS method for analysis of carbonyl volatile compounds as biomarkers in human urine: Application in a pilot study to discriminate individuals with smoking habits. TALANTA, 148:486-93. DOI: 10.1016/j.talanta.2015.09.070

325. Campos, J, Cristino, L, Peixe, L, Antunes, P. 2016. MCR-1 in multidrug-resistant and copper-tolerant clinically relevant *Salmonella* 1,4,[5],12:i:- and S. Rissen clones in Portugal, 2011 to 2015. EUROSURVEILLANCE, Vol. 30, 1-5. DOI: 10.2807/1560-7917.ES.2016.21.26.30270

326. Campos, J, Mourão, J, Marçal, S, Machado, J, Novais, C, Peixe, L, Antunes P. 2016. Clinical *Salmonella* Typhimurium ST34 with metal tolerance genes and an IncHI2 plasmid carrying *oqxAB-aac(6)-Ib-cr* from Europe. J ANTIMICROB CHEMOTHER, Vol. 71(3):843-5. DOI: 10.1093/jac/dkv409

327. Campos, S, Félix L, Venâncio C, de Lurdes Pinto M, Peixoto F, de Pinho PG, Antunes L. 2016. In vivo study of hepatic oxidative stress and mitochondrial function in rabbits with severe hypotension after propofol prolonged infusion. SPRINGERPLUS, 5(1):1349. DOI: 10.1186/s40064-016-2970-2

328. Campos, S, Monteiro J, Valenzuela B, Gonçalves H, de Pinho PG, Fresco P, Félix L, Antunes L. 2016. Evidence of Different Propofol Pharmacokinetics under Short and Prolonged Infusion Times in Rabbits. BASIC CLIN PHARMACOL TOXICOL, 118(6):421-31. DOI: 10.1111/bcpt.12521

329. Campos, S, Pinto M.L, Gomes G, Guedes de Pinho P, Monteiro J, Félix L, Branco P, Ferreira L, Antunes L. 2016. Expression of CYP1A1 and CYP1A2 in the liver and kidney of rabbits after prolonged infusion of propofol. EXPERIMENTAL AND TOXICOLOGIC PATHOLOGY, 68 521-531. DOI 10.1016/j.etp.2016.07.006

330. Cardoso, MM, Peca, IN, Raposo, CD, Petrova, KT, Barros, MT, Gardner, R, Bicho, A. 2016. Doxorubicin-loaded galactose-conjugated poly(d,l-lactide-co-glycolide) nanoparticles as hepatocyte-targeting drug carrier. JOURNAL OF MICROENCAPSULATION, 33, 315-322. DOI: 10.1080/02652048.2016.1185474

331. Carepo, MSP, Carreira, C, Grazina, R, Zakrzewska, ME, Dalla, A, Aubert, C, Pauleta, SR, Moura, JGG, Moura, I. 2016. Orange protein from *Desulfovibrio alaskensis* G20: insights into the Mo-Cu cluster protein-assisted synthesis. JOURNAL OF BIOLOGICAL INORGANIC CHEMISTRY, 21, 53-62. DOI: 10.1007/s00775-015-1323-x

332. Carlucci, A, Cibelli, F, Lops, F, Phillips, AJL, Ciccione, C, Raimondo, ML. None. *Pleurostomophora richardsiae* associated with trunk diseases of grapevines in southern Italy. PHYTOPATHOLOGIA MEDITERRANEA, 54, 109-123. DOI: 10.14601/Phytopathol_Mediterr-15257

333. Caro, C, Sayagues, MJ, Franco, V, Conde, A, Zaderenko, P, Gamez, F. 2016. A hybrid silver-magnetite detector based on surface enhanced Raman scattering for differentiating organic compounds. SENSORS AND ACTUATORS B-CHEMICAL, 228, 124-133. DOI: 10.1016/j.snb.2016.01.003

334. Carvalho, J, Ferreira, J, Pereira, P, Coutinho, E, Guedin, A, Nottel, P, Salgado, GE, Mergny, JL, Queiroz, JA, Sousa, F, Cabrita, EJ, Cruz, C. 2016. Stabilization of novel immunoglobulin switch regions G-quadruplexes by naphthalene and quinoline-based ligands. TETRAHEDRON, 72, 1229-1237. DOI: 10.1016/j.tet.2016.01.022

335. Carvalho, M, Roca, C, Reis, MAM. 2016. Improving succinic acid production by *Actinobacillus succinogenes* from raw industrial carob pods. BIORESOURCE TECHNOLOGY, 218, 491-497. DOI: 10.1016/j.biortech.2016.06.140

336. Carvalho, Rui N. L., Almeida, Rui M., Moura, JGG, Lourenço, Nuno T., Fonseca, Luís J. P., Cordas, Cristina M.. 2016. Sandwich-Type Enzymatic Fuel Cell Based on a New Electro-Conductive Material - Ion Jelly. ChemistrySelect., 0-0. DOI: 10.1002/slct.201601640

337. Carvalho, S, Marinho, C, Gonçalves, A, Sousa, M, Nóvoa, M, Quaresma, M, Igrejas, G, Poeta, P. 2016. Vaginal bacterial microbiota of an endangered donkey breed: a comparison between *Asinina de Miranda* (*Equus asinus*) jennies with and without reproductive problems. JOURNAL OF INTEGRATED OMICS, 6(1), June 1-5 (on-line open access). DOI: 10.5584/jiomics.v6i1.193.
338. Casal, C, Rebelo I. 2016. Coffee: A Dietary Intervention on Type 2 Diabetes?. CURR MED CHEM. PMID:27697076
339. Casal, D, Cunha, T, Pais, D, Videira, P, Coloma, J, Zagalo, C, Angelica-Almeida, M, O'Neill, JG. 2016. Systematic Review and Meta-Analysis of Unconventional Perfusion Flaps in Clinical Practice. PLASTIC AND RECONSTRUCTIVE SURGERY, 138, 459-479. DOI: 10.1097/PRS.0000000000002390
340. Casal, S, Rebelo I. 2016. Coffee: A Dietary Intervention on Type 2 Diabetes?. Curr Med Chem. [Epub ahead of print]
341. Casas, MP, Rodriguez-Hermida, V, Perez-Larran, P, Conde, E, Liveri, MT, Ribeiro, D, Fernandes, E, Dominguez, H. 2016. In vitro bioactive properties of phlorotannins recovered from hydrothermal treatment of *Sargassum muticum*. SEPARATION AND PURIFICATION TECHNOLOGY, Vol. 167, 117-126. DOI: 10.1016/j.seppur.2016.05.003
342. Castanheira, N, Dourado, AC, Kruz, S, Alves, PIL, Delgado-Rodriguez, AI, Pais, I, Semedo, J, Scotti-Campos, P, Sanchez, C, Borges, N, Carvalho, G, Crespo, MTB, Fareira, P. 2016. Plant growth-promoting *Burkholderia* species isolated from annual ryegrass in Portuguese soils. JOURNAL OF APPLIED MICROBIOLOGY, 120, 724-739. DOI: 10.1111/jam.13025
343. Cavadas, MAS, Monopoli, MP, Cunha, CSE, Prudencio, M, Pereira, E, Lynch, I, Dawson, KA, Franco, R. 2016. Unravelling Malaria Antigen Binding to Antibody-Gold Nanoparticle Conjugates. PARTICLE & PARTICLE SYSTEMS CHARACTERIZATION, 33, 906-915. DOI: 10.1002/ppsc.201600187
344. Cerqueira, NM, Oliveira, EF, Gesto, DS, Santos-Martins, D, Moreira, C, Moorthy, HN, Ramos, MJ, Fernandes, PA. 2016. Cholesterol Biosynthesis: A Mechanistic Overview. BIOCHEMISTRY, 55(39), pp.5483-5506. DOI: 10.1021/acs.biochem.6b00342
345. Chaves, C, Gómez-Zepeda D, Auvity S, Menet MC, Crété D, Labat L, Remião F, Cisternino S, Declèves X. 2016. Effect of Subchronic Intravenous Morphine Infusion and Naloxone-Precipitated Morphine Withdrawal on P-gp and Bcrp at the Rat Blood-Brain Barrier. J PHARM SCI, 105(1):350-8
346. Chisté, R, C, Ribeiro, D, Freitas, M, Leite, A, Moniz, T, Rangel, M, and Fernandes, E. 2016. Uncovering novel 3-hydroxy-4-pyridinone metal ion complexes with potential anti-inflammatory properties. JOURNAL OF INORGANIC BIOCHEMISTRY, 155, 9-16. DOI: 10.1016/j.jinorgbio.2015.11.009
347. Claro, B, Kaizheng Z, Abgherifam S, Silva S. G, Griffiths G, Knudsen K. D, Marques E. F, Nystrom B. 2016. Phase behavior, microstructure and cytotoxicity in mixtures of a charged triblock copolymer and an ionic surfactant. EUROPEAN POLYMER JOURNAL, ELSEVIER SCIENCE BV, Vol. 75, 461-473. DOI: 10.1016/j.eurpolymj.2016.01.018
348. Coimbra, S, Catarino C, Santos-Silva A. 2016. The triad psoriasis-obesity-adipokine The triad psoriasis-obesity-adipokine profile. JOURNAL OF THE EUROPEAN ACADEMY OF DERMATOLOGY & VENEREOLOGY, 30: 1876-1885. DOI: 10.1111/jdv.13701
349. Coimbra, S, Oliveira H, Neuparth MJ, Proença JB, Figueiredo A, Rocha-Pereira P, Santos-Silva A. 2016. Systemic inflammation and pro-inflammatory IL17 signalling persists at the end of therapy in patients with metabolic syndrome and psoriasis, reducing the length of remission. BRITISH JOURNAL OF DERMATOLOGY, 174 (2): 414-6. DOI: 10.1111/bjd.14013
350. Coimbra, S, Oliveira H, Rocha-Pereira P, Figueiredo A, Santos-Silva A. 2016. The cross-talk between renal function, Inflammation and psoriasis vulgaris. BRITISH JOURNAL OF DERMATOLOGY. DOI: 10.1111/bjd.14913
351. Colombo, B, Sciarria, TP, Reis, M, Scaglia, B, Adani, F. 2016. Polyhydroxyalkanoates (PHAs) production from fermented cheese whey by using a mixed microbial culture. BIORESOURCE TECHNOLOGY, 218, 692-699. DOI: 10.1016/j.biortech.2016.07.024
352. Conde, J, Tian, FR, de la Fuente, JM, Baptista, PV, Baptista, P. 2016. Editorial: Cancer Nanotheranostics: What Have We Learned So Far?. FRONTIERS IN CHEMISTRY, 3. DOI: 10.3389/fchem.2015.0071
353. Cordeiro, M, Carlos, FF, Pedrosa, P, Lopez, A, Baptista, PV. 2016. Gold Nanoparticles for Diagnostics: Advances towards Points of Care. DIAGNOSTICS, 6. DOI: 10.3390/diagnostics6040043
354. Cordeiro, M, Giestas, L, Lima, JC, Baptista, PMV. 2016. BioCode gold-nanobeacon for the detection of fusion transcripts causing chronic myeloid leukemia. JOURNAL OF NANOBIO TECHNOLOGY, 14. DOI: 10.1186/s12951-016-0192-y
355. Cordeiro, M, Letícia Giestas, João C. Lima and Pedro Baptista. 2016. BioCode Gold-Nanobeacon for the detection of fusion transcripts causing chronic myeloid leukemia. J. NANOBIO TECHNOL. 14:38 DOI:10.1186/s12951-016-0192-y
356. Cordeiro, Milton, Ferreira Carlos, Fabio, Pedrosa, Pedro, Lopez, Antonio, Baptista, Pedro Viana. 2016. Gold Nanoparticles for Diagnostics: Advances towards Points of Care.. Diagnostics [Basel, Switzerland], 6.
357. Correia, MAS, Otrelo-Cardoso, AR, Schwuchow, V, Clauss, KGVS, Haumann, M, Romao, MJ, Leimkuhler, S, Santos-Silva, T. 2016. The *Escherichia coli* Periplasmic Aldehyde Oxidoreductase Is an Exceptional Member of the Xanthine Oxidase Family of Molybdoenzymes. ACS CHEMICAL BIOLOGY, 11, 2923-2935. DOI: 10.1021/acscchembio.6b00572
358. Correia, S, Hébraud, M, Chafsey, I, Chambon, C, Viala, D, Torres, C, de Toro, M, Capelo, J.L, Poeta, P, Igrejas, G. 2016. Impacts of experimentally induced and clinically acquired quinolone resistance on the membrane and intracellular subproteomes of *Salmonella* Typhimurium DT104B. JOURNAL OF PROTEOMICS, 145, pp. 46-59. DOI: 10.1016/j.jprot.2016.04.001
359. Corvo, ML, Mendo, AS, Figueiredo, S, Gaspar, R, Larginho, M, da Silva, MFCC, Baptista, PV, Fernandes, AR. 2016. Liposomes as Delivery System of a Sn(IV) Complex for Cancer Therapy. PHARMACEUTICAL RESEARCH, 33, 1351-1358. DOI: 10.1007/s11095-016-1876-6
360. Costa, A, Pinheiro, M, Magalhães, J, Ribeiro, R, Seabra, V, Reis, S, Sarmento, B. 2016. The formulation of nanomedicines for treating tuberculosis. ADVANCES IN DRUG DELIVERY REVIEWS, Vol. 102, 102-115. DOI: 10.1016/j.addr.2016.04.012
361. Costa, JIT, Oliveira, E, Santos, H.M, Tomé, A.C, Neves, M.G.P.M.S, Lodeiro, C. 2016. Study of multiporphyrin compounds as colorimetric sitting-atop metal complexes: Synthesis and photophysical studies. CHEMPLUSCHEM, 81 (1), pp. 143-153. DOI: 10.1002/cplu.201500386
362. Costa, L, Amaral, C, Teixeira, N, Correia-da-Silva, G, Fonseca, BM. 2016. Cannabinoid-induced autophagy: protective or death role?. PROSTAGLANDIN AND OTHER LIPID MEDIATORS, 122: 54-63. DOI: 10.1016/j.prostaglandins.2015.12.006
363. Costa, MA, Fonseca BM, Mendes A, Braga J, Teixeira NA, Correia-da-Silva G. 2016. The endocannabinoid 2-arachidonoylglycerol dysregulates the synthesis of proteins by the human syncytiotrophoblast. BIOCHIM BIOPHYS ACTA, 1861(3):205-12. DOI: 10.1016/j.bbali.2015.12.008
364. Couto, D, Freitas M, Costa VM, Chisté RC, Almeida A, Lopez-Quintela MA, Rivas J, Freitas P, Silva P, Carvalho F, Fernandes E. 2016. Biodistribution of polyacrylic acid-coated iron oxide nanoparticles is associated with proinflammatory activation and liver toxicity. J APPL TOXICOL, 36(10):1321-31. DOI: 10.1002/jat.3323
365. Covas, Goncalo, Vaz, Filipa, Henriques, Gabriela, Pinho, Mariana G, Filipe, Sergio R. 2016. Analysis of Cell Wall Teichoic Acids in *Staphylococcus aureus*. Methods in molecular biology (Clifton, N.J.), 1440, 201-13. DOI: 10.1007/978-1-4939-3676-2_15
366. Cruz-Monteagudo, M, Borges F, Paz-Y-Miño C, Cordeiro MN, Rebelo I, Perez-Castillo Y, Helguera AM, Sánchez-Rodríguez A, Tejera E. 2016. Efficient and biologically relevant consensus strategy for Parkinson's disease gene prioritization. BMC MED GENOMICS, 9: 12. DOI: 10.1186/s12920-016-0173-x
367. Cruz, MV, Araujo, D, Alves, VD, Freitas, F, Reis, MAM. 2016. Characterization of medium chain length polyhydroxyalkanoate produced from olive oil deodorizer distillate. INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES, 82, 243-248. DOI: 10.1016/j.ijbiomac.2015.10.043
368. Cruz, MV, Freitas, F, Paiva, A, Mano, F, Dionisio, M, Ramos, AM, Reis, MAM. 2016. Valorization of fatty acids-containing wastes and byproducts into short- and medium-chain length polyhydroxyalkanoates. NEW BIOTECHNOLOGY, 33, 206-215. DOI: 10.1016/j.nbt.2015.05.005
369. Cruz, RQ, Morais C. M, Cardoso A. M, Silva S. G, Vale M. L. C, Marques E. F, Pedrosa de Lima M. C., Jurado A. S. 2016. Enhancing glioblastoma cell sensitivity to chemotherapeutics: A strategy involving survivin gene silencing mediated by gemini surfactant-based complexes. EUROPEAN JOURNAL OF PHARMACEUTICS AND BIOPHARMACEUTICS, ELSEVIER SCIENCE BV, Vol. 104, 7-18. DOI: 10.1016/j.ejpb.2016.04.014
370. Cuerva, C, Campo, JA, Cano, M, Lodeiro, C. 2016. Platinum(II) Metallornesogens: New External-Stimuli-Responsive Photoluminescence Materials. CHEMISTRY-A EUROPEAN JOURNAL, 22, 10168-10178. DOI: 10.1002/chem.201601115
371. Cunha-Reis, C, Machado, A, Barreiros, L, Araujo, F, Nunes, R, Seabra, V, Ferreira, D, Segundo, MA, Sarmento, B, das Neves, J. 2016. Nanoparticles-in-film for the combined vaginal delivery of anti-HIV microbicide drugs. JOURNAL OF CONTROLLED RELEASE, Vol. 243, 43-53. DOI: 10.1016/j.jconrel.2016.09.020
372. Czobor, I, Novais, Â, Rodrigues, C, Chifiriuc, MC, Mihăescu, G, Lazăr, V, Peixe, L. 2016. Efficient transmission of IncFIY and IncL plasmids and *Klebsiella pneumoniae* ST101 clone producing OXA-48, NDM-1 or OXA-181 in Bucharest hospitals. INT J ANTIMICROB AGENTS, Vol. 48(2):223-4. DOI: 10.1016/j.ijantimicag.2016.05.004
373. Dantas, JM, Simoes, T, Morgado, L, Caciones, C, Fernandes, AP, Silva, MA, Bruix, M, Pokkuluri, PR, Salgueiro, CA. 2016. Unveiling the Structural Basis That Regulates the Energy Transduction Properties within a Family of Triheme Cytochromes from *Geobacter sulfurreducens*. JOURNAL OF PHYSICAL CHEMISTRY B, 120, 10221-10233. DOI: 10.1021/acs.jpcc.6b07059
374. David-Palma M, Sampaio JP, Gonçalves P. 2016. Genetic Dissection of Sexual Reproduction in a Primary Homothallic Basidiomycete. PLOS GENET, 12:e1006110. DOI:10.1371/journal.pgen.1006110
375. de Castro, CS, Cova, TFGG, Pais, ACC, Pinheiro, D, Nunez, C, Lodeiro, C, de Melo, JSS. 2016. Probing metal cations with two new Schiff base bischromophoric pyrene based chemosensors: Synthesis, photophysics and interactions patterns. DYES AND PIGMENTS, 134, 601-612. DOI: 10.1016/j.dyepig.2016.08.016
376. de Jesus, JR, Pessoa, GD, Sussulini, A, Martinez, JLC, Arruda, MAZ. 2016. Proteomics strategies for bipolar disorder evaluation: From sample preparation to validation. JOURNAL OF PROTEOMICS, 145, 187-196. DOI: 10.1016/j.jprot.2016.04.034
377. Dias, AMG, dos Santos, R, Iranzo, O, Roque, ACA. 2016. Affinity adsorbents for proline-rich peptide sequences: a new role for WW domains. RSC ADVANCES, 6, 68979-68988. DOI: 10.1039/c6ra10900d
378. Dias, D, Bessa J, Guimarães S, Soares ME, Bastos Mde L, Teixeira HM. 2016. Inorganicmercury intoxication: A case report. FORENSIC SCI INT, 259:e20-4. DOI: 10.1016/j.forsciint.2015.12.021
379. Dinis-Oliveira, RJ, Félix Carvalho, Isabel Costa, Ricardo Silvestre and Teresa Magalhães. 2016. Response to the comment on Promising blood-derived biomarkers for estimation of the postmortem interval. TOXICOLOGY RESEARCH, 5, 716-718
380. Dinis-Oliveira, RJ, Magalhães T. 2016. Teaching and learning based on peer review: arealistic approach in forensic sciences. F1000RES, 5:1048. DOI: 10.12688/f1000research.8726.1
381. Dinis-Oliveira, RJ, Soares M, Rocha-Pereira C, Carvalho F. 2016. Human and experimental toxicology of orellanine. HUM EXP TOXICOL, 35(9):1016-29. DOI: 10.1177/0960327115613845
382. Dinis-Oliveira, RJ. 2016. Metabolomics of methadone: clinical and forensic toxicological implications and variability of dose response. DRUG METAB REV, 48(4):568-576
383. Dinis-Oliveira, RJ. 2016. Metabolomics of Δ9-tetrahydrocannabinol: implications in toxicity. DRUG METAB REV, 48(1):80-7. DOI: 10.3109/03602532.2015.1137307
384. Dinis-Oliveira, RJ. 2016. Oxidative and Non-Oxidative Metabolomics of Ethanol. CURR DRUG METAB, 17(4):327-35
385. Djafari, J, Marinho, C, Santos, T, Igrejas, G, Torres, C, Capelo, J.-L, Poeta, P, Lodeiro, C, Fernández-Lodeiro, J. 2016. New Synthesis of gold and silver-based Nano-Tetracycline composites. CHEMISTRYOPEN, 5(3), 206-212. DOI: 10.1002/open.201600016.
386. Domingos, JMB, Martinez, GA, Scoma, A, Bertin, L, Reis, MAM, Fava, F. 2016. Development of a Continuous Biofilm-Based Process for the Bioconversion of Cheese Whey into Volatile Fatty Acids. 5TH INTERNATIONAL SYMPOSIUM ON INDUSTRIAL BIOTECHNOLOGY (IBIC 2016), 49, 193-198. DOI: 10.3303/CET1649033
387. Domingues, L, Ismail, A, Charro, N, Rodriguez-Escudero, I, Holden, DW, Molina, M, Cid, VJ, Mota, LJ. 2016. The *Salmonella* effector SteA binds phosphatidylinositol 4-phosphate for subcellular targeting within host cells. CELLULAR MICROBIOLOGY, 18, 949-969. DOI: 10.1111/cmi.12558
388. dos Santos, R, Carvalho AL, Roque CAA. 2016. Renaissance of protein crystallization and precipitation in biopharmaceuticals purification. BIOTECHNOLOGY ADVANCES, 35, 1, 41-50. DOI: 10.1016/j.biotechadv.2016.11.005
389. Faleiro, F, Pimentel, M, Pegado, MR, Bispo, R, Lopes, AR, Diniz, MS, Rosa, R. 2016. Small pelagics in a changing ocean: biological responses of sardine early stages to warming. CONSERVATION PHYSIOLOGY, 4. DOI: 10.1093/conphys/cow017
390. Faria, J, Barbosa J, Queirós O, Moreira R, Carvalho F, Dinis Oliveira RJ. 2016. Comparative study of the neurotoxicological effects of tramadol and tapentadol in SH-SY5Y cells. TOXICOLOGY, 359-360:1-10. DOI: 10.1016/j.tox.2016.06.010
391. Fernandes, AR, João Jesus, Pedro Martins, Sara Figueiredo, Daniela Rosa, Luísa M.R.D.R.S. Martins, Maria Luísa Corvo, Manuela C. Carvalho, Pedro M. Costa, Pedro V. Baptista. 2016. Multifunctional gold-nanoparticles: a nanovectorization tool for the targeted delivery of novel chemotherapeutic agents. JOURNAL OF CONTROL RELEASE. DOI: 10.1016/j.jconrel.2016.11.021
392. Fernandes, CSM, Barbosa, I, Castro, R, Pina, AS, Coroadinha, AS, Barbas, A, Roque, ACA. 2016. Retroviral particles are effectively purified on an affinity matrix containing peptides selected by phage-display. BIOTECHNOLOGY JOURNAL, 11, 1513-1524. DOI: 10.1002/biot.201600025
393. Fernandes, CSM, Castro, R, Coroadinha, AS, Roque, ACA. 2016. Small synthetic ligands for the enrichment of viral particles pseudotyped with amphotropic murine leukemia virus envelope. JOURNAL OF CHROMATOGRAPHY A, 1438, 160-170. DOI: 10.1016/j.chroma.2016.02.026
394. Fernandes, CSM, dos Santos, R, Ottengy, S, Viecinski, AC, Behar, G, Mouratou, B, Pecorari, F, Roque, ACA. 2016. Affitins for protein purification by affinity magnetic fishing. JOURNAL OF CHROMATOGRAPHY A, 1457, 50-58. DOI: 10.1016/j.chroma.2016.06.020
395. Fernandes, HS, C. S. Silva Teixeira, P. A. Fernandes, M. J. Ramos, and N. M. F. S. A. Cerqueira. 2016. Amino Acid Deprivation Using Enzymes as a Targeted Therapy for Cancer and Viral Infections. EXPERT OPINION ON THERAPEUTIC PATENTS, 1-15. DOI: 10.1080/13543776.2017.1254194
396. Fernandes, R, Freitas B, Miranda V, Costa E, Santos-Silva A, Bronze-da-Rocha E. 2016. Polymorphisms of the ELANE gene promoter region in end-stage chronic kidney disease patients. GENES, 7, 17. DOI: 10.3390/genes7050017
397. Fernández-Lodeiro, J, Benito Rodriguez González, Hugo M. Santos, Emilia Bértolo, Jose Luis Capelo, Alcindo A. Dos Santos, Carlos Lodeiro. Unravelling the Organotellurium Chemistry Applied to the Synthesis of Gold Nanomaterials. ACS OMEGA, 1[6] 1314-1325. DOI: 10.1021/acsomega.6b00309
398. Ferraz, R, Noronha J, Murtinheira F, Nogueira F, Machado M, Prudêncio M, Parapini S, D'Alessandro S, Teixeira C, Gomes A, Prudêncio C, Gomes P. 2016. Primaquine-based ionic liquids as a novel class of antimalarial hits. RSC ADVANCES, Vol. 6, 56134-56138. DOI: 10.1039/C6RA10759A
399. Ferreira, ARV, Torres, CAV, Freitas, F, Sevrin, C, Grandfils, C, Reis, MAM, Alves, VD, Coelho, IM. 2016. Development and characterization of bilayer films of FucoPol and chitosan. CARBOHYDRATE POLYMERS, 147, 8-15. DOI: 10.1016/j.carbpol.2016.03.089

400. Ferreira, ASD, S Barreiros, EJ Cabrita. 2016. Probing sol-gel matrices microenvironments by PGSE HR-MAS NMR. MAGN RESON CHEM, (in press) DOI: 10.1002/mrc.4427
401. Ferreira, M, Silva, E, Barreiros, L, Segundo, MA, Lima, SAC, Reis, S. 2016. Methotrexate loaded lipid nanoparticles for topical management of skin-related diseases: Design, characterization and skin permeation potential. INTERNATIONAL JOURNAL OF PHARMACEUTICS, Vol. 512, 14-21. DOI: 10.1016/j.ijpharm.2016.08.008
402. Ferreira, P, Fonte E, Soares ME, Carvalho F, Guilhermino L. 2016. Effects of multi-stressors on juveniles of the marine fish *Pomatoschistus microps*: Gold nanoparticles, microplastics and temperature. AQUAT TOXICOL, 170:89-103. DOI: 10.1016/j.aquatox.2015.11.011
403. Figueira, ME, Oliveira, M, Direito, R, Rocha, J, Alves, P, Serra, AT, Duarte, C, Bronze, R, Fernandes, A, Brites, D, Freitas, M, Fernandes, E, Sepodes, B. 2016. Protective effects of a blueberry extract in acute inflammation and collagen-induced arthritis in the rat. BIOMEDICINE & PHARMACOTHERAPY, Vol. 83, 1191-1202. DOI: 10.1016/j.biopha.2016.08.040
404. Figueiredo, D, Teixeira L, Poveda V, Paúl C, Santos-Silva A, Costa E. 2016. Predictors of difficulty in medication intake in Europe: a cross-country analysis based on SHARE. AGING AND DISEASE, 7 (3): 246-253. DOI: 10.14336/AD.2015.0925
405. Folch-Fortuny, A, Marques, Rodolfo, Isidoro, IA, Oliveira, R, Ferrer, A. 2016. Principal elementary mode analysis (PEMA). MOLECULAR BIOSYSTEMS, 12, 737-746. DOI: 10.1039/c5mb00828j
406. Fonte, P, Andrade, F, Azevedo, C, Pinto, J, Seabra, V, van de Weert, M, Reis, S, Sarmento, B. 2016. Effect of the Freezing Step in the Stability and Bioactivity of Protein-Loaded PLGA Nanoparticles Upon Lyophilization. PHARMACEUTICAL RESEARCH, Vol. 33, 2777-2793. DOI: 10.1007/s11095-016-2004-3
407. Fonte, P, Lino, PR, Seabra, V, Almeida, AJ, Reis, S, Sarmento, B. 2016. Annealing as a tool for the optimization of lyophilization and ensuring of the stability of protein-loaded PLGA nanoparticles. INTERNATIONAL JOURNAL OF PHARMACEUTICALS, Vol. 503, 163-173. DOI: 10.1016/j.ijpharm.2016.03.011
408. Fonte, P, Reis, S, Sarmento, B. 2016. Facts and evidences on the lyophilization of polymeric nanoparticles for drug delivery. JOURNAL OF CONTROLLED RELEASE, Vol. 225, 75-86. DOI: 10.1016/j.jconrel.2016.01.034
409. Foti, A, Hartmann, T, Coelho, C, Santos-Silva, T, Romão, MJ, Leimkuhler, S. 2016. Optimization of the Expression of Human Aldehyde Oxidase for Investigations of Single-Nucleotide Polymorphisms. DRUG METABOLISM AND DISPOSITION, 44, 1277-1285. DOI: 10.1124/dmd.115.068395
410. Fradinho, JC, Reis, MAM, Oehmen, A. 2016. Beyond feast and famine: Selecting a PHA accumulating photosynthetic mixed culture in a permanent feast regime. WATER RESEARCH, 105, 421-428. DOI: 10.1016/j.watres.2016.09.022
411. Francesca, N, Guerreiro, MA, Carvalho, C, Coelho, M, Alfonso, A, Randazzo, W, Sampaio, JP, Moschetti, G. 2016. *Jaminoa phylloscopi* sp nov (Microstromatales), a basidiomycetous yeast isolated from migratory birds in the Mediterranean basin. INTERNATIONAL JOURNAL OF SYSTEMATIC AND EVOLUTIONARY MICROBIOLOGY, 66, 824-829. DOI: 10.1099/ijsem.0.000801
412. Freitas, AR, Novais, C, Read, A, Alves, V, Peixe, L. 2016. Co-infection with three linezolid-resistant *Enterococcus faecium* ST117 strain variants: what are we missing in diagnosis?. INTERNATIONAL JOURNAL OF ANTIMICROBIAL AGENTS, Vol. 47: 500-501. DOI: 10.1016/j.ijantimicag.2016.03.011
413. Freitas, AR, Tedim, AP, Francia, MV, Jensen, LB, Novais, C, Peixe, L, Sánchez-Valenzuela, A, Sundsfjord, A, Hegstad, K, Werner, G, Sadowy, E, Hammerum, AM, Garcia-Migura, L, Willems, RJ, Baquero, F, Coque, TM. 2016. Multilevel population genetic analysis of vanA and vanB *Enterococcus faecium* causing nosocomial outbreaks in 27 countries (1986-2012). J ANTIMICROB CHEMOTHER, Vol. 71, 3351-3366. DOI: 10.1093/jac/dkw312
414. Frias, I, Neves, AR, Pinheiro, M, Reis, S. 2016. Design, development, and characterization of lipid nanocarriers-based epigallocatechin gallate delivery system for preventive and therapeutic supplementation. DRUG DESIGN DEVELOPMENT AND THERAPY, Vol. 10, 3519-3528. DOI: 10.2147/DDDT.S109589
415. Frigerio, C, Joao P.G. Santos, P. Quaresma, S. L.H. Rebelo, A. Gomes, P. Eaton, E. Pereira, P. A. Carvalho, J. A. Shelnut, L. Jiang, H. Wang and C. J. Medforth. 2016. Ionic Self-Assembly Reactions of a Porphyrin Octacation. TETRAHEDRON, Vol: 72, 6988-6995. DOI: 10.1016/j.tet.2016.09.030
416. Ghandour, Y, Hammami, I, Najmudin, S, Bonifacio, C, Belkhiria, MS. 2016. Crystal structure of octakis(N, N-dimethylformamide-kappa O) europium(III) tetracosmu(2)-[oxidododecaoxido-mu(12)-phosphato-dodecamolybdate(VI)]. ACTA CRYSTALLOGRAPHICA SECTION E-CRYSTALLOGRAPHIC COMMUNICATIONS, 72, 448-+. DOI: 10.1107/S2056989016003546
417. Gomes, M, Figueiredo D, Teixeira L, Poveda V, Paúl C, Santos-Silva A, Costa E. 2016. Physical inactivity among older adults across Europe based on the SHARE database. AGE AND AGING, 1-6 2016. DOI: 10.1093/ageing/afw165
418. Gomes, S, Leao, M, Raimundo, L, Ramos, H, Soares, J, Saraiva, L. 2016. p53 family interactions and yeast: together in anticancer therapy. DRUG DISCOVERY TODAY, Vol. 21, 616-624. DOI: 10.1016/j.drudis.2016.02.007
419. Gonçalves, A, C, Capelo, J, L, Lodeiro, C, Dos Santos, A. A Seleno Pyrene selective probe for Hg(II) detection in either aqueous or aprotic systems. SENSORS AND ACTUATORS, B CHEMICAL, 311-318 (in press)
420. Gonçalves, AC, Pilla, V, Oliveira, E, Santos, S, M, Capelo, dos Santos, A, A, J, L, Lodeiro, C. 2016. About the interaction of Hg(II) and Trivalent Ions with Two new Fluorescein Bio-inspired dual Colorimetric/Fluorimetric Probes. DALTON TRANSACTIONS, 45, 9513-9522. DOI: 10.1039/C6DT01180B
421. Gonçalves, AC, Sato, N.C, Santos, H.M, Capelo, J.L, Lodeiro, C, dos Santos, A.A. 2016. The confidence of blue: A new highly selective bio-inspired coumarin emissive probe for fluoride recognition. DYES AND PIGMENTS (in press). DOI: 10.1016/j.dyepig.2016.02.032
422. Goncalves, C, Coelho, MA, Salema-Oom, M, Goncalves, P. 2016. Stepwise Functional Evolution in a Fungal Sugar Transporter Family. MOLECULAR BIOLOGY AND EVOLUTION, 33, 352-366. DOI: 10.1093/molbev/msv220
423. Gonçalves, IC, Magalhães A, Costa A. M. S, Oliveira J. R, Henriques P. C, Gomes P, Reis C, Martins M. C. L. 2016. Bacteria-targeted biomaterials: glycancoated microspheres to bind *Helicobacter pylori*. ACTA BIOMATERIALIA, ELSEVIER SCIENCE BV, Vol. 33, 40-50. DOI: 10.1016/j.actbio.2016.01.029
424. Goncalves, M, Pontes, A, Almeida, P, Barbosa, R, Serra, M, Libkind, D, Hutzler, M, Goncalves, P, Sampaio, JP. 2016. Distinct Domestication Trajectories in Top-Fermenting Beer Yeasts and Wine Yeasts. CURRENT BIOLOGY, 26, 2750-2761. DOI: 10.1016/j.cub.2016.08.040
425. Gonzalez-Dominguez, R, Santos, HM, Bebianno, MJ, Garcia-Barrera, T, Gomez-Ariza, JL, Capelo, JL. 2016. Combined proteomic and metallomic analyses in *Scrobicularia plana* clams to assess environmental pollution of estuarine ecosystems. MARINE POLLUTION BULLETIN, 113, 117-124. DOI: 10.1016/j.marpolbul.2016.08.075
426. Gouveia, AR, Freitas EB, Galinha CF, Carvalho G, Duque AF and Reis MAM. 2016. Dynamic change of pH in acidogenic fermentation of cheese whey towards polyhydroxyalkanoates production: impact on performance and microbial population. NEW BIOTECHNOLOGY, DOI: 10.1016/j.nbt.2016.07.001
427. Graca, I, Liang, JS, Guilherme, M, Tavares, P, Ferreira-Pinto, MM, Melo, AMP, Ribeiro-Barros, AI, Pereira, AS. 2016. Cloning, overexpression and functional characterization of a class III chitinase from *Casuarina glauca* nodules. SYMBIOSIS, 70, 139-148. DOI: 10.1007/s13199-016-0403-1
428. Granja, A, Pinheiro, M, Reis, S. 2016. Epigallocatechin Gallate Nanodelivery Systems for Cancer Therapy. NUTRIENTS, Vol. 8, 1-23. DOI: Artn 30710.3390/Nu8050307
429. Guadalupe Cabral M, Pereira M, Silva Z, Iria I, Coutinho C, Lopes A, Sá-Correia I, Videira PA. 2016. Using dendritic cells to evaluate how *Burkholderia cenocepacia* clonal isolates from a chronically infected cystic fibrosis patient subvert immune functions. MED MICROBIOL IMMUNOL. Dec 16. [Epub ahead of print]
430. Guerrero-Ramos, E, Cordero, J, Molina-González, D, Poeta, P, Igrejas, G, Alonso-Calleja, C, Rosa Capita, R. 2016. Antimicrobial resistance and virulence genes in enterococci from wild game meat in Spain. FOOD MICROBIOLOGY, 53:156-164. DOI: 10.1016/j.fm.2015.09.007
431. Guerrero-Ramos, E, Molina-González, D, Blanco-Morán, S, Igrejas, G, Poeta, P, Alonso-Calleja, C, Rosa Capita, R. 2016. Prevalence, Antimicrobial Resistance, and Genotypic Characterization of Vancomycin-Resistant Enterococci in Meat Preparations. JOURNAL OF FOOD PROTECTION, 79(5):748-756. DOI: 10.4315/0362-028X.JFP-15-390.
432. Harhour, W, Mchiri, C, Najmudin, S, Bonifacio, C, Nasri, H. 2016. Synthesis, FT-IR characterization and crystal structure of aqua(5,10,15,20-tetraphenylporphyrinato-kappa N-4) manganese(III) trifluoromethanesulfonate. ACTA CRYSTALLOGRAPHICA SECTION E-CRYSTALLOGRAPHIC COMMUNICATIONS, 72, 720-+. DOI: 10.1107/S2056989016006630
433. Hilliou, L, Machado, D, Oliveira, CSS, Gouveia, AR, Reis, MAM, Campanari, S, Villano, M, Majone, M. 2016. Impact of fermentation residues on the thermal, structural, and rheological properties of polyhydroxy(butyrate-co-valerate) produced from cheese whey and olive oil mill wastewater. JOURNAL OF APPLIED POLYMER SCIENCE, 133. DOI: 10.1002/app.42818
434. Hilliou, L, Teixeira, PF, Machado, D, Covas, JA, Oliveira, CSS, Duque, AF, Reis, MAM. 2016. Effects of fermentation residues on the melt processability and thermomechanical degradation of PHBV produced from cheese whey using mixed microbial cultures. POLYMER DEGRADATION AND STABILITY, 128, 269-277. DOI: 10.1016/j.polymdegradstab.2016.03.031
435. Inacio, AS, Nunes, A, Milho, C, Mota, LJ, Borrego, MJ, Gomes, JP, Vaz, WLC, Vieira, OV. 2016. In Vitro Activity of Quaternary Ammonium Surfactants against Streptococcal, Chlamydial, and Gonococcal Infective Agents. ANTIMICROBIAL AGENTS AND CHEMOTHERAPY, 60, 3323-3332. DOI: 10.1128/AAC.00166-16
436. Jones-Dias, D, Carvalho, A.S, Moura, I.B, Manageiro, V, IgrejasG, Canica, M, Matthiesen, R. 2016. Quantitative proteome analysis of an antibiotic resistant *Escherichia coli* exposed to tetracycline reveals multiple affected metabolic and peptidoglycan processes. JOURNAL OF PROTEOMICS, DOI: 10.1016/j.jprot.2016.12.017.
437. Kawasaki, R, Barauna, RA, Silva, A, Carepo, MSP, Oliveira, R, Marques, R, Ramos, RTJ, Schneider, APC. 2016. Reconstruction of the Fatty Acid Biosynthetic Pathway of *Exiguobacterium antarcticum* B7 Based on Genomic and Bibliomic Data. BIOMED RESEARCH INTERNATIONAL, DOI: 10.1155/2016/7863706
438. Kowacz, M, Marchel M, Juknaitė L, Esperança JMSS, Romão MJ, Carvalho AL, Rebelo LPN. 2016. Infrared light-induced protein crystallization. Structuring of protein interfacial water and periodic self-assembly. JOURNAL OF CRYSTAL GROWTH, :-.
439. Kuniarska-Biernacka, I, Raposo, MMM, Batista, R, Parpot, P, Biernacki, K, Magalhaes, AL, Fonseca, AM, Neves, IC. 2016. Highly efficient heterogeneous catalysts for phenol oxidation: Binuclear pyrrolyl-azine metal complexes encapsulated in NaY zeolite. MICROPOROUS AND MESOPOROUS MATERIALS, Vol. 227, 272-280. DOI: 10.1016/j.micromeso.2016.03.003
440. Kupski, L, Freitas, M, Ribeiro, D, Furlong, EB, Fernandes, E. 2016. Ochrotaxin A activates neutrophils and kills these cells through necrosis, an effect eliminated through its conversion into ochrotaxin alpha. TOXICOLOGY, Vol. 368-369, 91-102. DOI: 10.1016/j.tox.2016.09.001
441. Lamelas, R, Garcia, V, Linares, A, Bastida, R, Labisbal, E, Fernandez-Lodeiro, A, Lodeiro, C, Nunez, C, Valencia, L. 2016. Novel trans-disubstituted hexaaza-macrocyclic ligands containing pyridine head units: Synthesis, disubstitution and colorimetric properties. SENSORS AND ACTUATORS B-CHEMICAL, 225, 481-491. DOI: 10.1016/j.snb.2015.11.090
442. Laranjeira, MS, Moçob AA, Ferreira J, Coimbra S, Costa E, Santos-Silva A, Ferreira PJ, Monteiro FJ. 2016. Different hydroxyapatite magnetic nanoparticles for medical imaging: Its effects on hemostatic, hemolytic activity and cellular cytotoxicity. COLLOIDS AND SURFACES B: BIOINTERFACES, 146:363-374. DOI: 10.1016/j.colsurfb.2016.06.042
443. Leite, A, Silva, A, Coutinho, C, Cunha-Silva, L, de Castro, B, Rangel, M. 2016. Design of a water soluble fluorescent 3-hydroxy-4-pyridinone ligand active at physiological pH values, JOURNAL OF FLUORESCENCE, 26, 1773-1785. DOI: 10.1007/s10895-016-1869-1
444. Lemos, A, Leao, M, Soares, J, Palmeira, A, Pinto, M, Saraiva, L, Sousa, ME. 2016. Medicinal Chemistry Strategies to Disrupt the p53-MDM2/MDMX Interaction. MEDICINAL RESEARCH REVIEWS, Vol. 36, 789-844. DOI: 10.1002/med.21393
445. Lenis-Rojas, OA, Fernandes, AR, Roma-Rodrigues, C, Baptista, PV, Marques, F, Perez-Fernandez, D, Guerra-Varela, J, Sanchez, L, Vazquez-Garcia, D, Torres, ML, Fernandez, A, Fernandez, JJ. 2016. Heteroleptic mononuclear compounds of ruthenium(II): synthesis, structural analyses, in vivo antitumor activity and in vivo toxicity on zebrafish embryo. DALTON TRANSACTIONS, 45, 19127-19140. DOI: 10.1039/c6dt03591d
446. León-Sampedro, R, Novais, C, Peixe, L, Baquero, F, Coque, TM. 2016. Diversity and Evolution of the Tn5801-tet[M]-Like Integrative and Conjugative Elements among *Enterococcus*, *Streptococcus*, and *Staphylococcus*. ANTIMICROB AGENTS CHEMOTHER. Vol. 60(3):1736-46. DOI: 10.1128/AAC.01864-15
447. Lima, AR, Bastos Mde L, Carvalho M, Guedes de Pinho P. 2016. Biomarker Discovery in Human Prostate Cancer: an Update in Metabolomics Studies. TRANSL ONCOL, 9(4):357-70. DOI: 10.1016/j.tranon.2016.05.004
448. Llinas, P, Chenon, M, Nguyen, TQ, Moreira, C, Henriot, V, Régibus, A, Ramos, MJ, Guerois, R, Fernandes, PA, Ménétrey, J. 2016. Structure/function relationship of the Leucine Zipper II of JIP3/4. ACTA CRYSTALLOGRAPHICA SECTION F.72(Pt 3):198-206. DOI: 10.1107/s2053230x16001576
449. Lodeiro, C, Capelo, JL, Oliveira, E, Nunez, C. 2016. Pollutant toxic ions and molecules. A global pollution problem: trends in detection and protection. ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH, 23, 24419-24421. DOI: 10.1007/s11356-016-6685-2
450. Lodeiro, C, Capelo, JL, Santos, HM. 2016. Ultrasound: A tool of never ending applications Preface. APPLIED ACOUSTICS, 103, 123-123. DOI: 10.1016/j.apacoust.2015.11.010
451. Lodeiro, C, Capelo, JL. 2016. Foreword: The light of colours, the colours of light. Second international caparica congress on chromogenic and emissive materials, (ICEM)-E-3, special issue. DYES AND PIGMENTS, 135, 1-2. DOI: 10.1016/j.dyepig.2016.03.042
452. Lodeiro, C, Capelo, Jose L, Oliveira, E, Nuñez, C. A Global Pollution Problem: Trends in Detection and Protection. 2016. ENVIRONMENTAL SCIENCE AND POLLUTANT RESEARCH, (in press)
453. Lopes-de-Araujo, J, Neves, AR, Gouveia, VM, Moura, CC, Nunes, C, Reis, S. 2016. Oxaprozín-Loaded Lipid Nanoparticles towards Overcoming NSAIDs Side-Effects. PHARMACEUTICAL RESEARCH, Vol. 33, 301-314. DOI: 10.1007/s11095-015-1788-x
454. López-Cortés, R, Formigo, J, Reboiro-Jato, M, Fdez-Riverola, F, Blanco, F.J, Lodeiro, C, Oliveira, E, Capelo, J.L, Santos, H.M. 2016. A methodological approach based on gold-nanoparticles followed by matrix assisted laser desorption ionization time of flight mass spectrometry for the analysis of urine profiling of knee osteoarthritis. TALANTA, 150, pp. 638-645. DOI: 10.1016/j.talanta.2015.06.043
455. López-Fernández, H, De S Pessôa, G, Arruda, M.A.Z, Capelo-Martínez, J.L, Fdez-Riverola, F, Glez-Peña, D, Reboiro-Jato, M. 2016. LA-iMAGEs: a software for elemental distribution bioimaging using LA-ICP-MS data. JOURNAL OF CHEMIFORMATICS, 8 (1), pp. 1-10. DOI: 10.1186/s13321-016-0178-7
456. Ma, Z, Zhang, B, da Silva, MFCG, Silva, JP, Mendo, AS, Baptista, PV, Fernandes, AR, Pombeiro, AJL. 2016. Synthesis, characterization, thermal properties and antiproliferative potential of copper(II) 4'-phenylterpyridine compounds. DALTON TRANSACTIONS, 45, 5339-5355. DOI: 10.1039/c5dt02744f
457. Madeira, C, Madeira, D, Diniz, MS, Cabral, HN, Vinagre, C. 2016. Thermal acclimation in clownfish: An integrated biomarker response and multi-tissue experimental approach. ECOLOGICAL INDICATORS, 71, 280-292. DOI: 10.1016/j.ecolind.2016.07.009
458. Madeira, D, Araujo, JE, Vitorino, R, Capelo, JL, Vinagre, C, Diniz, MS. 2016. Ocean warming alters cellular metabolism and induces mortality in fish early life stages: A proteomic approach. ENVIRONMENTAL RESEARCH, 148, 164-176. DOI: 10.1016/j.envres.2016.03.030

459. Madeira, D, Costa, PM, Vinagre, C, Diniz, MS. 2016. When warming hits harder: survival, cellular stress and thermal limits of *Sparus aurata* larvae under global change. *MARINE BIOLOGY*, 163. DOI: 10.1007/s00227-016-2856-4
460. Madeira, D, Mendonca, V, Vinagre, C, Diniz, MS. 2016. Is the stress response affected by season? Clues from an in situ study with a key intertidal shrimp. *MARINE BIOLOGY*, 163. DOI: 10.1007/s00227-015-2803-9
461. Madeira, D, Vinagre, C, Diniz, MS. 2016. Are fish in hot water? Effects of warming on oxidative stress metabolism in the commercial species *Sparus aurata*. *ECOLOGICAL INDICATORS*, 63, 324-331. DOI: 10.1016/j.ecolind.2015.12.008
462. Magalhaes, LM, Machado, S, Segundo, MA, Lopes, JA, Pascoa, RN. 2016. Rapid assessment of bioactive phenolics and methylxanthines in spent coffee grounds by FT-NIR spectroscopy. *TALANTA*, Vol. 147, 460-467. DOI: 10.1016/j.talanta.2015.10.022
463. Magalhaes, P, Pinto, L, Goncalves, A, Araujo, JE, Santos, HM, Capelo, JL, Saenz, Y, de Toro, M, Torres, C, Chambon, C, Hebraud, M, Poeta, P, Igrejas, G. 2016. Could transformation mechanisms of acetylase-harboring pMdt1 plasmid be evaluated through proteomic tools in *Escherichia coli*? *JOURNAL OF PROTEOMICS*, 145, 103-111. DOI: 10.1016/j.jpro.2016.03.042
464. Maia, LB, Fonseca, L, Moura, I, Moura, JGG. 2016. Reduction of carbon dioxide by a molybdenum-containing formate dehydrogenase: a kinetic and mechanistic study. *J AM CHEM SOC*, Vol. 138, 8834-8846. DOI: 10.1021/jacs.6b03941
465. Maia, LB, Moura, JGG. 2016. Detection of nitric oxide by electron paramagnetic resonance spectroscopy: spin-trapping with iron-dithiocarbamates. *METHODS MOL. BIOL*, Vol. 1424, 81-102. DOI: 10.1007/978-1-4939-3600-7_8
466. Maiti, BK, Moura, I, Moura, JGG, Pauleta, SR. 2016. Putative iron-sulfur protein from the ORP complex: cluster reconstitution and spectroscopic characterization. *BIOCHIM BIOPHYS ACTA*, Vol. 1857, 1422-1429. DOI: 10.1016/j.bbabi.2016.05.006
467. Maiti, BK, Moura, I, Moura, JGG, Pauleta, SR. 2016. The small iron-sulfur protein from the ORP operon binds a [2Fe-2S] cluster. *BIOCHIMICA ET BIOPHYSICA ACTA-BIOENERGETICS*, 1857, 1422-1429. DOI: 10.1016/j.bbabi.2016.05.006
468. Marengoni, A, Monaco A, Costa E, Cherubini A, Prados-Torres A, Muth C, Melis RJF, Pasina L, van der Cammen TJM, Palmer K, Pecorelli S, Onder G. 2016. Strategies to improve medication adherence in older persons: Consensus Statement from the Senior Italia Federanziani Advisory Board. *DRUGS & AGING*, 33: 1-7. DOI: 10.1007/s40266-016-0387-9
469. Marinho, C, Santos, T, Gonçalves, A, Poeta, P, Igrejas, G. 2016. A decade-long commitment to antimicrobial resistance surveillance in Portugal. *FRONTIERS IN MICROBIOLOGY*, 7:1650. DOI: 10.3389/fmicb.2016.01650.
470. Marques, R, Rodriguez-Caballero, A, Oehmen, A, Pijuan, M. 2016. Assessment of online monitoring strategies for measuring N2O emissions from full-scale wastewater treatment systems. *WATER RESEARCH*, 99, 171-179. DOI: 10.1016/j.watres.2016.04.052
471. Marques, SS, Toth, IV, Magalhaes, LM, Reis, S, Segundo, MA. 2016. High-sensitivity programmable flow method for assessment of total antioxidant capacity in biological samples. *MICROCHEMICAL JOURNAL*, Vol. 124, 261-266. DOI: 10.1016/j.microc.2015.09.001
472. Martinez-Abad, A, Cabedo, L, Oliveira, CSS, Hilliou, L, Reis, M, Lagaron, JM. 2016. Characterization of polyhydroxyalkanoate blends incorporating unpurified biosustainably produced poly[3-hydroxybutyrate-co-3-hydroxyvalerate]. *JOURNAL OF APPLIED POLYMER SCIENCE*, 133. DOI: 10.1002/app.42633
473. Martinez-Sanz, M, Lopez-Rubio, A, Villano, M, Oliveira, CSS, Majone, M, Reis, M, Lagaron, JM. 2016. Production of bacterial nanobiocomposites of polyhydroxyalkanoates derived from waste and bacterial nanocellulose by the electrospinning enabling melt compounding method. *JOURNAL OF APPLIED POLYMER SCIENCE*, 133. DOI: 10.1002/app.42486
474. Martinez, JLC, Espino, CL, Santos, HM. 2016. Mass Spectrometry-based Proteomics: What is it expecting ahead?. *JOURNAL OF PROTEOMICS*, 145, 1-+. DOI: 10.1016/j.jpro.2016.07.017
475. Martins, M, Baptista, PV, Mendo, AS, Correia, C, Videira, P, Rodrigues, AS, Muthukumaran, J, Santos-Silva, T, Silva, A, da Silva, MFCG, Gigante, J, Duarte, A, Gajewska, M, Fernandes, AR. 2016. In vitro and in vivo biological characterization of the anti-proliferative potential of a cyclic trinuclear organotin(IV) complex. *MOLECULAR BIOSYSTEMS*, 12, 1015-1023. DOI: 10.1039/c5mb00791g
476. Martins, M, Santos, JM, Costa, MH, Costa, PM. 2016. Applying quantitative and semi-quantitative histopathology to address the interaction between sediment-bound polycyclic aromatic hydrocarbons in fish gills. *ECOTOXICOLOGY AND ENVIRONMENTAL SAFETY*, 131, 164-171. DOI: 10.1016/j.ecoenv.2016.04.019
477. Mašínová T, Pontes A, Carvalho C, Sampaio JP, Baldrian P. 2016. *Libkindia masarykiana* gen. nov. et sp. nov, *Yurkovia mendeliana* gen. nov. et sp. nov, and *Leucosporidium krtinense* f. sp. nov, isolated from temperate forest soils. *INT J SYST EVOL MICROBIOL*. [Epub ahead of print]. DOI: 10.1099/ijsem.0.001707
478. Maulvault, AL, Custodio, A, Anacleto, P, Repolho, T, Pousao, P, Nunes, ML, Diniz, M, Rosa, R, Marques, A. 2016. Bioaccumulation and elimination of mercury in juvenile seabass (*Dicentrarchus labrax*) in a warmer environment. *ENVIRONMENTAL RESEARCH*, 149, 77-85. DOI: 10.1016/j.envres.2016.04.035
479. Medeiros-Silva, Joao, Guedin, Aurore, Salgado, Gilmar F, Mergny, Jean-Louis, Queiroz, Joao A, Cabrita, Eurico J, Cruz, Carla. 2016. Phenanthroline-bis-oxazole ligands for binding and stabilization of G-quadruplexes.. *Biochimica et biophysica acta*., DOI: 10.1016/j.bbagen.2016.11.024
480. Medforth, CJ, P. E. Berget, J. C. Fettingler, K. M. Smith, and J. A. Shelnutt. 2016. Determination of the activation energies for ND tautomerism and anion exchange in a porphyrin monocation. *JOURNAL OF PORPHYRINS AND PHTHALOCYANINES*, Vol 20, 1-11
481. Medina, FN, Rui P. P. Neves, Maria J. Ramos, Pedro A. Fernandes. 2016. A QM/MM study of the reaction mechanism of human beta-ketoacyl reductase. *PHYS CHEM CHEM PHYS*, in press. DOI: 10.1039/C6CP07014K
482. Melo, T, Domingues, P, Ferreira, R, Milic, I, Fedorova, M, Santos, SM, Segundo, MA, Domingues, MR. 2016. Recent Advances on Mass Spectrometry Analysis of Nitrated Phospholipids. *ANALYTICAL CHEMISTRY*, Vol. 88, 2622-2629. DOI: 10.1021/acs.analchem.5b03407
483. Mendes, AC, Rodrigues, C, Pires, J, Amorim, J, Ramos, MH, Novais, A, Peixe, L. 2016. Importation of Fosfomycin Resistance fosA3 Gene to Europe. *EMERG INFECT DIS*, Vol. 22(2):346-8. DOI: 10.3201/eid2202.151301
484. Mendes, R, Bárbara Carreira, Pedro V. Baptista and Alexandra R. Fernandes. 2016. Non-small cell lung cancer biomarkers and targeted therapy - two faces of the same coin fostered by nanotechnology. *EXPERT REV. PRECISION MEDICINE AND DRUG DEVELOPMENT*, 1: 155-168. DOI: 10.1080/23808993.2016.1159914
485. Menditto, E, Bolufer De Gea A, Cahir C, Marengoni A, Riegler S, Fico G, Costa E, Monaco A, Pecorelli S, Pani L, Prados-Torres A. 2016. Scaling up health knowledge at European level requires sharing integrated data: an approach for collection of database specification. *CLINICOECONOMICS AND OUTCOMES RESEARCH*, 8: 253-265. DOI: 10.2147/CEOR.S97548
486. Miranda, J. L. Nunes, A, Rangel, M, Rangel, A, Mesquita, R. B. R. 2016. Use of an hexadentate 3,4-hydroxypyridinone chelator as a novel chromogenic agent for the sequential injection iron speciation in waters. *TALANTA*, 148, 633-640. DOI: 10.1016/j.talanta.2015.05.062
487. Moldes, OA, Morales, J, Cid, A, Astray, G, Montoya, IA, Mejuto, JC. 2016. Electrical percolation of AOT-based microemulsions with n-alcohols. *JOURNAL OF MOLECULAR LIQUIDS*, 215, 18-23. DOI: 10.1016/j.molliq.2015.12.021
488. Moniz, T, Coimbra JTS, Bras NF, Cunha-Silva L, Ramos MJ, Fernandes PA, de Castro B, Rangel M. 2016. Synthesis and structural characterization, by spectroscopic and computational methods, of two fluorescent 3-hydroxy-4-pyridinone chelators bearing sulphorhodamine B and naphthalene. *RSC ADVANCES*, Royal Society of Chemistry, Vol. 6, 4200-4211. DOI: 10.1039/C5RA23217A
489. Moniz, T, de Castro, B, Maria Rangel, Ivanova, G. 2016. NMR study of the interaction of fluorescent 3-hydroxy-4-pyridinone chelators with DMPC liposomes. *PHYSICAL CHEMISTRY CHEMICAL PHYSICS*, 18, 5027-5033. DOI: 10.1039/c5cp05273d
490. Monteiro, MS, Barros AS, Pinto J, Carvalho M, Pires-Luis AS, Henrique R, Jerónimo C, Bastos ML, Gil AM, Guedes de Pinho P. 2016. Nuclear Magnetic Resonance metabolomics reveals an excretory metabolic signature of renal cell carcinoma. *SCI REP*, 6:37275. DOI: 10.1038/srep37275
491. Monteiro, R, Hebraud, M, Chafsey, I, Poeta, P, Igrejas, G. 2016. How different is the proteome of the extended spectrum beta-lactamase producing *Escherichia coli* strains from seagulls of the Berlengas natural reserve of Portugal?. *JOURNAL OF PROTEOMICS*, 145, 167-176. DOI: 10.1016/j.jprot.2016.04.032
492. Monteiro, T, Oliveira, F, Fins, A, Dias, CG, Silveira, CM, Pereira, SA, Almeida, MG. 2016. Assessment of human paraoxonase activity by electrochemistry: a simple and novel approach. *Analytical Methods*, 8, 8141-8146. DOI: 10.1039/c6ay01944g
493. Monticelli, M, Ferro, T, Jaeken, J, Ferreira, VD, Videira, PA. 2016. Immunological aspects of congenital disorders of glycosylation (CDG): a review. *JOURNAL OF INHERITED METABOLIC DISEASE*, 39, 765-780. DOI: 10.1007/s10545-016-9954-9
494. Moorthy, NSHN, Sergio F Sousa, Maria J. Ramos, Pedro A. Fernandes. 2016. Binding mode of conformations and structure-based pharmacophore development for farnesyltransferase inhibitors. *MED CHEM RES*, 1340-1357. DOI: 10.1007/s00044-016-1578-y
495. Moorthy, NSHN, Sergio F Sousa, Maria J. Ramos, Pedro A. Fernandes. 2016. Molecular dynamic simulations and structure-based pharmacophore development for farnesyltransferase inhibitors discovery. *J ENZ INHIB MED CHEM*, 1428-1442. DOI: 10.3109/14756366.2016.1144593
496. Moreira, C, Ramos, MJ, Fernandes, PA. 2016. Glutamine synthetase drugability beyond its active site: exploring oligomerization interfaces and pockets. *MOLECULES*. 21, 1028. DOI: 10.3390/molecules21081028
497. Moreira, C, Ramos, MJ, Fernandes, PA. 2016. Reaction Mechanism of Mycobacterium Tuberculosis Glutamine synthetase using Quantum Mechanics/ Molecular Mechanics Calculations. *CHEMISTRY - A EUROPEAN JOURNAL*. 22, (27), 9218-9225. DOI: 10.1002/chem.201600305
498. Moreira, N, Lopes P, Cabral M, Guedes de Pinho P. 2016. HS-SPME/GC-MS methodologies for the analysis of volatile compounds in cork material. *EUR FOOD RES TECHNOL*, 242:457-466. DOI 10.1007/s00217-016-2636-x
499. Moreira, N, Lopes P, Ferreira H, Cabral M, Guedes de Pinho P. 2016. Influence of packaging and aging on the red wine volatile composition and sensory attributes. *FOOD PACKAGING AND SHELF LIFE*, 8, 14-23. DOI: 10.1016/j.fpsl.2016.02.005
500. Moreira, NF, Sousa, JM, Macedo, G, Ribeiro, AR, Barreiros, L, Pedrosa, M, Faria, JL, Pereira, MF, Castro-Silva, S, Segundo, MA, Manáia, CM, Nunes, OC, Silva, AM. 2016. Photocatalytic ozonation of urban wastewater and surface water using immobilized TiO2 with LEDs: Micropollutants, antibiotic resistance genes and estrogenic activity. *WATER RESEARCH*, Vol. 94, 10-22. DOI: 10.1016/j.watres.2016.02.003
501. Moura, NMM, Cuerva, C, Cavaleiro, JAS, Mendes, RF, Paz, FAA, Cano, M, Neves, MGPMS, Lodeiro, C. 2016. Metallomesogens with Luminescent Behaviour: Palladium Complexes Derived from Alkylamide Tetraarylporphyrins. *CHEMPLUSCHEM*, 81, 262-273. DOI: 10.1002/cplu.201500557
502. Moura, NMM, Ramos, CIV, Linhares, I, Santos, SM, Faustino, MAF, Almeida, A, Cavaleiro, JAS, Amado, FML, Lodeiro, C, Neves, MGPMS. 2016. Synthesis, characterization and biological evaluation of cationic porphyrin-terpyridine derivatives. *RSC ADVANCES*, 6, 110674-110685. DOI: 10.1039/c6ra25373c
503. Mourão, J, Marçal, S, Ramos, P, Campos, J, Machado, J, Peixe, L, Novais, C, Antunes, P. 2016. Tolerance to multiple metal stressors in emerging non-typhoidal MDR *Salmonella* serotypes: a relevant role for copper in anaerobic conditions. *J ANTIMICROB CHEMOTHER*, Vol. 71(8):2147-57. 2016. DOI: 10.1093/jac/dkw120
504. Mourão, J, Rae, J, Silveira, E, Freitas, AR, Coque, TM, Peixe, L, Antunes, P, Novais, C. 2016. Relevance of trcYAZB operon acquisition for *Enterococcus* survival at high copper concentrations under anaerobic conditions. *J ANTIMICROB CHEMOTHER*, Vol. 71(2):560-3. DOI: 10.1093/jac/dkv330
505. Nascimento, H, Alves AI, Medeiros AF, Coimbra S, Catarino C, Bronze-da-Rocha E, Costa E, Rocha-Pereira P, Aires L, Seabra A, Mata J, Mansilha HF, Rêgo C, Santos-Silva A, Belo L. 2016. Impact of a school-based intervention protocol – ACORDA project - in adipokines in an overweight and obese pediatric population. *PEDIATRIC EXERCISE SCIENC*, 28: 407-416. DOI: 10.1123/pes.2015-0261
506. Nascimento, H, Vieira E, Coimbra S, Catarino C, Costa E, Bronze-da-Rocha E, Rocha-Pereira P, Carvalho M, Ferreira H, Rêgo C, Santos R, Santos-Silva A, Belo L. 2016. Adipokine Gene Single-Nucleotide Polymorphisms in Portuguese Obese Adolescents: Associations with Plasma Concentrations of Adiponectin, Resistin, IL-6, IL-1β, and TNF-α. *CHILDHOOD OBESITY*, 12: 300-313. DOI: 10.1089/chi.2015.0235
507. Neca, AJ, Soares, R, Carepo, MSP, Pauleta, SR. 2016. Resonance assignment of DVU2108 that is part of the Orange Protein complex in *Desulfovibrio vulgaris* Hildenborough. *BIOMOLECULAR NMR ASSIGNMENTS*, 10, 117-120. DOI: 10.1007/s12104-015-9648-5
508. Neves, AR, Martins, S, Segundo, MA, Reis, S. 2016. Nanoscale Delivery of Resveratrol towards Enhancement of Supplements and Nutraceuticals. *NUTRIENTS*, Vol. 8, 1-14. DOI: 10.3390/nu8030131
509. Neves, AR, Nunes, C, Amenitsch, H, Reis, S. 2016. Effects of resveratrol on the structure and fluidity of lipid bilayers: a membrane biophysical study. *SOFT MATTER*, Vol. 12, 2118-2126. DOI: 10.1039/c5sm02905h
510. Neves, AR, Nunes, C, Amenitsch, H, Reis, S. 2016. Resveratrol Interaction with Lipid Bilayers: A Synchrotron X-ray Scattering Study. *LANGMUIR*, Vol. 32, 12914-12922. DOI: 10.1021/acs.langmuir.6b03591
511. Neves, AR, Nunes, C, Reis, S. 2016. Resveratrol induces ordered domains formation in biomembranes: Implication for its pleiotropic action. *BIOCHIMICA BIOPHYSICA ACTA*, Vol. 1858, 12-18. DOI: 10.1016/j.bbamem.2015.10.005
512. Neves, AR, Queiroz, JF, Costa Lima, SA, Figueiredo, F, Fernandes, R, Reis, S. 2016. Cellular uptake and transcytosis of lipid-based nanoparticles across the intestinal barrier: Relevance for oral drug delivery. *JOURNAL OF COLLOID AND INTERFACE SCIENCE*, Vol. 463, 258-265. DOI: 10.1016/j.jcis.2015.10.057
513. Neves, AR, Queiroz, JF, Reis, S. 2016. Brain-targeted delivery of resveratrol using solid lipid nanoparticles functionalized with apolipoprotein E. *JOURNAL OF NANOBIO TECHNOLOGY*, Vol. 14, 1-11. DOI: 10.1186/s12951-016-0177-x
514. Neves, J, Emanuele Amorim Alves, José Xavier Soares, Sara Manuela Cravo, Annibal Duarte Pereira Netto, Félix Carvalho, Ricardo Jorge Dinis-Oliveira, Carlos Manuel Afonso. 2016. Data analysis of “Krokodil” samples obtained by street-like synthesis. *DATA IN BRIEF*, 6: 83-88
515. Neves, RPP, Pedro A. Fernandes, Maria J. Ramos. 2016. Unveiling the Catalytic Mechanism of NADP+-Dependent Isocitrate Dehydrogenase with QM/MM Calculations. *ACS CATALYSIS*, 357-368. DOI: 10.1021/acsatal.5b01928
516. Nobrega, CS, Saraiva, IH, Carreira, C, Devreese, B, Matzapetakis, M, Pauleta, SR. 2016. The solution structure of the soluble form of the lipid-modified azurin from *Neisseria gonorrhoeae*, the electron donor of cytochrome c peroxidase. *BIOCHIMICA ET BIOPHYSICA ACTA-BIOENERGETICS*, 1857, 169-176. DOI: 10.1016/j.bbabi.2015.11.006
517. Novais, C, Tedim, AP, Lanza, VF, Freitas, AR, Silveira, E, Escada, R, Roberts, AP, Al-Harooni, M, Baquero, F, Peixe, L, Coque, TM. 2016. Co-diversification of *Enterococcus faecium* Core Genomes and PBP5: Evidences of pbp5 Horizontal Transfer. *FRONT MICROBIOL*, Vol. 7, 1581. DOI: 10.3389/fmicb.2016.01581
518. Núñez, C, Capelo, J.L, Igrejas, G, Alfonso, A, Botana, L.M, Lodeiro, C. 2016. An overview of the effective combination therapies for the treatment of breast cancer. *BIOMATERIALS*, 97, pp. 34-50. DOI: 10.1016/j.biomaterials.2016.04.027
519. Oliveira, AS, Fraga S, Carvalho F, Araújo AM, Costa Pereira C, Teixeira JP, Bastos ML, Guedes de Pinho P. 2016. Chemical characterization and in vitro cyto- and genotoxicity of 'legal high' products containing Kratom (*Mitragyna speciosa*). *FORENSIC TOXICOLOGY*, 34(2): 213 - 226. DOI: 10.1007/s11419-015-0305-6

520. Oliveira, Catarina S S, Silva, Carlos E, Carvalho, Gilda, Reis, Maria A. 2016. Strategies for efficiently selecting PHA producing mixed microbial cultures using complex feedstocks: Feast and famine regime and uncoupled carbon and nitrogen availabilities. *NEW BIOTECHNOLOGY*. DOI: 10.1016/j.nbt.2016.10.008
521. Oliveira, CSS, Silva, CE, Carvalho, G, Reis and MAM. 2016. Strategies for efficiently selecting PHA producing mixed microbial cultures using complex feedstocks: feast and famine regime and uncoupled carbon and nitrogen availabilities. *NEW BIOTECHNOLOGY*. DOI:10.1016/j.nbt.2016.10.008
522. Oliveira, E, Santos, HM. 2016. An overview on sensing materials depending on the electromagnetic spectra region applied. *DYES AND PIGMENTS*, 135, 3-25. DOI: 10.1016/j.dyepig.2016.07.012
523. Oliveira, E, Santos, S.M, Núñez, C, Capelo, J.L, Lodeira, C. 2016. An unusual highly emissive water-soluble iridium lissamine-alanine complex and its use in a molecular logic gate. *DALTON TRANSACTIONS*, 45 (3), pp. 1254-1258. DOI: 10.1039/c5dt03666f
524. Oliveira, EF, Cerqueira, N. M. F. S. A, Ramos, M. J., Fernades, P. A. 2016. QM/MM study of the mechanism of reduction of 3-hydroxy-3-methylglutaryl coenzyme A catalyzed by human HMG-CoA reductase. *CATAL. SCI. TECHNOL*, 6(19), pp.7172-7185
525. Oliveira, EF, Santos-Martins, D, Ribeiro, AM, Brás, NF, Cerqueira, NS, Sousa, SF, Ramos, MJ, Fernandes, PA. 2016. HMG-CoA Reductase inhibitors – an updated review of patents of novel compounds and formulations (2011-2015). *EXPERT OPINION ON THERAPEUTIC PATENTS*, 26, 11, 1257-1272. DOI:10.1010/13543776.2016.1216977
526. Oliveira, FS, Cabrita, EJ, Todorovic, S, Bernardes, CES, Lopes, JNC, Hodgson, JL, MacFarlane, DR, Rebelo, LPN, Marrucho, JM. 2016. Mixtures of the 1-ethyl-3-methylimidazolium acetate ionic liquid with different inorganic salts: insights into their interactions. *PHYSICAL CHEMISTRY CHEMICAL PHYSICS*, 18, 2756-2766. DOI: 10.1039/c5cp06937h
527. Oliveira, M, A. G. Gomes-Alves, C. Sousa, M. Mirta Marani, A. Plácido, N. Vale, C. Delerue-Matos, P. Gameiro, S. A. S. Kückelhaus, A. M. Tomas, J. R. S. A. Leite and P. Eaton. 2016. Ocellatin-PT antimicrobial peptides: High-resolution microscopy studies in antileishmania models and interactions with mimetic membrane systems. *BIOPOLYMERS*, 105(12): 873-886. DOI: 10.1002/bip.22925
528. Oliveira, M, Amaral, G, Sousa, F. C, Marani, M, Placido, A, Delerue-Matos, C, Gameiro, P. S. Kuckelhaus, S, Tomas, A, Leite, J. R, Eaton, P. 2016. Ocellatin-PT Antimicrobial Peptides: High Resolution Microscopy Studies in Antileishmania Models and Interactions with Mimetic Membrane Systems. *BIOPOLYMERS* 105, 873-886. DOI: 10.1002/bip.22925
529. Oliveira, M, Gomes-Alves A, Sousa C, Marani M. M, Plácido A, Vale N, Delerue-Matos C, Gameiro P, Kückelhaus S. A, Tomás A. M, Leite J. R. S. A, Eaton P. 2016. Ocellatin-PT antimicrobial peptides: High-resolution microscopy studies in antileishmania models and interactions with mimetic membrane systems. *BIOPOLYMERS*, Vol. 105, 873-886. DOI: 10.1002/bip.22925
530. Oliveira, M, Pereira, C, Bessa, C, Araujo, R, Saraiva, L. 2016. Hydrogen peroxide-induced secondary necrosis in conidia of *Aspergillus fumigatus*. *CANADIAN JOURNAL OF MICROBIOLOGY*, Vol. 62, 95-101. DOI: 10.1139/cjm-2015-0561
531. Ornelas, M, Azenha M. A, Araújo M. J, Dias-Cabral A. C, Pereira C. M, Silva A. F. S. 2016. Acylated-naproxen as the surface-active template in the preparation of micro- and nanospherical imprinted xerogels by emulsion techniques. *JOURNAL OF CHROMATOGRAPHY A*, Vol. 1437, 107-115. DOI: 10.1016/j.chroma.2016.01.074
532. Osório, MV, Marques, SS, Oliveira, HM, Barreiros, L, Segundo, MA. 2016. Fluorometric method based on molecular recognition solid-phase extraction for determination of riboflavin in milk and infant formula. *JOURNAL OF FOOD COMPOSITION AND ANALYSIS*, Vol. 45, 141-146. DOI: 10.1016/j.jfca.2015.10.007
533. Pais, J., Serafim, LS, Freitas, F, Reis, MAM. 2016. Conversion of cheese whey into poly(3-hydroxybutyrate-co-3-hydroxyvalerate) by *Haloferax mediterranei*. *NEW BIOTECHNOLOGY*, 33, 224-230. DOI: 10.1016/j.nbt.2015.06.001
534. Palma, SICJ, Fernandes, AR, Roque, ACA. 2016. An affinity triggered MRI nanoprobe for pH-dependent cell labeling. *RSC ADVANCES*, 6, 113503-113512. DOI: 10.1039/c6ra17217b
535. Palma, Susana I. C. J., Alexandra R. Fernandes and Ana C. A. Roque. 2016. An affinity triggered MRI nanoprobe for pH-dependent cell labeling. *RSC ADVANCES*. DOI: 10.1039/C6RA17217B
536. Palmeiro-Sanchez, T, Oliveira, CSS, Gouveia, AR, Noronha, JP, Ramos, AM, Mosquera-Corral, A, Reis, MAM. 2016. NaCl presence and purification affect the properties of mixed culture PHAs. *EUROPEAN POLYMER JOURNAL*, 85, 256-265. DOI: 10.1016/j.eurpolymj.2016.10.035
537. Pancrazio, G, Cunha SC, de Pinho PG, Loureiro M, Meireles S, Ferreira IM, Pinho O. 2016. Spent brewer's yeast extract as an ingredient in cooked hams. *MEAT SCI*, 121:382-9. DOI: 10.1016/j.meatsci.2016.07.009
538. Pedrosa, HA, Silveira, CM, Almeida, RM, Almeida, A, Besson, S, Moura, I, Moura, JGG, Almeida, MG. 2016. Electron transfer and docking between cytochrome cd(1) nitrite reductase and different redox partners - A comparative study. *BIOCHIMICA ET BIOPHYSICA ACTA-BIOENERGETICS*, 1857, 1412-1421. DOI: 10.1016/j.bbabi.2016.04.279
539. Peixoto, A, Fernandes E, Gaitero, C, Lima, L, Azevedo, R, Soares, J, Cotton, S, Parreira, B, Neves, M, Amaro, T, Tavares, A, Teixeira, F., Palmeira, C, Rangel, M, Silva, A. M. N, Reis, C. A, Santos. L. L, Oliveira, M. J, Ferreira, J. A. 2016. Hypoxia enhances the malignant nature of bladder cancer cells and concomitantly antagonizes protein O-glycosylation extension. *ONCOTARGET*, 7, 63138-63157. DOI: 10.18632/oncotarget.11257
540. Peixoto, PS, Tóth, IV, Segundo, MA, Lima, JLFC. 2016. Fluoroquinolones and sulfonamides: features of their determination in waters. *INTERNATIONAL JOURNAL OF ENVIRONMENTAL ANALYTICAL CHEMISTRY*, Vol. 96, 185-202. DOI: 10.1080/03067319.2015.1128539
541. Pessoa, GD, Capelo-Martinez, JL, Fdez-Riverola, F, Lopez-Fernandez, H, Glez-Pena, D, Reboiro-Jato, M, Arruda, MAZ. 2016. Laser ablation and inductively coupled plasma mass spectrometry focusing on bioimaging from elemental distribution using MatLab software: a practical guide. *JOURNAL OF ANALYTICAL ATOMIC SPECTROMETRY*, 31, 832-840. DOI: 10.1039/c5ja00451a
542. Pina-Vaz, C, Ana P. Silva, Isabel Faria Ramos, Rita Teixeira-Santos, Daniel Moura, Tatiana F Vieira, Sergio F. Sousa, Sofia Costa-de-Oliveira, Rafael Canton, Acacio G. Rodrigues. 2016. A Flow Cytometric and Computational Approaches to Carbenenems Affinity to the Different Types of Carbenenemases. *FRONTIERS IN MICROBIOLOGY*, 7, 1259 DOI: 10.3389/fmicb.2016.01259
543. Pina, AS, Carvalho, S, Dias, AMG, Guilherme, M, Pereira, AS, Caraca, LT, Coroadinha, AS, Lowe, CR, Roque, ACA. 2016. Tryptophan tags and de novo designed complementary affinity ligands for the expression and purification of recombinant proteins. *JOURNAL OF CHROMATOGRAPHY A*, Vol. 1472, 55-65. DOI: 10.1016/j.chroma.2016.10.017
544. Pinheiro, M, Ribeiro, R, Vieira, A, Andrade, F, Reis, S. 2016. Design of a nanostructured lipid carrier intended to improve the treatment of tuberculosis. *DRUG DESIGN DEVELOPMENT AND THERAPY*, Vol. 10, 2467-2475. DOI: 10.2147/DDdt.S104395
545. Pires, SMG, Nunez, C, Serra, VV, Sanchez-Coronilla, A, Faustino, MAF, Simoes, MMQ, Silva, AMS, Neves, MGPM, Capelo, JL, Lodeira, C. 2016. Porphyrin-rhodamine conjugates as new materials with sensing ability. *DYES AND PIGMENTS*, 135, 113-126. DOI: 10.1016/j.dyepig.2016.04.003
546. Poeta P, R, Sargo, J, Valente, J, Prada-Oliveira, F, Silva, C, Felício, L. M. Costa, J, Teixeira, J, Pereira, A. Varejão. 2016. *Serratia marcescens* Discospondylitis in a White Stork (*Ciconia ciconia*). *SOJ MICROBIOLOGY & INFECTIOUS DISEASES* 4(3): 1-5.
547. Pontes, A, Rohl, O, Carvalho, C, Maldonado, C, Yurkov, AM, Sampaio, JP. 2016. *Cystofilobasidium intermedium* sp nov and *Cystofilobasidium alribaticum* f. a. sp nov., isolated from Mediterranean forest soils. *INTERNATIONAL JOURNAL OF SYSTEMATIC AND EVOLUTIONARY MICROBIOLOGY*, 66, 1058-1062. DOI: 10.1099/ijsem.0.000835
548. Portela, R, Patrício, P, Almeida, PL, Sobral, RG, Franco, JM, Leal, CR. 2016. Rotational tumbling of *Escherichia coli* aggregates under shear. *PHYSICAL REVIEW E*, 94. DOI: 10.1103/PhysRevE.94.062402
549. Poveda, V, Filgueiras M, Miranda V, Santos-Silva A, Paúl C, Costa E. 2016. Frailty in end-stage renal disease patients under dialysis and its association with clinical and biochemical Markers. *THE JOURNAL OF FRAILTY & AGING* (in press)
550. Proença, C, Albuquerque, HM, Ribeiro, D, Freitas, M, Santos, CM, Silva, AM, Fernandes, E. 2016. Novel chromone and xanthone derivatives: Synthesis and ROS/RNS scavenging activities. *EUROPEAN JOURNAL OF MEDICINAL CHEMISTRY*, Vol. 115, 381-392. DOI: 10.1016/j.ejmech.2016.03.043
551. Quelemes, PV, A. R. de Araújo, A. Plácido, C. Delerue-Matos, J. S. Maciel, L. J. Bessa, A. S. Ombredane, G. A. Joanitti, M. J. d. S. Soares, P. Eaton, D. A. da Silva and J. R. S. A. Leite. 2016. Quaternized cashew gum: An anti-staphylococcal and biocompatible cationic polymer for biotechnological applications. *CARBOHYDRATE POLYMERS* 157: 567-575. DOI: 10.1016/j.carbpol.2016.10.026
552. Raguse, M, M. Fiebrandt, B. Denis, K. Stapelmann, P. Eichenberger, A. Driks, P. Eaton, P. Awakowicz and R. Moeller. 2016. Understanding of the importance of the spore coat structure and pigmentation in the *Bacillus subtilis* spore resistance to low-pressure plasma sterilization. *JOURNAL OF PHYSICS D: APPLIED PHYSICS*, 49(28): 285401. DOI: 10.1088/0022-3727/49/28/285401
553. Ramdzan, AN, Barreiros, L, Almeida, MIGS, Kolev, SD, Segundo, MA. 2016. Determination of salivary cotinine through solid phase extraction using a bead-injection lab-on-valve approach hyphenated to hydrophilic interaction liquid chromatography. *JOURNAL OF CHROMATOGRAPHY A*, Vol. 1429, 284-291. DOI: 10.1016/j.chroma.2015.12.051
554. Ramos, II, Gregório, BJR, Barreiros, L, Magalhães, LM, Tóth, IV, Reis, S, Lima, JLFC, Segundo, MA. 2016. Programmable flow system for automation of oxygen radical absorbance capacity assay using pyrogallol red for estimation of antioxidant reactivity. *TALANTA*, Vol. 150, 599-606. DOI: 10.1016/j.talanta.2015.12.061
555. Ramos, S, Chafseys, I, Hebraud, M, Sousa, M, Poeta, P, Igrejas, G. 2016. Ciprofloxacin Stress Proteome of the Extended-Spectrum beta-lactamase Producing *Escherichia coli* from Slaughtered Pigs. *Current Proteomics*, 13, 285-289. DOI: 10.2174/1570164613666161018144215
556. Ramos, S, Silva, N, Hebraud, M, Santos, HM, Nunes-Miranda, JD, Pinto, L, Pereira, JE, Capelo, JL, Poeta, P, Igrejas, G. 2016. Proteomics for Drug Resistance on the Food Chain? Multidrug-Resistant *Escherichia coli* Proteomes from Slaughtered Pigs. *OMICS-A JOURNAL OF INTEGRATIVE BIOLOGY*, 20, 362-374. DOI: 10.1089/omi.2016.0044
557. Raposo, LR, Catarina Roma-Rodrigues, João Jesus, Luísa M.D.R.S. Martins, Armando J Pombeiro, Pedro V. Baptista, Alexandra R. Fernandes. 2016. Targeting canine mammary tumors via gold nanoparticles functionalized with promising Co(II) and Zn(II) compounds. *VETERINARY AND COMPARATIVE ONCOLOGY*. DOI:10.1111/vco.12298
558. Raposo, LR, C Roma-Rodrigues, P Faisca, M Alves, J Henriques, MC Carvalheiro, ML Corvo, PV Baptista, AJ Pombeiro, AR Fernandes. 2016. Immortalization and characterization of a new canine mammary tumour cell line FR37-CMT. *VET COMP ONCOL*. DOI: 10.1111/vco.12235
559. Rebelo, SLH, A. M. N. Silva, C. J. Medforth and C. Freire. 2016. Iron(III) Fluorinated Porphyrins: Greener Chemistry from Synthesis to Oxidative Catalysis Reactions. *MOLECULES*, Vol: 21, 481. DOI: 10.3390/molecules21040481
560. Rebelo, T.S.C.R, Noronha, J.P, Galésio, M, Santos, H, Diniz, M, Sales, M.G.F, Fernandes, M.H, Costa-Rodrigues, J. 2016. Testing the variability of PSA expression by different human prostate cancer cell lines by means of a new potentiometric device employing molecularly antibody assembled on graphene surface. *MATERIALS SCIENCE AND ENGINEERING C*, 59, pp. 1069-1078. DOI: 10.1016/j.msec.2015.11.032
561. Rebelo, TSCR, Noronha, JP, Galesio, M, Santos, H, Diniz, M, Sales, MGF, Fernandes, MH, Costa-Rodrigues, J. 2016. Testing the variability of PSA expression by different human prostate cancer cell lines by means of a new potentiometric device employing molecularly antibody assembled on graphene surface. *MATERIALS SCIENCE & ENGINEERING C-MATERIALS FOR BIOLOGICAL APPLICATIONS*, 59, 1069-1078. DOI: 10.1016/j.msec.2015.11.032
562. Reis, J, Cagide F, Chavarria D, Silva T, Fernandes C, Gaspar A, Uriarte E, Remião F, Alcaro S, Ortuso F, Borges F. 2016. Discovery of New Chemical Entities for Old Targets: Insights on the Lead Optimization of Chromone-Based Monoamine Oxidase B (MAO-B) Inhibitors. *J MED CHEM*, 59(12):5879-93. DOI: 10.1021/acs.jmedchem.6b00527
563. Restani, RB, Silva, AS, Pires, R. F., Cabral, RM, Correia, I. J., Casimiro, T, Bonifácio, VDB, Aguiar-Ricardo, A. 2016. Nano-in-Micro POxylated Polyurea Dendrimers and Chitosan Dry Powder Formulations for Pulmonary Delivery. *Part. Part. Syst. Charact.*, 0-0. DOI: 10.1002/ppsc.201600123
564. Ribeiro, AB, Chiste, RC, Lima, JL, Fernandes, E. 2016. Solanum diploconos fruits: profile of bioactive compounds and in vitro antioxidant capacity of different parts of the fruit. *FOOD & FUNCTION*, Vol. 7, 2249-2257. DOI: 10.1039/c6fo00326e
565. Ribeiro, M, Rodriguez-Quijano, M, Nunes, FM, Carrillo, JM, Branlard, G, Igrejas, G. 2016. New insights into wheat toxicity: Breeding did not seem to contribute to a prevalence of potential celiac disease's immunostimulatory epitopes. *FOOD CHEMISTRY*, 213, 8-18. DOI: 10.1016/j.foodchem.2016.06.043
566. Ribeiro, M, Rodriguez-Quijano, M, Giraldo, P, Pinto, L, Vázquez, J.F, Carrillo, J.M, Igrejas, G. 2016. Effect of allelic variation at glutenin and puroindoline loci on bread-making quality: favorable combinations occur in less toxic varieties of wheat for celiac patients. *EUROPEAN FOOD RESEARCH AND TECHNOLOGY*. DOI: 10.1007/s00217-016-2788-8
567. Ribeiro, S, Belo L, Reis F, Santos-Silva A. 2016. Iron therapy in chronic kidney disease: Recent changes, benefits and risks. *BLOOD REVIEWS*, 30:65-72. DOI: 10.1016/j.blre.2015.07.006
568. Ribeiro, S, Garrido P, Fernandes J, Rocha S, Rocha-Pereira P, Costa E, Belo L, Reis F, Santos-Silva A. 2016. Recombinant human erythropoietin-induced erythropoiesis regulates hepcidin expression over iron status in the rat. *BLOOD CELLS, MOLECULES AND DISEASES*, 59: 63-70. DOI: 10.1016/j.bcmd.2016.04.008
569. Ribeiro, S, Garrido P, Fernandes J, Rocha-Pereira P, Costa E, Belo L, Reis F, Santos-Silva A. 2016. Liver iron is a major regulator of hepcidin gene expression via BMP/SMAD pathway in a rat model of chronic renal failure under treatment with high rHuEPO doses. *BIOFACTORS*, 42: 296-306. DOI: 10.1002/biof.1275
570. Ribeiro, S, Garrido P, Fernandes J, Vala H, Rocha-Pereira P, Costa E, Belo L, Reis F, Santos-Silva A. 2016. Impaired renal endothelial nitric oxide synthase and reticulocyte production as modulators of hypertension induced by rHuEPO in the rat. *LIFE SCIENCES*, 151: 147-156. DOI: 10.1016/j.lfs.2016.02.088
571. Ribeiro, S, Garrido P, Fernandes J, Vala H, Rocha-Pereira P, Costa E, Belo L, Reis F, Santos-Silva A. 2016. Pathological and molecular mechanisms underlying resistance to recombinant human erythropoietin therapy in the remnant kidney rat model of chronic kidney disease associated anemia. *BIOCHIMIE*, 125: 150-162. DOI: 10.1016/j.biochi.2016.03.012
572. Ribeiro, S, Garrido P, Fernandes J, Vala H, Rocha-Pereira P, Costa E, Belo L, Reis F, Santos-Silva A. 2016. Renal risk-benefit determinants of recombinant human erythropoietin therapy in the remnant kidney rat model – hypertension, anemia, inflammation and drug dose. *CLINICAL AND EXPERIMENTAL PHARMACOLOGY AND PHYSIOLOGY*, 43: 343-354. DOI: 10.1111/1440-1681.12541
573. Ribeiro, TG, Novais, Â, Peixe, L, Machado, E. 2016. Atypical epidemiology of CTX-M-15 among Enterobacteriaceae from a high diversity of non-clinical niches in Angola. *J ANTIMICROB CHEMOTHER*, Vol. 71(5):1169-73. DOI: 10.1093/jac/dkv489
574. Ribera-Guardia, A, Marques R, Arangio C, Carvalheira M, Oehmen A, Pijuan M. 2016. Distinctive denitrifying capabilities lead to differences in N2O production by dPAO and dGAO. *BIORESOURCE TECHNOLOGY*, 219:106-113. DOI: 10.1016/j.biortech.2016.07.092

575. Roca, C, Lehmann, M, Torres, CAV, Baptista, S, Gaudencio, SP, Freitas, F, Reis, MAM. 2016. Exopolysaccharide production by a marine *Pseudoalteromonas* sp strain isolated from Madeira Archipelago ocean sediments. *NEW BIOTECHNOLOGY*, 33, 460-466. DOI: 10.1016/j.nbt.2016.02.005
576. Rodrigues, C, Bavlóvič, J, Machado, E, Amorim, J, Peixe, L, Novais, Â. 2016. KPC-3-Producing *Klebsiella pneumoniae* in Portugal Linked to Previously Circulating Non-CG258 Lineages and Uncommon Genetic Platforms [Tn4401d-IncFIA and Tn4401d-IncN]. *FRONT MICROBIOL*, Vol. 7:1000. DOI:10.3389/fmicb.2016.01000
577. Rodrigues, C, Machado, E, Fernandes, S, Peixe, L, Novais, Â. 2016. An update on faecal carriage of ESBL-producing Enterobacteriaceae by Portuguese healthy humans: detection of the H30 subclone of B2-ST131 *Escherichia coli* producing CTX-M-27. *J ANTIMICROB CHEMOTHER*, Vol. 71(4):1120-2. DOI: 10.1093/jac/dkv443
578. Rodrigues, D, Jerónimo C, Henrique R, Belo L, de Lourdes Bastos M, de Pinho PG, Carvalho M. 2016. Biomarkers in bladder cancer: A metabolomic approach using in vitro and ex vivo model systems. *INT J CANCER*, 139(2):256-68. DOI: 10.1002/ijc.30016
579. Rodrigues, D, Jerónimo C, Henrique R, Belo L, Bastos M.L, Guedes de Pinho P, Carvahó M. 2016. Renal Cell Carcinoma: A critical analysis of metabolomic biomarkers emerging from current model systems. *TRANSLATIONAL RESEARCH*, 180:1-11. DOI:10.1016/j.trsl.2016.07.018
580. Rodrigues, F, Alves, AC, Nunes, C, Sarmiento, B, Amaral, MH, Reis, S, Oliveira, MB. 2016. Permeation of topically applied caffeine from a food by-product in cosmetic formulations: Is nanoscale in vitro approach an option?. *INTERNATIONAL JOURNAL OF PHARMACEUTICS*, Vol. 513, 496-503. DOI: 10.1016/j.ijpharm.2016.09.059
581. Roma-Rodrigues, C, Alves-Barroco, C, Raposo, LR, Costa, MN, Fortunato, E, Baptista, PV, Fernandes, AR, Santos-Sanches, I. 2016. Infection of human keratinocytes by *Streptococcus dysgalactiae* subspecies *dysgalactiae* isolated from milk of the bovine udder. *MICROBES AND INFECTION*, 18, 290-293. DOI: 10.1016/j.micinf.2015.11.005
582. Roma-Rodrigues, C, Heuer-Jungemann, A, Fernandes, AR, Kanaras, AG, Baptista, PV. 2016. Peptide-coated gold nanoparticles for modulation of angiogenesis in vivo. *INTERNATIONAL JOURNAL OF NANOMEDICINE*, 11, 2633-2639. DOI: 10.2147/IJN.S108661
583. Rosa, R, Paula, JR, Sampaio, E, Pimentel, M, Lopes, AR, Baptista, M, Guerreiro, M, Santos, C, Campos, D, Almeida-Val, VMF, Calado, R, Diniz, M, Repolho, T. 2016. Neuro-oxidative damage and aerobic potential loss of sharks under elevated CO₂ and warming. *MARINE BIOLOGY*, 163. DOI: 10.1007/s00227-016-2898-7
584. Sá, SI, Fonseca, BM, Teixeira, N, Madeira, MD. 2016. Induction and subcellular redistribution of progesterone receptor A and B by tamoxifen in the hypothalamic ventromedial neurons of young adult female Wistar rats. *MOLECULAR AND CELLULAR ENDOCRINOLOGY*, 420: 1-10. DOI: 10.1016/j.mce.2015.11.015
585. Sampaio-Dias, I, Sousa C. A. D, Garcia-Mera X, da Costa J. F, Caamaño, Rodríguez-Borges J. E. 2016. Novel L-prolyl-L-leucylglycinamide (PLG) Tripeptidomimetics based on 2-azanorborene Scaffold as Positive Allosteric Modulators of D2R. *ORGANIC AND BIOMOLECULAR CHEMISTRY, ROYAL SOCIETY OF CHEMISTRY PUBLISHING*, Vol. 14, 11065-11069. DOI:10.1039/C6OB02248K
586. Sanchez, I, Frenandez-Lodeiro, A, Oliveira, E, Campo, JA, Torres, MR, Cano, M, Lodeiro, C. 2016. Triketonate difluoroboron complexes. Substitution-dependent liquid crystal and photophysical properties. *DYES AND PIGMENTS*, 135, 184-200. DOI: 10.1016/j.dyepig.2015.10.029
587. Santos Martins, D. 2016. Interaction with specific HSP90 residues as a scoring function: validation in the D3R Grand Challenge 2015. *JOURNAL OF COMPUTER-AIDED MOLECULAR DESIGN*, 30 (9), 731-742. DOI: 10.1007/s10822-016-9943-y
588. Santos-Martins, D, Fernandes, PA, Ramos MJ. 2016. Calculation of distribution coefficients in the SAMPL5 challenge from atomic solvation parameters and surface areas. *JOURNAL OF COMPUTER-AIDED MOLECULAR DESIGN*, 30 (11), 1079-1086, 10.1007/s10822-016-9951-y
589. Santos, Carla, Carvalho, Susana, Leite, Andreia, Moniz, Tânia, Roriz, Mariana, Rangel, Antonio, Rangel, M, Vasconcelos, M. 2016. Effect of tris(3-hydroxy-4-pyridinonate) iron(III) complexes on iron uptake and storage in soybean (*Glycine max* L.). *PLANT PHYSIOLOGY AND BIOCHEMISTRY*, 106, 91-100. DOI: 10.1016/j.plaphy.2016.04.050
590. Santos, L, Silveira, CM, Elangovan, E, Neto, JP, Nunes, D, Pereira, L, Martins, R, Viegas, J, Moura, JJG, Todorovic, S, Almeida, MG, Fortunato, E. 2016. Synthesis of WO₃ nanoparticles for biosensing applications. *SENSORS AND ACTUATORS B-CHEMICAL*, 223, 186-194. DOI: 10.1016/j.snb.2015.09.046
591. Santos, PP, Flôres, SH, Rios, AD, Chisté, RC. 2016. Biodegradable polymers as wall materials to the synthesis of bioactive compound nanocapsules. *TRENDS IN FOOD SCIENCE & TECHNOLOGY*, Vol. 53, 23-33. DOI: 10.1016/j.tifs.2016.05.005
592. Santos, S, Mota L, Malheiro R, Silva F, Campos M, Guedes de Pinho P, Pereira J.A. 2016. Changes in volatile compounds of *Dittrichia viscosa* caused by the attack of the gall-forming dipteran *Myopites stylatus*. *INDUSTRIAL CROPS AND PRODUCTS*, 87:71-77. DOI: 10.1016/j.indcrop.2016.04.002
593. Santos, T, Carvalho, J, Corvo, MC, Cabrita, EJ, Queiroz, JA, Cruz, C. 2016. L-tryptophan and dipeptide derivatives for supercoiled plasmid DNA purification. *INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES*, 87, 385-396. DOI: 10.1016/j.ijbiomac.2016.02.079
594. Schroder, P, Helmreich, B, Skrbic, B, Carballa, M, Papa, M, Pastore, C, Emre, Z, Oehmen, A, Langenhoff, A, Molinos, M, Dvarioniene, J, Huber, C, Tsagarakis, K, Martinez-Lopez, E, Pagano, S, Vogelsang, C, Mascolo, G. 2016. Status of hormones and painkillers in wastewater effluents across several European states-considerations for the EU watch list concerning estradiols and diclofenac. *ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH*, 23, 12835-12866. DOI: 10.1007/s11356-016-6503-x
595. Scoma, A, Bertin, L, Reis, MAM, Kornaras, M, Coma, M. 2016. Multipurpose, Integrated 2nd Generation Biorefineries. *BIOMED RESEARCH INTERNATIONAL*, DOI: 10.1155/2016/4327575
596. Seabra, A, Katzmarzyk P, Carvalho MJ, Seabra AC, Coelho e Silva M, Abreu S, Vale S, Nascimento H, Belo L, Torres S, Santos-Silva A, Rêgo C, Malina R. 2016. Effects of 6-month soccer and traditional physical activity programmes on body composition, cardiometabolic risk factors, inflammatory, oxidative stress markers and cardiorespiratory fitness in obese boys. *JOURNAL OF SPORTS SCIENCES*, 18: 1-8. DOI: 10.1080/02640414.2016.1140219
597. Segundo, MA, Abreu, VL, Osorio, MV, Nogueira, S, Lin, PK, Cordeiro-da-Silva, A, Lima, SA. 2016. Development and validation of HPLC method with fluorometric detection for quantification of bisnaphthalimidopropylidiaminooctane in animal tissues following administration in polymeric nanoparticles. *JOURNAL OF PHARMACEUTICAL AND BIOMEDICAL ANALYSIS*, Vol. 120, 290-296. DOI: 10.1016/j.jpba.2015.12.033
598. Segundo, MA. 2016. Bead injection technique for automation of sample treatment. *SCIENTIA CHROMATOGRAPHICA*, Vol. 8, 181-187. DOI: dx.doi.org/10.4322/sc.2016.031
599. Sequeira, SO, Coutinho, ML, Lima, JC, Phillips, AJL, Macedo, MF, Cabrita, EJ. 2016. 4-MUF-NAG for fungal biomass determination: Scope and limitations in the context of biodeterioration studies. *JOURNAL OF CULTURAL HERITAGE*, 22, 992-998. DOI: 10.1016/j.culher.2016.06.002
600. Silva, AF, Antunes, S, Saunders, A, Freitas, F, Vieira, A, Galinha, CF, Nielsen, PH, Crespo, MTB, Carvalho, G. 2016. Impact of sludge retention time on the fine composition of the microbial community and extracellular polymeric substances in a membrane bioreactor. *APPLIED MICROBIOLOGY AND BIOTECHNOLOGY*, 100, 8507-8521. DOI: 10.1007/s00253-016-7617-2
601. Silva, B, Fernandes C, Tiritan ME, Pinto MM, Valente MJ, Carvalho M, de Pinho PG, Remião F. 2016. Chiral enantioresolution of cathinone derivatives present in legal highs, and enantioselectivity evaluation on cytotoxicity of 3,4-methylenedioxypropylvalerone (MDPV). *FORENSIC TOXICOL*, 34:372-385. DOI:10.1007/s11419-016-0324-y
602. Silva, EM, Melo, T, Sousa, BC, Resende, DI, Magalhaes, LM, Segundo, MA, Silva, AM, Domingues, MR. 2016. Do cinnamylideneacetophenones have antioxidant properties and a protective effect toward the oxidation of phosphatidylcholines?. *EUROPEAN JOURNAL OF MEDICINAL CHEMISTRY*, Vol. 121, 331-337. DOI: 10.1016/j.ejmech.2016.05.040
603. Silva, L, Grosso, F, Branquinho, R, Ribeiro, TG, Sousa, C, Peixe, L. 2016. Exploring non-hospital-related settings in Angola reveals new *Acinetobacter* reservoirs for blaOXA-23 and blaOXA-58. *INT J ANTIMICROB AGENTS*, Vol.48(2):228-30. 2016. DOI: 10.1016/j.ijantimicag.2016.06.003
604. Silva, Mariana, Silva, Z, Marques, G, Ferro, T, Goncalves, M, Monteiro, M, van Vliet, SJ, Mohr, E, Lino, AC, Fernandes, AR, Lima, FA, van Kooyk, Y, Matos, T, Tadokoro, CE, Videira, PA. 2016. Sialic acid removal from dendritic cells improves antigen cross presentation and boosts anti-tumor immune responses. *ONCOTARGET*, 7, 41053-41066. DOI: 10.18632/oncotarget.9419
605. Silva, N, Santos, T, Marinho, C, Sousa, M, Teixeira, J, Gonzalez, D, Correia, E, Igrejas, G, Poeta, P. 2016. Effect of Mediterranean Oils and Spices against Food-Related Pathogenic Bacteria. *RESEARCH & REVIEWS: JOURNAL OF FOOD AND DAIRY TECHNOLOGY*, 4(3):44-51.
606. Silva, S, Carvalho, F, Fernandes, E, Antunes, MJ, Cotrim, MD. 2016. Contractile effects of 3,4-methylenedioxyamphetamine on the human internal mammary artery. *TOXICOLOGY IN VITRO*, Vol. 34, 187-193. DOI: 10.1016/j.tiv.2016.04.002
607. Silva, T, Mohamed T, Shakeri A, Rao PP, Martínez-González L, Pérez DI, Martínez A, Valente MJ, Garrido J, Uriarte E, Serrão P, Soares-da-Silva P, Remião F, Borges F. 2016. Development of Blood-Brain Barrier Permeable Nitrocatechol-Based Catechol O-Methyltransferase Inhibitors with Reduced Potential for Hepatotoxicity. *J MED CHEM*, 59(16):7584-97. DOI: 10.1021/acs.jmedchem.6b00666
608. Silveira, CM, Monteiro, T, Almeida, MG. 2016. Biosensing with Paper-Based Miniaturized Printed Electrodes-A Modern Trend. *BIOSENSORS-BASEL*, 6. DOI: 10.3390/bios6040051
609. Simões, ICM, Costa, IPD, Coimbra, JTS, Ramos, MJ, Fernandes, PA. 2016. New Parameters for Higher Accuracy in the Computation of Binding Free Energy Differences upon Alanine Scanning Mutagenesis on Protein-Protein Interfaces. *JOURNAL OF CHEMICAL INFORMATION AND MODELING*, 2017, 57(1), pp 60-72. DOI:10.1021/acs.jcim.6b00378
610. Siopa F, Figueiredo, T, Frade RFM, Neto I, Meirinhos A, Reis CP, Sobral RG, Afonso CAM, Rijo P. 2016. Choline-Based Ionic Liquids: Improvement of Antimicrobial Activity. *CHEMISTRY SELECT*, 1, 5909-5916. DOI: 10.1002/slct.201600864
611. Soares, J, Raimundo, L, Pereira, NAL, Monteiro, A, Gomes, S, Bessa, C, Pereira, C, Queiroz, G, Bisio, A, Fernandes, J, Gomes, C, Reis, F, Goncalves, J, Inga, A, Santos, MMM, Saraiva, L. 2016. Reactivation of wild-type and mutant p53 by tryptophan-derived oxazoloisindolinone SLMP53-1, a novel anticancer small-molecule. *ONCOTARGET*, Vol. 7, 4326-4343, DOI: 10.18632/oncotarget.9419
612. Soares, T, Ribeiro, D, Proenca, C, Chiste, RC, Fernandes, E, Freitas, M. 2016. Size-dependent cytotoxicity of silver nanoparticles in human neutrophils assessed by multiple analytical approaches. *LIFE SCIENCES*, Vol. 145, 247-254. DOI: 10.1016/j.lfs.2015.12.046
613. Sobral,AF, Amaral C, Correia-da-Silva G, Teixeira N. 2016. Unravelling exemestane: From biology to clinical prospects. *JOURNAL STEROID BIOCHEM MOL BIOL*, 163: 1-11. DOI: 10.1016/j.jsbmb.2016.03.019
614. Sosa, PA, Roca, C, Velizarov, S. 2016. Membrane assisted recovery and purification of bio-based succinic acid for improved process sustainability. *JOURNAL OF MEMBRANE SCIENCE*, 501, 236-247. DOI: 10.1016/j.memsci.2015.12.018
615. Sousa-Martins, P, Moura A, Madureira J, Alija P, Oliveira JG, Lopez M, Figueiras M, Amado L, Sameiro-Faria M, Miranda V, Mesquita E, Teixeira L, Poveda V, Lobato L, Santos-Silva A, Costa E. 2016. Risk Factors for Mortality in End-Stage Kidney Disease Patients Under Online-Hemodiafiltration: Three-Year Follow-Up Study. *BIOMARKERS*, 21: 544-550. DOI: 10.3109/1354750X.2016.1160428
616. Sousa, CAD, Rizzo-Aguiar F, Garcia-Mera X, Rodríguez-Borges J. E. 2016. Synthesis and characterization of 1-Pyridone derivatives as rasagiline analogues. *CHEMICAL DATA COLLECTIONS, ELSEVIER SCIENCE BV, ahead-ofprint*. DOI: 10.1016/j.cdc.2016.10.001
617. Sousa, CAD, Sampaio-Dias I. E, Garcia-Mera X, Lima C. F. R. A. C, Rodríguez-Borges J. E. 2016. On the scope of oxidation of tertiary amines: Meisenheimer rearrangements versus Cope elimination in 2-(cyanoethyl)-2-azanorborenes. *ORGANIC CHEMISTRY FRONTIERS, ROYAL SOCIETY OF CHEMISTRY PUBLISHING*, Vol. 3, 1624-1634. DOI: 10.1039/C6QO00330C
618. Sousa, JL, Proenca, C, Freitas, M, Fernandes, E, Silva, AM. 2016. New polyhydroxylated flavon-3-ols and 3-hydroxy-2-styrylchromones: synthesis and ROS/RNS scavenging activities. *EUROPEAN JOURNAL OF MEDICINAL CHEMISTRY*, Vol. 119, 250-259. DOI: 10.1016/j.ejmech.2016.04.057
619. Sousa, M, Silva, N, Igrejas, G, Sargo, R, Benito, D, Gomez, P, Lozano, C, Manageiro, V, Torres, C, Canica, M, Poeta, P. 2016. Genetic Diversity and Antibiotic Resistance Among Coagulase-Negative Staphylococci Recovered from Birds of Prey in Portugal. *MICROBIAL DRUG RESISTANCE*, 22, 727-730. DOI: 10.1089/mdr.2015.0266
620. Sousa, ME, Araújo M. J, Vale M. L. C, Andrade P. B, Branco P, Gomes P, Moreira R, Pinho e Melo T. M. D. V, Freitas V. 2016. 11th National Meeting of Organic Chemistry and 4th Meeting of Therapeutic Chemistry, PHARMACEUTICALS, MDPI, Vol. 9, 15. DOI: 10.3390/ph9010015
621. Sousa, R, Gonçalves C, Guerra IC, Costa E, Fernandes A, do Bom Sucesso M, Azevedo J, Rodriguez A, Rius R, Seabra C, Ferreira F, Ribeiro L, Ferrão A, Castedo S, Cleto E, Coutinho J, Carvalho F, Barbot J, Porto B. 2016. Increased red cell distribution width in Fanconi anemia: a novel marker of stress erythropoiesis. *ORPHANET J RARE DIS*, 11(1):102. DOI: 10.1186/s13023-016-0485-0
622. Sousa, RP, Fernandes, PA, Ramos, MJ, Brás, NF. 2016. Insights into the reaction mechanism of 3-O-Sulfotransferase through QM/MM calculations. *PHYSICAL CHEMISTRY CHEMICAL PHYSICS*, 18, 11488-11496, DOI: 10.1039/C5CP06224A
623. Sousa, SF, António J. M. Ribeiro, Rui P. P. Neves, Natércia F. Brás, Nuno M.F.S.A. Cerqueira, Pedro A. Fernandes, Maria J. Ramos. 2016. Application of QM/MM methods in the study of Enzymatic Reaction Mechanisms. *WIRES COMPUT MOL SCI*, in press. DOI: 10.1002/wcms.1281
624. Sousa, SF, Joana F. M. Sousa, Ana C. C. Barbosa, Cleide Estupendo, Rui P. P. Neves, António J. M. Ribeiro, Pedro A. Fernandes, Maria J. Ramos. 2016. Improving the Biodesulfurization of Crude Oil and Derivatives: A QM/MM Investigation of the Catalytic Mechanism of NADH-FMN Oxidoreductase (DszD). *J. PHYS. CHEM. A*, 120 (27), 5300-5306. DOI: 10.1021/acs.jpca.6b01536
625. Sousa, SF, Ribeiro, A. J. M, Neves, R. P. P, Brás, N. F, Cerqueira, N. M. F. S. A, Fernandes, P. A, Ramos, MJ. 2016. Application of Quantum Mechanics/molecular Mechanics Methods in the Study of Enzymatic Reaction Mechanisms. *WILEY INTERDISCIPLINARY COMPUT MOL SCI*. DOI: 10.1002/wcms.1281
626. Sutradhar, M, Fernandes, AR, Silva, JP, Mahmudov, KT, da Silva, MFCG, Pombeiro, AJL. 2016. Water soluble heterometallic potassium-dioxovanadium(V) complexes as potential antiproliferative agents. *JOURNAL OF INORGANIC BIOCHEMISTRY*, 155, 17-25. DOI: 10.1016/j.jinorgbio.2015.11.010
627. Szterner, P, Amaral LMPF, Morais VMF, Ribeiro da Silva MDMC, Ribeiro da Silva MAV. 2016. Thermochemical study of dichloromethylpyrimidine isomers. *J. CHEM. THERMODYN*, 100, 148-155. DOI: 10.1016/j.jct.2016.04.011
628. Tavares-da-Silva, EJ, Varela, CL, Pires, AS, Encarnacao, JC, Abrantes, AM, Botelho, MF, Carvalho, RA, Proenca, C, Freitas, M, Fernandes, E, Roleira, FM. 2016. Combined dual effect of modulation of human neutrophils' oxidative burst and inhibition of colon cancer cells proliferation by hydroxycinnamic acid derivatives. *BIOORGANIC AND MEDICINAL CHEMISTRY*, Vol. 24, 3556-3564. DOI: 10.1016/j.bmc.2016.05.065
629. Teixeira-Gomes, A, Costa VM, Feio-Azevedo R, Duarte JA, Duarte-Araújo M, Fernandes E, Bastos Mde L, Carvalho F, Capela JP. 2016. Ecstasy toxicity to adolescent rats following an acute low binge dose. *BMC PHARMACOL TOXICOL*, 17(1):28. DOI: 10.1186/s40360-016-0070-0

630. Teixeira, C, Barbault F, Couesnon T, Gomes J. R. B, Gomes P, Maurel F. 2016. Striking HIV-1 entry by targeting HIV-1 gp41. But, where should we target?. PLoS ONE, PUBLIC LIBRARY OF SCIENCE, Vol. 11, e0146743. DOI: 10.1371/journal.pone.0146743
631. Teixeira, C, Cerqueira N. M. F. S. A, Ferreira A. C. S. 2016. Unravelling the olfactory sense: from the gene to the perception... CHEMICAL SENSES, 41(2), pp 105-121. DOI: 10.1093/chemse/bjv075
632. Teixeira, C, Ferreira A. C. S, Cerqueira N. M. F. S. A. 2016. Studying haloanisoles interaction with olfactory receptors. ACS CHEM NEUROSCI, 7(7):870-85. DOI: 10.1021/acschemneuro.5b00335
633. Terao, M, Romao, MJ, Leimkuhler, S, Bolis, M, Fratelli, M, Coelho, C, Santos-Silva, T, Garattini, E. 2016. Structure and function of mammalian aldehyde oxidases. ARCHIVES OF TOXICOLOGY, 90, 753-780. DOI: 10.1007/s00204-016-1683-1
634. Vale, N, Correia A, Figueiredo P, Santos H. A. 2016. Multinuclear NMR analysis of the antitubercular drug ethionamide. JOURNAL OF MOLECULAR STRUCTURE, ELSEVIER SCIENCE BV, Vol. 1105, 286-292. DOI:10.1016/j.molstruc.2015.10.047
635. Vale, N, Figueiredo P. 2016. A new procedure for N1-alkylation of imidazolidin-4-ones and its NMR characterization. JOURNAL OF MOLECULAR STRUCTURE, ELSEVIER SCIENCE BV, Vol. 1125, 366-369. DOI:10.1016/j.molstruc.2016.07.005
636. Valente, MJ, Araújo AM, Bastos Mde L, Fernandes E, Carvalho F, Guedes de Pinho P, Carvalho M. 2016. Editor's Highlight: Characterization of Hepatotoxicity Mechanisms Triggered by Designer Cathinone Drugs (β -Keto Amphetamines). TOXICOL SCI, 153(1):89-102. DOI: 10.1093/toxsci/kfw105
637. Valente, MJ, Araújo AM, Silva R, Bastos Mde L, Carvalho F, Guedes de Pinho P, Carvalho M. 2016. 3,4-Methylenedioxypropylvalerone (MDPV): in vitro mechanisms of hepatotoxicity under normothermic and hyperthermic conditions. ARCH TOXICOL, 90(8):1959-73. DOI: 10.1007/s00204-015-1653-z
638. Vardavas, AI, Fragkiadaki P, Alegakis AK, Kouretas D, Goutzaourelas N, Tsiaoussis J, Tsitsimpikou C, Stivaktakis PD, Carvalho F, Tsatsakis AM. 2016. Downgrading the systemic condition of rabbits after long term exposure to cypermethrin and piperonyl butoxide. LIFE SCI, 145:114-20. DOI: 10.1016/j.lfs.2015.12.026
639. Vardavas, AI, Stivaktakis PD, Tzatzarakis MN, Fragkiadaki P, Vasilaki F, Tzardi M, Datseri G, Tsiaoussis J, Alegakis AK, Tsitsimpikou C, Rakitskii VN, Carvalho F, Tsatsakis AM. 2016. Long-term exposure to cypermethrin and piperonyl butoxide causes liver and kidney inflammation and induces genotoxicity in New Zealand white male rabbits. FOOD CHEM TOXICOL, 94:250-9. DOI: 10.1016/j.fct.2016.06.016
640. Varela, CL, Amaral C, Correia-da-Silva G, Costa SC, Carvalho RA, Costa G, Alcaro S, Teixeira NA, Tavares-da-Silva EJ, Roleira FM. 2016. Exploring new chemical functionalities to improve aromatase inhibition of steroids. BIOORG MED CHEM, 15, 24(12):2823-31. DOI: 10.1016/j.bmc.2016.04.056
641. Viana, SD, Fernandes RC, Canas PM, Silva AM, Carvalho F, Ali SF, Fontes Ribeiro CA, Pereira FC. 2016. Presymptomatic MPTP Mice Show Neurotrophic S100B/mRAGE Striatum Levels. CNS NEUROSCI THER, 22(5):396-403. DOI: 10.1111/cns.12508
642. Viana, SD, Valero J, Rodrigues-Santos P, Couceiro P, Silva AM, Carvalho F, Ali SF, Fontes-Ribeiro CA, Pereira FC. 2016. Regulation of striatal astrocytic receptor for advanced glycation end-products variants in an early stage of experimental Parkinson's disease. J NEUROCHEM, 138(4):598-609. DOI: 10.1111/jnc.13682
643. Vieira, AC, Chaves, LL, Pinheiro, M, Ferreira, D, Sarmento, B, Reis, S. 2016. Design and statistical modeling of mannose-decorated dapsone-containing nanoparticles as a strategy of targeting intestinal M-cells. INTERNATIONAL JOURNAL OF NANOMEDICINE, Vol. 11, 2601-2617. DOI: 10.2147/IJN.S104908
644. Vieira, EF, das Neves J, Vitorino R, Dias da Silva D, Carmo H, Ferreira IM. 2016. Impact of in Vitro Gastrointestinal Digestion and Transepithelial Transport on Antioxidant and ACE-Inhibitory Activities of Brewer's Spent Yeast Autolysate. J AGRIC FOOD CHEM, 64(39):7335-7341
645. Vieira, ES, & Gomes, J. 2016. The bibliometric indicators as predictors of the final decision of the peer review". RESEARCH EVALUATION, 25(2), 170-183.
646. Vieira, ES, & Lepori, B. 2016. The growth process of higher education institutions and public policies". JOURNAL OF INFORMETRICS, 10(1), 286-298.
647. Vinagre, C, Leal, I, Mendonca, V, Madeira, D, Narciso, L, Diniz, MS, Flores, AAV. 2016. Vulnerability to climate warming and acclimation capacity of tropical and temperate coastal organisms. ECOLOGICAL INDICATORS, 62, 317-327. DOI: 10.1016/j.ecolind.2015.11.010
648. Vinhas, R, Correia, C, Ribeiro, P, Lourenco, Alexandra, de Sousa, AB, Fernandes, AR, Baptista, PV. 2016. Colorimetric assessment of BCR-ABL1 transcripts in clinical samples via gold nanoprobe. ANALYTICAL AND BIOANALYTICAL CHEMISTRY, 408, 5277-5284. DOI: 10.1007/s00216-016-9622-9
649. Vinhas, R, Tolmatcheva, A, Canto, R, Ribeiro, P, Lourenco, Alexandra, de Sousa, AB, Baptista, PV, Fernandes, AR. 2016. A novel mutation in CEBPA gene in a patient with acute myeloid leukemia. LEUKEMIA & LYMPHOMA, 57, 711-713. DOI: 10.3109/10428194.2015.1065979
650. Vinhas, Raquel, Cordeiro, Milton, Pedrosa, Pedro, Fernandes, Alexandra R, Baptista, Pedro V. 2016. Current trends in molecular diagnostics of chronic myeloid leukemia.. Leukemia & Lymphoma., 1-14.
651. Vinhas, S, Vázquez S, Rodríguez-Borges J.E, Sigüeiro R. 2016. Convergent approach to side-chain homologated derivatives of 1 α ,25-dihydroxyergocalciferol. JOURNAL OF STEROID BIOCHEMISTRY AND MOLECULAR BIOLOGY, ELSEVIER SCIENCE BV, ahead-of-print. DOI: 10.1016/j.jsbmb.2016.07.015
652. Wallace, H, Roberts R, Corsini E, Bonefeld-Jorgensen E, Orhan H, Mach M, Weiser T, Carvalho F, Iscan M, Tsatsakis A. 2016. Toxicology as an academic discipline in European Universities. TOXICOL LETT, 254:63. DOI: 10.1016/j.toxlet.2016.04.024
653. Yang, Y, Wkiel, AJ, Dall'Agnol, LT, Eloy, P, Genet, MJ, Moura, JJJ, Sand, W, Dupont-Gillain, CC, Rouxhet, PG. 2016. Proteins dominate in the surface layers formed on materials exposed to extracellular polymeric substances from bacterial cultures. BIOFOULING, 32, 95-108. DOI: 10.1080/08927014.2015.1114609
654. Yurkov A, Röhl O, Pontes A, Carvalho C, Maldonado C, Sampaio JP. 2016. Local climatic conditions constrain soil yeast diversity patterns in Mediterranean forests, woodlands and scrub biome. FEMS YEAST RESEARCH, 16:fov103. DOI:10.1093/femsyr/fov103
655. Zelena, L, Marques, SS, Segunda, MA, Mira, M, Pavek, P, Sklenarova, H, Solich, P. 2016. Fully automatic flow-based device for monitoring of drug permeation across a cell monolayer. ANALYTICAL AND BIOANALYTICAL CHEMISTRY, Vol. 408, 971-981. DOI: 10.1007/s00216-015-9194-0
656. Zhang, HT, Palma, AS, Zhang, YB, Childs, RA, Liu, Y, Mitchell, DA, Guidolin, LS, Weigel, W, Mulloy, B, Ciocchini, AE, Feizi, T, Chai, WG. 2016. Generation and characterization of beta 1,2-gluco-oligosaccharide probes from Brucella abortus cyclic beta-glucan and their recognition by C-type lectins of the immune system. GLYCOBIOLOGY, 26, 1086-1096. DOI: 10.1093/glycob/cww041

9

ACKNOWLEDGEMENTS

We are grateful to everyone at UCIBIO - researchers, students and staff - who supplied information, text and images used in this activity report.

We thank the secretary, Isabel Rodrigues, and the accounting manager, Inês Santos, for all their support.

EDITORS

Eurico Cabrita
Joana Ribeiro
José Braga
Maria João Romão
Teresa Sequeira Carlos

LAYOUT AND DESIGN

Bárbara Teixeira
Teresa Sequeira Carlos

PHOTOGRAPHY

UCIBIO - FCT NOVA group photos by Mário Sousa
Outreach and Dissemination photos by Teresa Sequeira Carlos

UCIBIO'S PLURIANNUAL PROGRAMME IS FUNDED BY



This work was supported by the Applied Molecular Biosciences Unit - UCIBIO which is financed by national funds from FCT/MEC (UID/Multi/04378/2013) and co-financed by the ERDF under the PT2020 Partnership Agreement (POCI-01-0145-FEDER-007728).

UCIBIO RESEARCH IS FUNDED BY



UCIBIO PRIVATE FUNDERS





**Faculdade de Ciências e Tecnologia,
Universidade Nova de Lisboa**
2829-516 Caparica, Portugal
Tel: +351-212948575
E-mail: mimrc@fct.unl.pt

Universidade do Porto
R. D. Manuel II, Apartado 55142,
4051-401 Porto, Portugal
Tel : +351-226069420
E-mail: mpcunha@fc.up.pt

