annual report 2017

UNIVERSIDADE NOVA DE LISBOA

knowledge for life

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ABOUT ITQB NOVA

Instituto de Tecnologia Química e Biológica António Xavier (ITQB NOVA) is a scientific research and advanced training institute of the Universidade NOVA de Lisboa. The ITQB NOVA is located in the Town of Oeiras, just outside Lisbon.

The mission of ITQB NOVA is to carry out scientific research and postgraduate teaching in chemistry, life sciences, and associated technologies, while serving the community and performing activities for the promotion of science and technology.

Brief account of ITQB NOVA history

The origins of ITQB NOVA go back to 1986 when the concept of a new research centre was developed and took shape through a process led by Professor António V. Xavier (1943-2006), culminating in the launch of CTQB (Centro de Tecnologia Química e Biológica) in 1989. This research centre became Instituto de Tecnologia Química e Biológica in 1993, when it was integrated in Universidade Nova de Lisboa.

Since its foundation, and to the present date, ITQB NOVA works closely with its partner institution IBET (Instituto de Biologia Experimental e Tecnológica) – a private, not-for-profit biotechnology research organization that interfaces academia and industry.

In 1996, ITQB NOVA started to operate at the present site, in the campus of Quinta do Marquês, in Oeiras. The main building hosts most of the research groups and all administrative and support services; a few groups have remained in the previous location at IGC (Instituto Gulbenkian de Ciência) or otherwise use laboratory space from the INIAV (Instituto Nacional de Investigação Agrária e Veterinária.

ITQB NOVA was one of the first research institutions to be awarded the status of LA (Laboratório Associado) by the Minister of Science and Technology, in 2001. Under the LA programme the Institute established a partnership with IGC and IBET, and later with CEDOC (Centro de Estudos de Doenças Crónicas), to maximize its research and development potential.

In 2015, a new funding mechanism determined the organization of ITQB NOVA research activities within research units. In line with its research strategy, ITQB NOVA coordinates two research units (MOSTMICRO and GREEN-IT) and participates in a third one (iNOVA4Health).

In 2016, ITQB NOVA with INIAV and iBET, have founded the AGROTECH CAMPUS, an agrofood, veterinarian and forestry consortium for research and innovation. In 2016, ITQB adopted the designation ITQB NOVA to better reflect the University afilliation.

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Inês Cardoso Pereira

ADMINISTRATOR
Teresa Venda

OMBUDSPERSON
Carlos Romão, Professor Catedrático

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Adriano José Henriques, ITQB NOVA
Cecília Maria Arraiano, ITQB NOVA
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Manuel Carrondo, ITQB NOVA
Miguel Nuno Teixeira, ITQB NOVA
Paula Maria Marques Alves, ITQB NOVA
Aristides Mendes (student), ITQB NOVA

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Isabel Marrucho

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Raquel Sá-Leão (Mariana Pinho)

Plant Biology
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Rita Abranches (Mª Carlota Vaz Patto)

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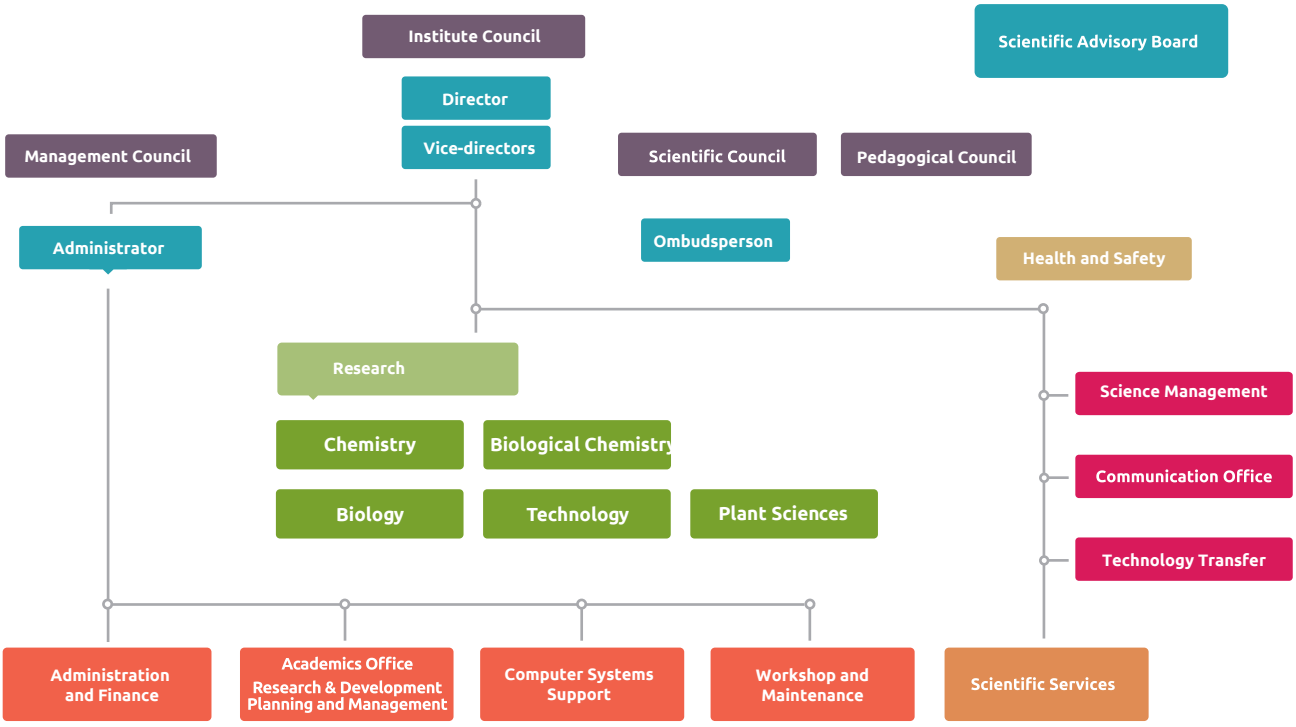
Bonnie L. Bassler, Department of Molecular Biology, Princeton University, USA

Friedrich Götz, Department of Microbial Genetics, University of Tübingen, Germany



HEALTH AND SAFETY

Helena Matias, Chairman
Margarida Oliveira, Vice Director

Nuno Monteiro
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Fernando Tavares
Second Floor Coord. (Cristina Afonso)

Manolis Matzapetakis
Third Floor Coordinator (Ricardo Louro)

Abel Oliva
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Lígia Martins
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Cândido Pinto Ricardo
Sixth Floor Coordinator (Nelson Saibo)

Rita Delgado
Seventh Floor Coordinator (Margarida Archer)

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ITQB I Building Coord. (Pedro Domingos)

Christopher Maycock
Chemistry Building Coord. (Rita Ventura)

Cecília Arraiano
Ionizing Radiation Hazards

Mónica Serrano
Biological Hazards

Helena Santos, MD, Occupational Medicine and Health

António Cunha
Pilot Plant (João Clemente)

João Carita
Washrooms

Cláudia Almeida
Lab Manager

Isabel Ribeiro
IBET

ADMINISTRATION AND FINANCE

Fernando Jorge Tavares

ACADEMICS OFFICE | RESEARCH & DEVELOPMENT PLANNING AND MANAGEMENT

Maria de Lurdes Conceição

COMPUTER SYSTEMS SUPPORT

Carlos Frazão

WORKSHOP AND MAINTENANCE

Nuno Monteiro

COMMUNICATION OFFICE

Joana Lobo Antunes

SCIENCE MANAGEMENT

Margarida Trindade
Madalena Martins

TECHNOLOGY TRANSFER

Marta Ribeiro

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CERMAX
Pedro Miguel Lamosa

Lab Management
Cláudia Almeida

UniMS
Patricia Alves
Isabel Abreu

Bioimaging Unit
Adriano O. Henriques

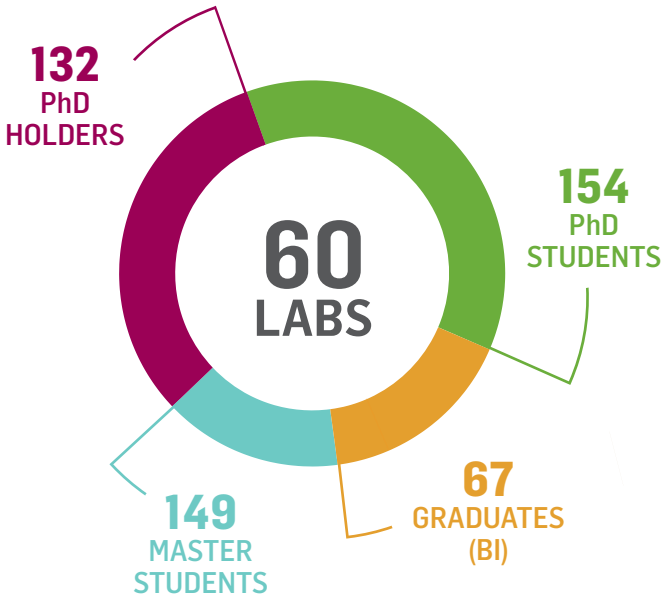
Library
Isabel Murta

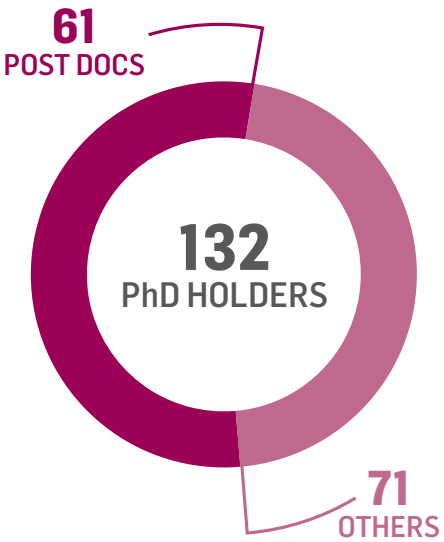
Teaching Laboratory
Teresa Baptista da Silva

CTQB ADMINISTRATION

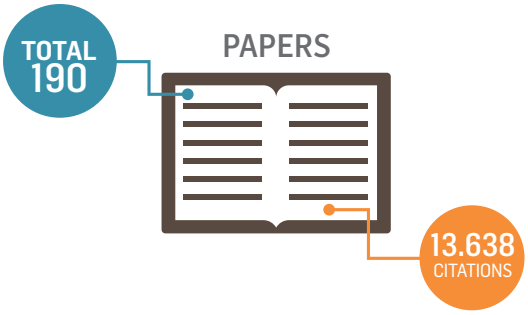
Cândido Pinto Ricardo (President)
Inês Cardoso Pereira (Vogal)
Júlia Costa (Vogal)

PEOPLE



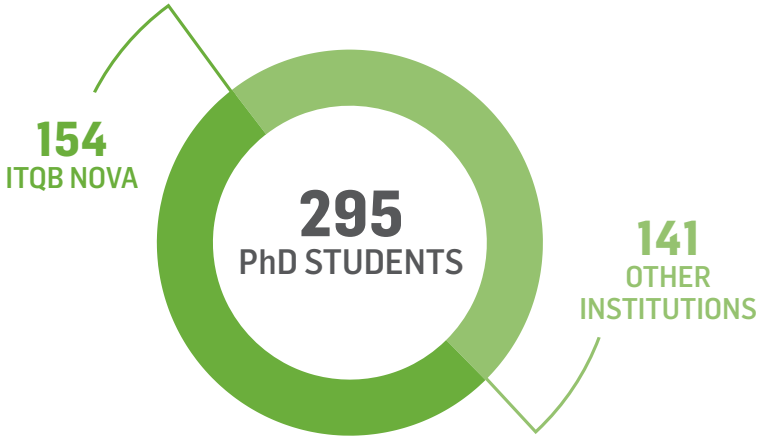


RESEARCH

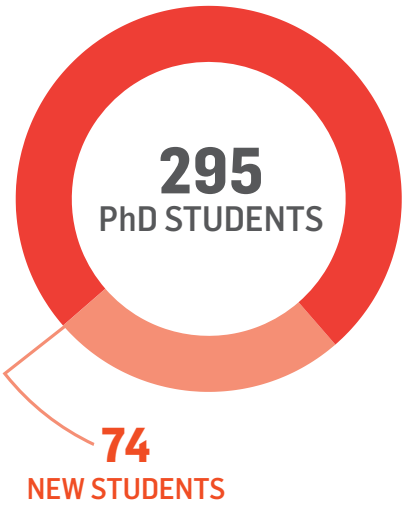


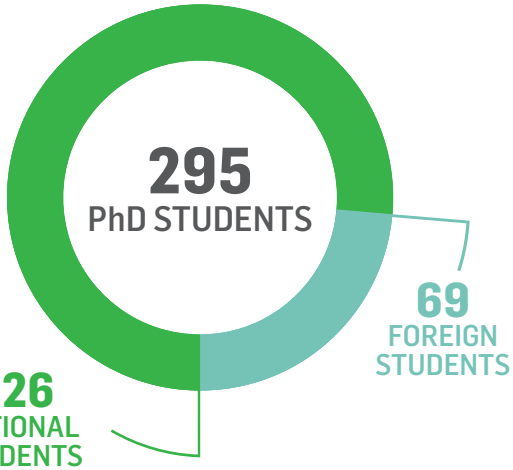
ONGOING RESERCH
PROJECTS

EDUCATION

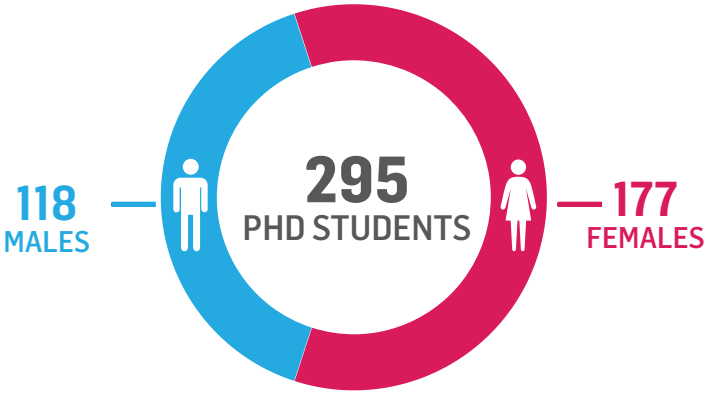


30
Phd
degrees
awarded

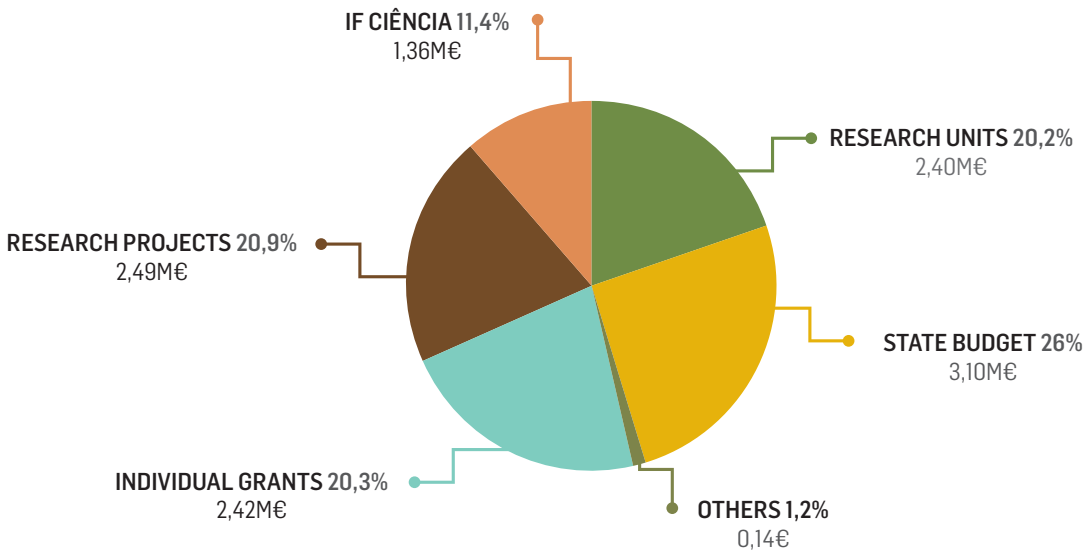




EDUCATION



FUNDING

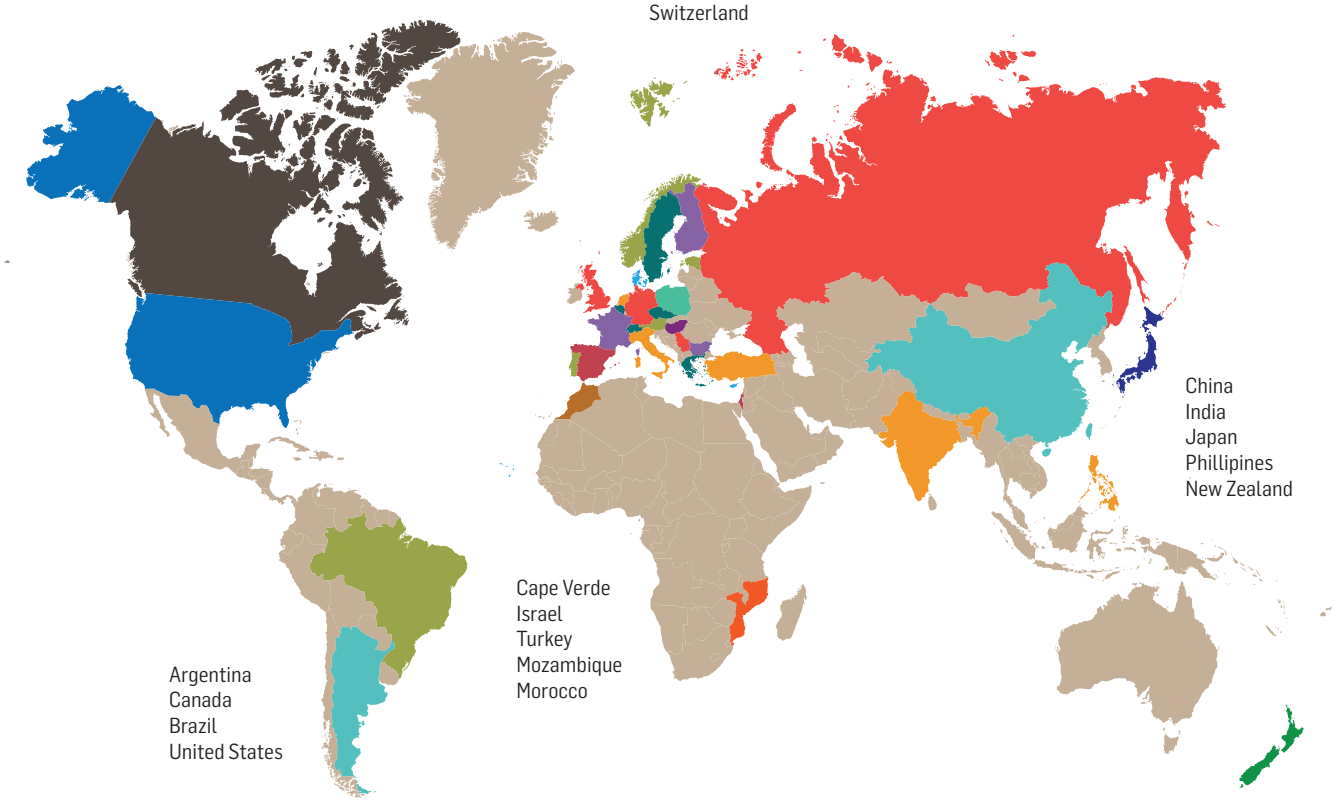


TOTAL 11,9M€

INTERNATIONALIZATION

Countries with projects in colaboration with ITQB NOVA.

Austria
Belgium
Bulgaria
Czech republic
Cyprus
Denmark
England
Estonia
Finland
France
Germany
Hungary
Italy
Netherlands
Norway
Poland
Russia
Spain
Sweden
Switzerland



China
India
Japan
Phillipines
New Zealand

Cape Verde
Israel
Turkey
Mozambique
Morocco

Argentina
Canada
Brazil
United States

A YEAR IN REVIEW

JANUARY

JAN 5
PhD MolBioS Opening Day 2017
Opening of the academic year

JAN 9 TO 10
Annual meeting MOSTMICRO research unit

JAN 20
Visit of Dr. Paulo André Fernandes,
Director interino do Programa de Prevenção e Controlo de Infecções e de Resistências aos Antimicrobianos (PPCIRA)

JAN 27
Visit of Prof. Gustavo Goldman,
Universidade de São Paulo

FEBRUARY

FEB 1
Making biology crystal clear - 4 million euros to European project in advanced Structural Biology

FEB 7
10 years of the highest field NMR spectrometer in Portugal - CERMAX, ITQB NOVA NMR facility

FEB 9
Visit of Delegação Brasileira da Universidade de Ceará

FEB 22
Call for applications at the Doctoral Programme in Nuclear Magnetic Resonance Applied to Chemistry, Materials and Biosciences

MARCH

MAR3
Workshop ITQB NOVA Innovation Series – How to Assess a New Business
Marta MB Ribeiro, Knowledge and Tech Transfer Officer ITQB NOVA

Visit of Bruno Castro, Revista Nature

MAR 6
PhD Program - Plants for Life Opening Day 2017

ITQB NOVA welcomes graduates to apply to FCT call for PhD scholarships

MAR 6 TO 8
5th Cost CARISMA Meeting 2017 at Lisbon
Organization: Beatriz Royo

MAR 17
40 years of science career in a book - Claudina Rodrigues Pousada autobiography

Applications open for ITQB NOVA Summer School 2017

MAR 27 TO 28
3rd COST EMPHASIS Meeting
Organization: Carla Pinheiro

MAR 30 TO 31
6th Cost ECOSTBio Workshop
Organization: Ricardo Louro

APRIL

APR 5
Biotechnology and sustainable agriculture debated at ITQB NOVA

APR 6
Call for applications at the Master in Biotechnology for Sustainability

APR 18
Call for applications at the Master in Biochemistry for Health

APR 21
Call for proposals at the António Xavier Prize 2017

APR 26
Call for applications at the Master in Science Communication

MAY 3 TO 4
Visit of Institute of Life Sciences, Scuola Superiore Sant'Anna

MAY 18
Fascinated by Plants Worldwide - 700 events in 52 countries, Portugal on top 3 worldwide in events

MAY 19
Visit of Prof. Andreas Busch, Head of Global Drug Discovery at Bayer HealthCare AG

MAY 27
ITQB NOVA opens the doors - A day to get to know researchers and their work

MAY 31
Paula M. Alves nominated Chairwoman of European Society of Animal Cell Technology

JULY 3
Science Merit Award to Manuela Chaves by Minister of Science

JULY 4 TO 7
10th CERMAX practical course on NMR spectroscopy

JULY 7
ITQB NOVA Day 2017 - Celebrating 24 years of ITQB NOVA in Universidade Nova de Lisboa
António Xavier Prize 2017 - Lifetime Award attributed to Professor Carlos Geraldes
Best ITQB NOVA PhD Thesis 2016 - Awarded to Luís Carlos Santos Filipe

JULY 11
New European Research Infrastructure Consortium approved

JULY 11 TO 25
Summer school in Science Communication at Lisbon

JULY 24 TO 28
Summer Science @ITQB NOVA

MAY JUNE JULY AUG

JUN 1
ONEIDA Kick off Meeting

JUN 8
Registrations open at the 10th CERMAX practical course on NMR spectroscopy

JUN 14
Call for applications at the Master in Medical Microbiology 2017/19

JUN 21
1st FeSBioNet COST Training School at FCT NOVA
Organization: Smilja Todorovic and Catarina Pimentel

JUN 22 TO 23
Visit of Roberto Lins e Isabelle Viana, Instituto Aggeu Magalhães

JUN 26 TO 30
Workshop on legume transformation
Old and new genetic engineering techniques to scope with environmental challenges
Organization: Pedro Fevereiro

OCT 3 TO 6
ISMET 6 General Meeting of the International Society for Microbial Electrochemistry and Technology at NOVA Rectory
Organization: Ricardo Louro

OCT 23
Call for applications at the PhD Fellowships Plants for Life 2018

OCT 25
Call for applications at the MolBioS PhD Program 2018

André Santos was awarded SPB Young Investigator Award

OCT 29
Visit of Filippo Mancia,
Columbia University, New York

DEC 11
Last lesson of Professor Hermínia de Lencastre - Academic jubilation ceremony

SEPTEMBER

SEP 12
Call for applications at the PhD Fellowships Plants for Life 2018

SEP13 TO 15
Plant Apoplastic Diffusion Barriers PADiBa Symposium

SEP 17
International Microorganism Day at Pavilhão do Conhecimento, Lisboa

SEP 20 TO 22
3rd general Meeting GREEN-IT Research Unit

SEP 27 TO 17 OCT
Art & Science Exhibition | Sketching Science at ITQB NOVA

SEP 29
European Researchers Night at Pavilhão do Conhecimento, Lisboa

NOVEMBER

NOV 7 TO 8
Provas de Agregação Doutora Inês Antunes Cardoso Pereira

NOV12
Summer Science @ITQB NOVA João Zagalo project selected for Microbiotech17

NOV 15 TO 17
8th ITQB NOVA PhD Students Meeting

NOV 17 TO 21
EMBO Workshop on Proteostasis at Ericeira

NOV 20 TO 24
ITQB NOVA celebrates science and technology week

NOV 21
One year of Portuguese science on the radio - "90 segundos de ciência"

NOV 22
Call for applications at the Biology at the Host Microbe Interface

Visit of Nuno Fontes, Executive Director of Process Science, Boehringer-Ingelheim, Fremont, California, USA

NOV 22 TO 24
Symposium and Job Fair - Career Opportunities for PostDoctoral Researchers in Life Sciences at Cascais

NOV 28
Mariana Gomes de Pinho is new ERC Awardee

NOV 30
Mini-Symposium - Looking for new ways to fight tuberculosis
Hosted by Helena Santos and Margarida Archer

RESEARCH
RESEARCH AREAS

ITQB NOVA has a strong expertise in **Molecular Biosciences**, covered by four broad scientific disciplines: Cellular and Molecular Biology, Molecular and Structural Biology, Biotechnology and Systems Biology, and Chemical Biology. These scientific disciplines drive ITQB NOVA research, contributing to strategic Societal Challenges focused on the well-being of human societies (Molecular Basis of Health and Disease) and on the environment (Biological Resources and Sustainable Development).

Molecular basis of health and disease is directed to the well-being of humans and animals. ITQB NOVA aims to understand **the biological questions at the molecular and cellular scale** exploiting complementary expertise within the Institute. Epidemiology, molecular basis of infection, and antimicrobials and resistance are areas where research is being pursued towards this goal. Our molecular expertise allows us to unveil the mechanisms of disease and drug action, while opening the way for the design of new drugs, including biopharmaceuticals and ATMPs. In summary, ITQB NOVA addresses, at several levels of depth (from the atomic level, to organism biology), **the molecular mechanisms that sustain life**.

Biological resources and sustainable development deals mainly with the environment at large. The expertise of ITQB NOVA in Plant Sciences has a strong molecular edge and obvious impact on agriculture and the environment, placing the Institute on a very competitive position to make a difference at national and international level. Additionally, ITQB NOVA contributes substantially to the topics of food safety and security, which are strategic in our over-crowded planet.

Furthermore, ITQB NOVA expertise in clean production of useful products through (bio)catalysis (including bioenergy production), and microbiotechnology, can pave the way to a more sustainable development, while maintaining and improving the quality of life of advanced societies.

Research activities are currently integrated in **Research Units**, which involve researchers from other institutions. ITQB NOVA coordinates two Research Units – **MOSTMICRO** and **GREEN-IT** - and is further involved in a third one – **iNOVA4Health**. MOSTMICRO and iNOVA4Health operate in the area of Health and GREEN-IT operates in the area of Sustainability.

MOSTMICRO
Molecular, Structural and Cellular Microbiology

The **Molecular, Structural and Cellular Microbiology Unit** (MOSTMICRO) aims to advance the fundamental knowledge of living organisms, with emphasis on important bacterial pathogens, towards improving human health.

Research is focused on selected microorganisms from all the three life domains, Bacteria, Archaea and Eukarya, for the study of basic biological questions, to improve our understanding of pathogens, and to contribute to the identification and design of novel systems/proteins/compounds with therapeutic potential.

The unit is coordinated by ITQB NOVA.

Green-it
Bioresources 4 Sustainability

The mission of the **BioResources 4 Sustainability Unit** (GREEN-IT) is to develop or design more sustainable biological and synthetic systems with application in food, feed, energy and the environment through the study of biological resources, ranging from complex systems like plants, bacteria and fungi, down to the level of proteins and molecules

GREEN-IT explores biological resources, using chemical and biological strategies, to address key societal challenges in agriculture, forestry and energy, ensuring environmental protection and supporting a bio-based economy.

The unit is coordinated by ITQB NOVA and also involves research groups from iBET and IGC.

iNOVA4Health

iNOVA4Health is a translational medicine programme organizing the efforts of biomedical researchers involved in biological understanding of disease, lead compounds and biopharmaceuticals "pre-discovery", technological scientists involved in "preclinical development", and clinicians involved in "early clinical and first in man clinical trials" from institutions within NOVA University of Lisbon. The programme has a strong emphasis on developing therapies to promote healthy ageing and in targeting chronic diseases that are responsible for two thirds of deaths worldwide and a major burden on healthcare systems for the future.

The unit is managed by iBET and also includes ITQB NOVA, CEDOC and the IPOLFG, Portuguese Oncology Institute.

RESEARCH DIVISIONS

At ITQB NOVA, **Research Laboratories** are organized into **five Research Divisions** - Chemistry, Biology, Biological Chemistry, Plant Sciences, and Technology. Collaboration between Divisions is strongly encouraged. The diversity of expertise present at ITQB NOVA contributes to the **multidisciplinary atmosphere** that makes this Institute unique in the country.

CHEMISTRY DIVISION

Ana Petronilho Lab
Bioorganometallic Chemistry
Research in our group is centred in the synthesis of biologically relevant N-heterocyclic carbenes (NHCs), and on their applications as pharmaceuticals and catalysts.

Beatriz Royo Lab
Homogeneous Catalysis
The homogeneous catalysis group works on the synthesis of novel catalyst based on organometallic species. Our final goal is to develop sustainable, efficient and selective organic transformations.

Carlos Romão Lab
Organometallic Chemistry
The Laboratory of Organometallic Chemistry is presently studying new metal derivatives of carbon monoxide (CO) to be used for the production of renewable energy and as a new class of drugs based on the therapeutic activity of CO.

Chris Maycock Lab
Organic Synthesis
Natural product syntheses are a great challenge since the product gross structure and stereochemistry are rigorously defined. Any synthesis is a test of the viability of the strategy and of the compatibility of the reagents. The organic synthesis group is dedicated to the synthesis of compounds which have a relatively complex three dimensional structure and which may not necessarily be related to the gross structure.

Eurico Melo Lab
Micro-heterogeneous Systems
This group focus on the study of how the small volumes, the limited dimensions and the topology of the compartments in which biological reactions take place influence their kinetics and equilibrium.

Isabel M. Marrucho Lab
Separation and Extraction Technologies
The Separation and Extraction Technologies group uses engineering tools to develop sustainable chemicals, materials and processes. Research ranges from fundamental studies on phase equilibria to applications in separation and extraction processes.

Rita Delgado Lab
Coordination and Supramolecular Chemistry
The Coordination and Supramolecular Chemistry group designs and synthesizes new molecules for the selective uptake of anions, neutral molecules or metal ions for environmental and medical applications.

Rita Ventura Lab
Bioorganic Chemistry
Bioorganic Chemistry is the interface of organic chemistry and biology. Research in this lab uses the principles and techniques of organic chemistry to solve problems of relevance to biology, like designing synthetic derivatives of natural products that improve on nature.

BIOLOGICAL CHEMISTRY DIVISION

Alvaro H. Crevenna Lab
Biomolecular Self-Organization
We believe that life can be recreated using purified components and that by doing so we uncover fundamental principles. Our aim is to understand the organization and dynamics of macro-molecular complexes and how these give rise to cellular structure and function. Our main tools are single molecule fluorescence microscopy, reconstituted in vitro systems and quantitative cell imaging.

António M. Baptista Lab
Molecular Simulation
The Molecular Simulation Laboratory develops and applies theoretical/computational methods to study the atomic-level determinants of the behavior of (bio)molecules.

Carlos Frazão Lab
Structural Biology
Macromolecular Crystallography Unit
The Structural Biology Laboratory works on the 3D structural determination of biological macromolecules aiming to understand biological processes at atomic and molecular level.

Claudina R. Pousada Lab
Genomics and Stress Laboratory
The genomics and stress laboratory works in the mechanisms involved in homeostasis control when yeast cells are exposed to different environmental cues. The function of Yap transcription factors in stress response is investigated.

Cláudio M. Soares Lab
Protein Modeling
The Protein Modelling Laboratory works on molecular modelling of proteins using physical methods. Our areas of work range from basic research in modelling methodologies to applications with biotechnological and biomedical interest.

Colin McVey Lab
Structural Virology
Macromolecular Crystallography Unit
Our research is focused on gammaherpesvirus viral modulation and the study of proteins encoded by herpesvirus to understand their structural and functional role in viral latency. Viral latency is the ability of a pathogenic virus to lie dormant within a cell. One of the most essential tasks during latency is to maintain the viral episome through c ycles of mitotic cell divisions. The focal point of our research is LANA, a multifunctional protein that is critical for the establishment and maintenance of viral latency. My lab combines both biophysical (EMSA, ITC & Thermofluor) and structural methods (BioSAXS & X-ray crystallography) to understand protein interactions involved in viral latency and modulation of its host.

Inês A. Cardoso Pereira Lab
Bacterial Energy Metabolism
The Bacterial Energy Metabolism laboratory investigates the molecular basis of metabolic pathways for energy production, in microorganisms that are biotechnologically and environmentally important.

Lígia M. Saraiva Lab
Molecular Mechanisms of Pathogen Resistance
The Molecular Mechanisms of Pathogen Resistance Laboratory mainly focus on understanding the survival mechanisms of human pathogens that relate to oxidative and nitrosative stress imposed by the human immune system.

Lígia O. Martins Lab
Microbial & Enzyme Technology
The research activities are in the field of Molecular Biotechnology aiming at the eco-efficient use of natural resources, the set-up of new bioremediation processes, and the production of bio-based products.

Manolis Matzapetakis Lab
Biomolecular NMR
Our focus is the application of NMR to various biomolecular problems. We are interested in protein structure determination - dynamics, protein-protein interactions including the study of metalloproteins and large proteins.

Manuela M. Pereira Lab
Biological Energy Transduction
Metalloproteins and Bioenergetics Unit
The Biological Energy Transduction Group addresses a fundamental process for all living organisms: energy conservation. A wide range of biochemical and biophysical techniques is used to investigate the mechanisms of energy transduction by membrane respiratory chains.

Manuel N. Melo Lab
Multiscale Modeling
The Multiscale Modeling Lab employs computational molecular simulation models at different resolution scales to tackle a wide range of biological questions.

Margarida Archer Lab
Membrane Protein Crystallography
Macromolecular Crystallography Unit
In the Membrane Protein Crystallography Laboratory, we determine the three-dimensional structure of biological macromolecules. The laboratory is integrated in the Macromolecular Crystallography Unit.

Maria Arménia Carrondo Lab
Structural Genomics
Macromolecular Crystallography Unit

The Structural Genomic Group develops structural studies by X-ray diffraction of proteins and protein interactions involved in the innate immune response and a number of different prokaryote proteins that are targets for health and biotechnological applications, using a structural genomic approach.

Miguel Teixeira Lab
Metalloenzymes and Molecular Bioenergetics
Metalloproteins and Bioenergetics Unit

The main research themes of the Laboratory are the study at the molecular level of the structure and functional mechanisms of soluble and membrane-bound metalloenzymes, namely those involved in oxygen and nitric oxide metabolisms.

Pedro Matias Lab
Industry and Medicine Applied Crystallography
Macromolecular Crystallography Unit

Many proteins in nature have either industrial and/or medicinal applications. Knowledge of their three-dimensional structure is essential to understanding their function at the atomic level, and can be used to control or improve their functional activity by the production of small molecules to act as substrates or ligands with specific purposes (e.g., drugs to fight disease) or by engineering selected mutants with enhanced biological activity. Our research program is dedicated to doing just that: determining the 3D structure of selected proteins, and using that knowledge, in combination with other studies (biochemical, spectroscopic, etc.) to understand how these molecules work.

Ricardo O. Louro Lab
Inorganic Biochemistry and NMR

The Inorganic Biochemistry and NMR Laboratory is devoted to the structural and functional characterization of redox proteins that participate in the anaerobic bioenergetic metabolism of microorganisms, using biophysical methods.

Smilja Todorovic Lab
Raman Spectroscopy of Metalloproteins

Research in the Laboratory for Raman spectroscopy of metalloproteins is focused on structural and functional characterization of redox proteins that perform diverse functions in cells, including electron transport, detoxification and enzymatic catalysis.

Tiago N. Cordeiro Lab
Dynamic Structural Biology

The Dynamic Structural Biology Lab explores the role of structural disorder in biological phenomena and human health. Research in the lab is focused on discovering the underlying principles of protein disorder in biology and disease. To this end, we employ nuclear magnetic resonance (NMR) and solution small-angle scattering (X-rays and neutrons, i.e. SAXS and SANS) to provide unique and alternative insights into structural dynamics and interactions of structurally disordered proteins underlying key biological processes, such as bacterial pathogenesis and chronic infections.

BIOLOGY DIVISION

Adriano O. Henriques Lab
Microbial Development
Bacterial spores are encased in a protein shield (or coat) that confers resistance against noxious chemicals and predation, protects the underlying cortex peptidoglycan layer from the action of lytic enzymes, and is a key sensor of the environment. The spore surface proteins are synthesized in the mother cell, one of the two compartments of the sporulating cell.

Ana Coelho Lab
Mass Spectrometry
The information obtained with the powerful Mass Spectrometry techniques is fundamental for the structural characterization of chemical and biochemical species.

Cecília Arraiano Lab
Control of Gene Expression
Our studies focus on the control of gene expression. We have studied RNA degradation and characterized enzymes that mediate decay. Other interests are stress and microbial growth. This work has many applications in Biotechnology and Health.

Cristina Silva Pereira Lab
Applied and Environmental Mycology
The Applied and Environmental Mycology group aims to enlarge filamentous fungi biotechnological potential. Research ranges from fundamental studies on fungal biology to applications in bioremediation and biocatalysis, also highlighting ionic liquids higher interest.

Federico Herrera Lab
Cell Structure and Dynamics
The overall aim of my laboratory is to lay the groundwork for the application of regenerative medicine in central nervous system (CNS) disorders involving neuronal loss, such as neurodegenerative disorders, spinal cord injury or stroke.

Helena Santos Lab
Cell Physiology and NMR
Research at the Cell Physiology & NMR Lab is focused on beneficial microbes, i.e., microorganisms that promote human health or well-being, or are sources of new metabolites and enzymes with potential application in biotechnology.

Hermínia de Lencastre Lab
Molecular Genetics
Microbiology of Human Pathogens Unit
The long-range interest of the laboratory is in the epidemiology, genetics, evolutionary and biochemical mechanisms of antibiotic resistant pathogens, specifically, staphylococci, Streptococcus pneumoniae, and enterococci.

Júlia Costa Lab
Glycobiology
Most mammalian proteins contain oligosaccharides covalently linked. We are studying the glycosylation of neuronal tissue.

Maria Miragaia Lab
Bacterial Evolution and Molecular Epidemiology
Microbiology of Human Pathogens Unit
The Laboratory of Bacterial Evolution and Molecular Epidemiology aims to understand the molecular basis of bacterial evolution with focus on the evolution of antimicrobial resistance determinants and antimicrobial resistant clones in coagulase-negative staphylococci (CoNS).

Mariana G. Pinho Lab
Bacterial Cell Biology
In the Bacterial Cell Biology laboratory we use the Gram positive pathogen *Staphylococcus aureus* to study the mechanisms of cell division and of antibiotic resistance to cell wall targeting antibiotics.

Pedro Domingos Lab
Cell Signaling in Drosophila
We use Drosophila as a model system to study the molecular and cellular signaling mechanisms involved in the degeneration of the photoreceptors, the cells that sense light in the visual system.

Raquel Sa-Leão Lab
Molecular Microbiology of Human Pathogens
Microbiology of Human Pathogens Unit
In our group we are studying how human interventions, such as the use of vaccines and antibiotics, impact on the nasopharyngeal ecosystem, a rich niche frequently inhabited by potentially pathogenic bacteria such as Streptococcus pneumoniae.

Zach Hensel Lab
Single Molecule Microbiology
In the Single Molecule Microbiology lab, we use high-resolution fluorescence microscopy techniques to detect and track individual DNA, RNA and protein molecules in living cells in order to study gene regulation and other problems in molecular cell biology.

PLANT SCIENCES DIVISION

Cândido Pinto Ricardo Lab
Plant Biochemistry
The Plant Biochemistry Laboratory applies transcriptomics, proteomics and metabolomics to study plant development and stress response. Cellular processes of model plants and molecular plasticity of plant genetic resources are areas of research.

Carla António Lab
Plant Metabolomics
At the Plant Metabolomics Lab we use Analytical Chemistry and Mass Spectrometry-based strategies to study Plant Development and Stress Biology. We aim to elucidate primary metabolite accumulation patterns in plants present in a defined developmental period and abiotic stress condition.

Célia Miguel Lab
Forest Biotech
Forest trees have a huge ecological and socio-economic impact. They provide the biomaterials for highly competitive forest industries. Efficient strategies for tree selection, improvement and clonal propagation are required in order to meet the increasing demand for forest products better suited for industry applications. However, the establishment of such strategies depends on a better knowledge of the biological processes underlying the traits of interest.

Isabel Abreu Lab
Proteome Regulation in Plants
GPlantS Unit
At the Proteome Regulation Lab, we study the fast regulation of the cell protome by post-translational occurring when plants are exposed to changes in their environment.

Margarida Oliveira Lab
Plant Functional Genomics
GPlantS Unit
At GPlantS lab we study the effect of environmental factors on the regulation of gene expression and plant development, with special focus on salt, drought and temperature stresses, using a number of different genomics approaches.

Maria Carlota Vaz Patto Lab
Genetics and Genomics of Plant Complex Traits (PlantX)
At the PlantX Lab we unveil the genetic and genomic basis of plant Complex traits, such as nutritional or organoleptic quality or biotic/abiotic stress resistance, using different statistical genetic and genomic approaches.

Manuela Chaves Lab
Plant Molecular Ecophysiology
Our general interests concern the understanding of physiological and molecular mechanisms underlying plant responses to environmental stresses as well as the differences among genotypes in the capacity to utilize external resources.

Nelson Saibo Lab
Plant Gene Regulation
GPlantS Unit
In the Plant Gene Regulation Laboratory we use model and crop plants to study gene regulatory mechanisms underlying plant growth and plant responses to adverse environmental conditions

Pedro Fevereiro Lab
Plant Cell Biotechnology
Our aim is to develop molecular strategies to support plant selection and breeding programs, to apply biotechnology to the development of company's strategies and to train researchers in plant biotechnology and plant molecular biology.

Rita Abranches Lab
Plant Cell Biology
The Plant Cell Biology Laboratory works on several aspects of the biology of the plant cell, including the functional organization of the cell nucleus and protein processing within the plant secretory pathway.

TECHNOLOGY DIVISION

Abel Gonzalez Oliva Lab
Biomolecular Diagnostics
This multidisciplinary research team is committed to develop new biomolecular tools, such as nanoparticles (CdSe@ZnS quantum dots) and biosensors, for practical applications like disease diagnostic and bioprocess monitoring..

Ana Luisa Simplicio Lab
Pharmacokinetics and Biopharmaceutical Analysis
The PABA group develops in vitro models to study pharmacokinetics and metabolism. Those models are applied to dietary supplements or prospective drugs.

Ana Sofia Coroadinha Lab
Cell Line Development and Molecular Biotechnology
Animal Cell Technology Unit
The primary research activity is centered in development and improvement of animal cell lines for the manufacturing of complex biopharmaceuticals, as recombinant proteins and recombinant virus for vaccines and gene therapy.

Catarina Brito Lab
Advanced Cell Models
Animal Cell Technology Unit
Our research is mostly translational and focused on the study of cellular microenvironment in disease onset and progression. To address these questions we develop and employ advanced cell-based disease models using stem cells and other patient-derived cell and exploring three-dimensional culture strategies, along with cell biological and biochemical approaches. Our main research targets are Central Nervous System diseases and Cancer.

Catarina Duarte Lab
Nutraceuticals and Delivery
This laboratory uses clean technologies for isolation and development of health promoting products. High pressure methodologies are applied for the extraction of bioactive compounds and preparation of new delivery systems.

Cláudia Santos Lab
Molecular Nutrition and Health
Our research is centered on the study of the molecular mechanisms underlying the beneficial effects of food nutrients/bioactives components in Health and Disease.

Manuel J. T. Carrondo Lab
Engineering Cellular Applications
Animal Cell Technology Unit
Our research is centered on integrative development of bioprocesses for complex biopharmaceuticals namely vaccines, recombinant proteins and viral vectors for gene therapy .

Maria do Rosário Bronze Lab
Food Functionality and Bioactives
Our research is focused on Analytical Chemistry applied to the study of foods namely with respect to their characterization, quality, safety and authenticity.

Paula M. Alves Lab
Cell Bioprocesses
Animal Cell Technology Unit
Our research is centered on the development of bioprocesses for complex biopharmaceuticals namely vaccines, recombinant proteins and viral vectors for gene therapy. Current efforts include also the development of tools and methodologies for cell therapy applications and pre-clinical research (novel 3D in vitro models for toxicology namely the use of Stem Cells (hESC, iPSC and Adult Stem Cells) and primary cultures of human hepatocytes. Our main research areas are liver, cardiac and brain cell 3D in vitro models.

Teresa Crespo Lab
Microbiology of Man-made Environments
The main aim of the laboratory is the study of isolated microbial strains and of microbial populations and in natural environments and mostly in environments created by man like food products, polluted waters or microbial/host pairs.

SCIENTIFIC SERVICES

Researchers at ITQB NOVA can profit from the excellent research facilities and support services. A list of the major services available on site is provided in this section.

NMR Facility CERMAX

Centro de Ressonância Magnética Nuclear António Xavier
Available to ITQB NOVA and outside researchers
ITQB NOVA hosts the largest Portuguese NMR facility - Centro de Ressonância Magnética António Xavier (CERMAX), that is part of the National NMR Facility.
CERMAX has several NMR spectrometers (300, 400, 500 and 800 MHz), including the highest field NMR spectrometer in Portugal. These instruments support a wide range applications, including the determination of structures of proteins or small molecules, metabolic studies, science of materials and in vivo NMR, among others. CERMAX organizes annualy a practical course on NMR techniques for the portuguese community

Mass Spectrometry Facility UniMS

Available to ITQB NOVA and outside researchers
UniMS provides state-of-the-art Mass Spectrometry services to the scientific community and Industry, guaranteed by the continuing increase in Mass Spectrometry know-how and infrastructures. This unit is administrated by a joint commission ITQB NOVA and iBET, and is a node partner of the Portuguese Mass Spectrometry Network RNEM.

Bacterial Bioimaging Cluster

Available to ITQB NOVA and outside researchers
The Bacterial Imaging Cluster (BIC) comprises light microscopy instrumentation that is optimized for imaging of fixed or live bacterial cells. It also includes a laser micropoint system coupled to a high-end camera, which allows fluorescence resonance after photobleaching (FRAP) experiments to be implemented. Appropriate filter combinations allow fluorescence resonance energy transfer (or FRET) applications. Image acquisition uses the Metamorph software suite and off-site licenses are available for image analysis and processing. BIC is ITQB NOVA's node of Plataforma Portuguesa de BioImage PPBI

Microbial Cell Production

Available to ITQB NOVA researchers
Provides technical support to research groups in bacteria/yeast cultivation and associated molecular biology techniques as well as establishing and maintaining collections of expression vectors and host cells for prokaryotic expression systems.

Protein Purification & Characterization

Available to ITQB NOVA researchers
Assistance and expertise in protein purification using fast pressure liquid chromatography systems and biochemical characterization of proteins.

N-terminal Sequencing

Available to ITQB NOVA and outside researchers
Expertise and assistance in protein and peptide N-terminal sequencing. Equipped with ABI Procise Protein Sequencer

Greenhouses & Plant Chambers

Available to ITQB NOVA researchers
Technical and logistic assistance to plant growth, propagation and protection under controlled environment conditions.

Elemental Analysis

Available to ITQB NOVA and outside researchers
Provides an accurate determination of carbon, hydrogen, nitrogen and sulfur composition using a Leco TruSpec Micro Elemental Analyzer.

Small Molecule Analysis

Available to ITQB NOVA researchers
Assistance and technical advice in analytical and semi-preparative HPLC, GC and Elemental Analysis. Equipped with HPLC, Elite LaChrom (PDA Detector), HPLC, Waters semi-preparative (UV/Vis Detector), HPLC, Waters Alliance Sys. (PDA and Fluorescence Detector), HPLC, Waters Alliance Sys. (UV/Vis, Fluorescence and IR Detector), UPLC Waters (PDA and Fluorescence Detector), Protein Sequencer Procise HT, Leco TruSpec Micro Elemental Analyzer, Gas chromatograph Trace 1300 (FID detector).

Biophysical Resources

Available to ITQB NOVA and outside researchers
Provides technical support to research groups in several precision instruments for characterization of macromolecules and their interactions. Eqquiped with TGA Q50, TA, CD Spectrometer J-815, Jasco, Cary Eclipse Fluorescence Spectrophotometer, Varian, DLS Zetasizer Nano ZS, Malvern, DSC Q200, TA, Microcal iTC-200, GE and VP-DSC, Microcal.

Lab manager

Available to ITQB NOVA researchers
Coordinates the purchase and maintenance of scientific equipment for the institute, establishing an efficient and professional purchase procedures. Supervises common scientific equipment and supports researchers who need to acquire laboratory instruments.

Teaching Laboratory

Available to ITQB NOVA and outside researchers

Designed and equipped to support the teaching activities of the Institute in areas ranging from Biochemistry to Genetics. Can be rented for teaching and other activities.

Washing rooms

Available to ITQB NOVA researchers

Provides support to all research groups in decontamination, washing, preparation and sterilization of laboratory equipment.

Library

Available to ITQB NOVA and outside researchers

Physical and online library specialized in chemistry, biology and microbiology. Resources available and useful to all users at ITQB NOVA and outside researchers upon request. Also provides a quiet area for students and faculty to study and do research.

RESEARCH FUNDING

Research at the ITQB NOVA is mainly funded by contracted projects with national and international funding agencies, such as Fundação para a Ciência e a Tecnologia or the European Commission, obtained after competitive application and evaluation processes.

The ITQB NOVA Science Funding Office supports the institution and researchers in the preparation of competitive funding applications. It helps assembling funding proposals by getting involved in finding and disseminating opportunities, engaging with external stakeholders, strategic planning and advice, proposal preparation and submission. The aim is to encourage researchers and institution to submit more and better quality proposals, thereby increasing and diversifying the ITQB NOVA funding portfolio.

In 2017, the Science Funding Office registered 190 proposals submitted to national (145) and international (45) funding agencies, having so far secured € 10.5 million for the ITQB NOVA for the incoming years (9 proposals still pending result). Moreover, the institute displayed a well-balanced list of potential funders, with researchers applying to 23 different funding agencies (9 national and 14 international), of which 12 not public.
During 2017 there were several calls in which the office congregated substantial time and effort, namely the call for ERC grants (5 applications), Marie S. Curie Individual Fellowships (3 applications), the H2020 Twinning (3 applications), the FCT Projects (105 applications) and the FCT Research Units (2 applications).

Throughout the year, the office also developed targeted training and participated in project activities. This included the delivery of two information sessions: one on the FCT Project Call 2017 and another on Funding opportunities for Postdocs and Early PIs. Together with the NOVA Rectorate, a NOVA Marie Curie Master Class was implemented to support applicants wishing to work at the R&D Units of the NOVA campus to prepare competitive grant applications. The project TRANSPEER was approved for funded and started running. This project, in which the Science Funding Office participates, will deliver a transnational skills programme to enhance the employability of researchers. Funded by the ERASMUS Plus Strategic Partnerships, it is coordinated by the Karlstad University in Sweden (total grant: 386 260 €; 51 850 € for ITQB NOVA). The implementation of the project ITQB+ (funded by FEDER) to support researchers in the preparation of European grants continued.

EDUCATION

PHD PROGRAMS

ITQB NOVA awards PhD degrees in Chemistry, Biochemistry, Biology and Engineering and Technological Sciences. ITQB NOVA PhD students are registered in one of the PhD Programs ongoing at the institute.

All ITQB NOVA PhD Programs are funded by Fundação para a Ciência e a Tecnologia and as such may provide PhD Fellowships; open calls are announced through all institutional channels. Students with other sources of funding may also apply

Coordinated by ITQB NOVA

phd molecular biosciences

The **PhD Program in Molecular Biosciences** is a flexible state-of-the-art research oriented program in life sciences. The Program trains students in molecular approaches needed to understand the mechanisms of life.

PhD Plants for Life

The **International PhD Program Plants for Life** aims to train a prominent body of future top researchers in plant sciences able to address key biological questions related to plant growth and development, plant responses to environmental stress, and improvement of crop varieties and plant products.

BIOLOGY AT THE HOST MICROBE INTERFACE
PHD PROGRAM

The **Biology at the Host Microbe Interface PhD program** was created on the premise that understanding the general principles guiding host-microbe interactions is a major scientific endeavor per se with a potential global translational impact on therapeutic intervention against infectious as well as non-communicable diseases. The B@HMI PhD program aims at fulfilling a current gap of knowledge at the interface of these multidisciplinary scientific areas.

Participating institution

PhD in Sustainable Chemistry

The **PhD in Sustainable Chemistry** is a multidisciplinary program in the central/broad area of chemistry, which will provide new focus on sustainable research strategies towards the development of new chemical, processes and products in line with current needs of the Chemical Industry and the demands of society.

Cell Therapies & Regenerative Medicine

The **International Advanced Studies Diploma in Bioengineering – Cell Therapies and Regenerative Medicine** is designed to promote the emergence of research leaders in academia, hospitals and industry, able to produce cutting-edge developments on Regenerative Medicine, translated into clinical applications, and to promote new business ventures, improving human health and economic growth.

The **PhD Programme on Catalysis and Sustainability** (CATSUS) aims to strengthen the advanced teaching and research in modern Catalysis, promoting a synergic cooperation of the different types of Catalysis, in Chemistry and Chemical Engineering, by gathering teams with complementary expertises in various institutions and favouring their interaction.

The **PhD in Advanced Integrated Microsystems** provides advanced training in the design and implementation of miniaturized multifunctional devices and systems, fabricated using top-down and bottom-up micro and nanofabrication techiques, to be applied to bioprocessing, biotechnology, biomedicine, pharmaceutical sciences, biosensing for biomedical, environmental and food safety, and physical sensing.

The **Graduate Program Science for Development** is an innovative advanced training program, aiming to help prepare African and East Timorese students to pursue a scientific career and to train a new generation of University professors. The programme is funded by FCT and Fundação Calouste Gulbenkian.

The **PhD on Bioengineering Systems** attracts the highest-performing students and involves exchanges with MIT faculty and their laboratories. Curriculum development as well as teaching activities involves the Portuguese institutions as well as MIT faculty.

The **Doctoral Program in Applied and Environmental Microbiology** is an inter-university and inter-research centre program offering multidisciplinary training that includes in-depth understanding of molecular and cellular microbiology and of the contemporary view of genome-based microbiology, microbial diversity and evolution.

Nuclear Magnetic Resonance Applied to Chemistry, Materials and Biosciences (PTNMR) doctoral training program is to foster the development of NMR spectroscopy in Portugal by training students to take the maximum advantage of this powerful technique in a variety of key research areas: Structural Biology, Material Sciences,Small Molecules, Metabolomics and Metabonomics.

NOVA DOCTORAL SCHOOL

NOVA DOCTORAL SCHOOL

ITQB NOVA PhD Students can access courses within the **NOVA Doctoral School**, a transdisciplinary structure within Universidade NOVA, which offers a range of complementary and transferable activities that support the personal and professional development of PhD students and supervisors.

MASTER COURSES

ITQB NOVA awards Master degrees and also hosts students registered at other academic institutions for their thesis research project.

MASTERS DEGREE IN MEDICAL MICROBIOLOGY

The **Masters Degree in Medical Microbiology,** is a collaborative Masters Course from Universidade Nova de Lisboa initiated in 2003 and envolving ITQB NOVA, the Instituto de Higiene e Medicina Tropical, Faculdade de Ciências Médicas and Faculdade de Ciências e Tecnologia. The course trains specialists in medical microbiology, providing a solid training both for professionals in laboratory and clinical settings, and for those wishing to pursue their studies in research (3rd cycle).

Biochemistry for Health masters course

The **Masters Degree in Biochemistry for Health** is a collaborative Masters from Universidade NOVA de Lisboa, involving ITQB NOVA, Faculdade de Ciências Médicas and Faculdade de Ciências e Tecnologia. The course provides a critical and analytical perspective of Human Health from a Biochemical point of view.

MSc

Master Projects
Research laboratories at ITQB NOVA welcome Master students registered at other academic institutions to develop their research projects. In this case, the credits are awarded by the institution awarding the Master degree. Available Research Projects are regularly announced on the ITQB NOVA's webpage.

MASTER IN BIOTECHNOLOGY FOR SUSTAINABILITY

The **Master in Biotechnology for Sustainability** is coordinated by ITQB NOVA, with the colaboration of iBET, IGC, INIAV, INSA, NOVA-SBE and CEBAL. This course aims to endow its students with a transversal and interdisciplinary perspective of green and white biotechnologies, preparing them to deal with the new societal challenges with increased awareness of their responsibilities towards the planet and the future generations.

Masters Course in **Science Communication**

The **Masters Course in Science Communication** is a collaborative project of Faculdade de Ciências Sociais e Humanas and ITQB NOVA. With an essentially practical approach, the course covers the application of different communication tools to science communication in three major domains: journalism, institutional communication and education.

SUMMER SCIENCE @ ITQB NOVA

Summer Science @ ITQB NOVA
Provides undergraduate students the opportunity to experience science in a cutting-edge research institute. During one week, students spend approximately 25 hours in a laboratory of their choice and participate in various round tables and workshops. Having the opportunity to participate in social activities to meet and interact with scientists and, most of all, have fun.

SCIENCE & SOCIETY

OTHER COURSES

ITQB NOVA offers several research training options each corresponding to a number of credits (ECTS) to be awarded as **University Extension or Post-Graduation Courses.** Summer students may apply to a short "Introduction to the Research Lab" course.

Selected students carry out their scientific training integrated in one of the research laboratories at ITQB NOVA.
Candidates from any nationality can apply at any time and should contact directly the PI of the lab they would like to join.

POST-GRADUATION COURSE

Scientific Research Training A
(Licenciados e/ou Mestres)
60 ECTS

University Extension Courses

Scientific Research Training B
(Licenciados ou Mestres)
40 ECTS

Scientific Research Training C
(Licenciados ou Mestres)
30 ECTS

Scientific Research Training D
(Licenciados, Mestres, Estudantes 1º ciclo)
15 ECTS

Research Integration
(Estudantes 1º ciclo)
16 ECTS

Scientific Research Training E
(Estudantes 1º ciclo/2º ciclo)
1.5 ECTS

Summer Training

Introduction to the Research Lab
(Estudantes de 1º ciclo)
6 ECTS

OUTREACH ACTIVITIES

ITQB NOVA is actively involved in bringing its research and researchers closer to the society. This is done through communicating our scientific breakthroughs through media, website and social media, organizing outreach activities, such as visits from high schools and universities and science displays, and also training ITQB NOVA researchers in communication skills to interact with all types of audiences through media or outreach. Science and society activities are coordinated by ITQB NOVA Science Communication and Image Office.

HIGHSCHOOL AND UNIVERSITY VISITS

ITQB NOVA receives regular visits from high schools throughout the year. In each visit, students (age 15 onwards) and their teachers have the opportunity to visit our laboratories and to discuss with ITQB NOVA researchers about science and research career prospects.
ITQB NOVA researchers also visit schools to take their research outside the institute's walls. These are excellent occasions for students of all ages to contact with active scientists in different fields.
During 2017, ITQB NOVA also had a Summer School for 30 undergraduate students, and hosted Summer Training "Ciencia Viva nas Férias" and Job Shadowing periods, both for high school Students and participated in the Teachers day with Câmara Municipal de Oeiras.

SCIENCE DISPLAYS

During 2017, we held ITQB NOVA open day. Researchers, lab and facilities received visitors from Oeiras, Lisboa, Sintra and Cascais to know more about our work. ITQB NOVA Open days are held regularly since 2005.
ITQB NOVA is one of the associate partners of Pavilhao do Conhecimento Ciencia Viva, in Lisbon, and collaborates frequently in science displays and exhibitions they organize. In 2017, ITQB NOVA researchers have participated in European Researchers Night at Pavilhao do Conhecimento besides being a partner of the project. Communication Office was in charge of Impact Assessment of that event.
ITQB NOVA was also partner of Centro Ciencia Viva de Sintra, a science center located in the region of Sintra, one of the most populated in Portugal. As the scientific partner, ITQB NOVA provided scientific consultancy, materials, and science protocols.
ITQB NOVA contributed to the exhibition "Resistance-when bacteria resist antibiotics", that is now touring schools around the country.
ITQB NOVA has also organized hands-on activities at Microorganism Day, an event promoted by Sociedade Portuguesa de Microbiologia, Ordem dos Biólogos, Ciencia Viva and UNESCO.
ITQB NOVA also produced the exhibition "Rabiscos – Urban Sketching at ITQB NOVA", on drawings at Plant Sciences Lab, on display at ITQB NOVA building as part of the European Week for Biotechnology and on bar Irreal, Lisbon

TRAINING SCIENTISTS

Training in Science Communication is mandatory at all PhD programs coordinated by the institute. This training is also available for Sustainable Chemistry PhD Program and Universidade
NOVA Doctoral School. Other Science Communication courses coordinated by ITQB NOVA and delivered through NOVA Doctoral School are Communicating Science Visually and Social Media for Scientists. ITQB NOVA also offers a Master in Science Communication and a Summer Course in Science Communication, with FCSH NOVA.

MEDIA AND SOCIAL MEDIA

ITQB NOVA maintains an active communication with the outside world, on our research and researchers achievements. We produce news for the website, press releases that get covered by national and international Media and we maintain active social media accounts on Facebook, Twitter, YouTube, Instagram and LinkedIn.
"90 Segundos de Ciencia is a science dissemination radio program broadcast on national Antena 1 station twice daily since 21st November 2016, which is produced and coordinated by ITQB NOVA and FCSH NOVA, and sponsored by Novartis. The program has a dedicated website www.90segundosciencia.pt, and social media on Facebook and Twitter.

ITQB in 2017

MAIN SEMINARS

INVITED SPEAKERS

Seminars by invited speakers at ITQB NOVA

RNA modification and gene expression in hyperthermophiles
Stephen Douthwaite, University of Southern Denmark Odense, Denmark

Hospital Infection & Antimicrobial Resistance Control in Portugal. Building Bridges Over Troubled Waters
Paulo André Fernandes, director of the Program PPCIRA

The influence of Mitogen activated protein (MAP) kinases on *Aspergillus fumigatus* virulence and pathogenicity
Gustavo H. Goldman, Universidade de São Paulo, Brazil

Three types of cell competition and their roles during ageing, cancer and development
Eduardo Moreno, Cell Fitness Lab, Champalimaud Centre for the Unknown

An integrative approach towards the exploitation of the genetic repertoire of *Pseudomonas*
Pedro Santos, CBMA, U. Minho

COHiTEC 2017 Presentation Session
Natural and synthetic control of resource allocation in bacteria
Hidde de Jong, INRIA Grenoble – Rhône-Alpes, France

Understanding thiol redox signaling through computational modeling and systems analysis
Armindo J. Salvador, Centre for Neuroscience and Cell Biology, The University of Coimbra

Publishing at Nature Communications
Bruno Castro, Associate Editor of Nature Communications

Dual mode strigolactone signaling and the bud activation switch
Ottoline Leyser, Sainsbury Laboratory Cambridge University

Cell communication determines root architecture
Tom Beeckman, Department of Plant Biotechnology and Bioinformatics, Ghent University, Belgium

Trehalose-6-phosphate and sucrose – A tale of two sugars
John Lunn, Max Planck Institute of Molecular Plant Physiology, Potsdam-Golm, Germany

Development and application of DNA and RNA markers in Prunus breeding and production
Pedro Martinez-Gomez, Fruit breeding group of CEBAS-CSIC, Murcia

Spider mites aid to unravel the interaction between carbon-based and metal-based plant defences
Centre for Ecology, Evolution and Environmental Changes, FCUL

Regulation of receptor kinase-mediated immune signaling
Cyril Zipfel, The Sainsbury Laboratory, Norwich Research Park, Norwich, UK

One-hour talk on everything you need to know about science and the media
António Granado, Faculdade de Ciências Sociais e Humanas, Universidade Nova de Lisboa

The predictive power of preclinical cancer models
Erwin Boghaert, Abbvie, Chicago, USA

Metabolic Engineering and Synthetic Biology for improved biotechnological production: promises and realities
Eleftherios Terry Papoutsakis, University of Delaware

Genetic Demography of Dalmatian sage (*Salvia officinalis L.*): A Journey to the Past
Zlatko Šatović, University of Zagreb, Faculty of Agriculture, Zagreb, Croatia Centre of Excellence for Biodiversity and Molecular Plant Breeding, Zagreb, Croatia

From low-cost to slow / sober Anthropocene - rethinking agriculture first
Ioan Negrutiu–ENS Lyon

RoundTable - The role of plants for Food Security and Sustainability
Indoor Farming and the food challenges in 2050
João Alves Pereira, Grow TO GREEN

The alternative sigma factor σB plays a crucial role in adaptive strategies of *Clostridium difficile* during gut infection
Isabelle Martin-Verstraete, Institut Pasteur, Paris, France

The outer surface of *Clostridium difficile* spores: what we know and don´t know
Daniel Paredes-Sabja, Universidad Andrés Bello, Santiago, Chile

Engineering Biomolecular Affinity
Roberto Lins, Instituto Aggeu Magalhães, Brazil

Design and Biophysical characterization of structure-based vaccine antigens against HIV-1 and Zika viruses
Isabelle Viana, Instituto Aggeu Magalhães, Brazil

Reversible metamorphosis in a bacterium
Dennis Claessen, Leiden University

Natural products and their derivatives for the treatment of age-related neurological disorders
Pamela Maher, Salk Institute for Biological Studies, La Jolla, USA

New Insights into Light-Regulated Development
Elena Monte, Centre for Research in Agricultural Genomics (CRAG), Barcelona

Agro-biodiversity for improving crops and addressing development goals
Rodomiro Ortiz, Genetics & Plant Breeding, Swedish University of Agricultural Sciences (SLU), Sundsvagen, Sweden

Yeast biotechnology for biorefinery: new and reengineered production platforms for biochemicals and proteins
Diethard Mattanovich, University of Natural Resources and Life Sciences, Vienna, Austria

A novel carotenoid binding protein in cyanobacterial photoprotection (C-OCP)
David Buhrke, Technical University Berlin

The Molecular Mechanisms Underlying Cellular Uptake of Vitamin A
Filippo Mancia, Structural biology of integral membrane proteins, Columbia University, New York

Bacterial spores as a problem in cellular assembly
Per Bullough, Krebs Institute Electron Microscopy Lab, University of Sheffield, UK

BioEntrepreneurship 2017: Make it happen
Luís Filipe Lages, VCW Creator, Nova School of Business and Economics, Portugal

From Low resolution to High resolution Mass Spectrometry towards unequivocal identification.
Daniel Ettlin (UNICAM) and Silvia Maia (FCUP), Seminar organized within ONEIDA project

Paleontology
Octávio Mateus, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Portugal

Epidemiology
Helena Canhão, CEDOC, NOVA Medical School, Universidade Nova de Lisboa

Nutrition and Public Health, Epidemiology
Elisabete Pinto, Biotechnology College of the Portuguese Catholic University

History of exact sciences in the 15th to 17th centuries
Henrique Leitão, Head of the Department of History and Philosophy of Science, FCUL

Permaculture Design and Education
Sílvia Floresta, Design, Consultancy and Training in several Permaculture projects in Portugal

White (industrial) biotechnology: protein based polymers, enzyme adaptation
Tony Collins, Centre of Molecular and Environmental Biology (CBMA) at the Department of Biology, University of Minho

Chaperoning the Proteome
Walid A. Houry, Department of Biochemistry, University of Toronto, Canada

Molecular details of two allosteric activation mechanisms: mRNA methyltransferase RNMT and E3 ubiquitin ligase Parkin
Andrei Pisliakov, University of Dundee, UK

Assembly of RNPs and other macro-molecular complexes by R2TP and R2TP-like chaperones
Edouard Bertrand, IGMM, CNRS and Université de Montpellier, France

Structural Biology of phosphatidylinositol phosphate synthase, a new target for drug development
Filippo Mancia, Columbia University, USA

Gene mining in model and halophytic plants: functional identification of stress regulatory genes by random gene transfer and large-scale genetic screens
László Szabados, Biological Research Centre, Szeged, Hungary

Mobile Messengers in Plants: Lost in Translation?
Friedrich Kragler, Max Planck Institute of Molecular Plant Physiology

Dissecting the genetic architecture of salinity tolerance using high-throughput phenotyping
Sónia Negrão, King Abdullah University of Science and Technology (KAUST), Kingdom of Saudi Arabia

AVX SEMINARS

Created in 2008, "António V. Xavier Seminars" bring to ITQB NOVA outstanding Portuguese researchers working in Portugal. Carrying ITQB NOVA founder's name, this seminar series promotes the discussion on a diverse range of topics at ITQB NOVA community. The seminars are held in English and are open to the public.

The 12(+1) Labours of HERCULES – from Mythology to the cultural reality of Portugal
António Candeias, Universidade de Évora

On the diversity of links between transport and metabolism of carboxylic acids
Margarida Casal, Universidade do Minho

Biomaterials in tissue repair/regeneration: from foreign bodies to immunomodulation
Mário Barbosa, Universidade do Porto, i3S

Research oriented to improve the competitiveness in the agrifood and foresty areas
Nuno Canada, INIAV

Strategies for resources recovery from wastes - a path towards the circular economy
Madalena Alves, Universidade do Minho

How nutrients, neuronal circuits and gut bacteria shape nutritional decisions
Carlos Ribeiro, Champalimaud Centre for the Unknown, Lisbon

Challenges in Seafood Research: Bioprospection, Value Chain, and Aquaculture.
Narcisa Bandarra, IPMA

Timing the embryo
Isabel Palmeirim, Universidade do Algarve

Digital Minds: Science Fiction or near-future reality?
Arlindo Oliveira, Department of Computer Science and Engineering, IST

Valorization of natural resources by the extraction of value-added molecules for food applications
Isabel Ferreira, Mountain Research Center, Polytechnic Institute of Bragança, Portugal

FRONTIER LEADERS

Seminar series designed to integrate the ITQB NOVA PhD Program bringing to Portugal renowned researchers in biology and chemistry, in particular those awarded with ERC Advanced Grants.

Organic synthesis with rearrangements: adventures in total synthesis
Nuno Maulide, Universidade de Viena

Understanding complex glycan utilization in the human microbiota
Harry John Gilbert, Institute for Cell and Molecular Biosciences, University of Newcastle Upon Time, UK

CryoEM of mitochondrial membrane protein complexes
Werner Kühlbrant, Max Planck Institute of Biophysics, Frankfurt, Germany

Chemical Synthesis of Very Large Molecules
Jeffrey Bode, ETH Zurich

Mechanisms that maintain protein folding homeostasis in the endoplasmic reticulum
David Ron, University of Cambridge

The two-speed genomes of filamentous pathogens: from fundamental concepts to practical considerations
Sophien Kamoun, Sainsbury Laboratory, Norwich

SCAN SEMINARS

Seminars by inhouse researchers and ITQB NOVA alumni.

Presentation of new ITQB NOVA laboratories
Alvaro Crevenna, Tiago Cordeiro and Zack Hensel

New biocatalysts for removal of pharmaceutical contaminants
Mónica Martins, Bacterial Energy Metabolism Lab

Science Communication at ITQB NOVA. Now what?
Joana Lobo Antunes, Communication Office

Electron Transfer between the QmoABC Membrane complex and Adenosine 5´-Phosphosulfate Reductase
Américo G. Duarte, Bacterial Energy Metabolism Lab

Bioprocess Engineering for Vaccines Production
António Roldão, Engineering Cellular Application, ACT Unit

Roadmap to creating Value from your Research
Marta MB Ribeiro, Knowledge and Tech Transfer Officer

From metabolomics to protein structure and function - An overview of NMR applications
Manolis Matzapetakis, Biomolecular NMR Lab

Funding opportunities for Postdocs and Early PIs
Margarida Trindade and Madalena Martins, Funding Office

Some science around the skin
Sofia Souza, Biomolecular Diagnostic Lab

Bacterial oxidoreductases for industrial biotechnology
Lígia O. Martins, Microbial & Enzyme Technology Lab

ITQB NOVA Innovation Series – How to Assess a New Business Idea?
Marta Ribeiro, Knowledge and Tech Transfer Officer

The opportunities for Portugal within the European Infrastructure Instruct
Maria Arménia Carrondo, Structural Genomics Lab, Macromolecular Crystallography Unit

The Marie Curie Master Class new initiative explained
Margarida Trindade, ITQB NOVA Science Funding Office

Emerging molecular biomarker targets for amyotrophic lateral sclerosis
Júlia Costa, Glycobiology Lab

Functional genomics and genetic engineering for improved manufacturing of viral vectors for gene therapy
Ana Filipa Rodrigues, Cell Line Development & Molecular Biotechnology Lab – ACT Unit

Information Session on the 2017 FCT Projects Call
Margarida Trindade, Madalena Martins, ITQB NOVA Science Funding Office

From signal perception to the regulation of metabolism, the story of a Ca2+-dependent protein kinase
Isabel Abreu, Proteome Regulation in Plants Lab

Model-based metabolic engineering - from genome-scale networks to improved microbial cell factories
Isabel Rocha, University of Minho

Insertion sequences as key players in phenotypic and genotypic plasticity of Staphylococcus haemolyticus
Ons Bouchami, Bacterial Evolution and Molecular Epidemiology

Studies of multiheme cytochromes c from anaerobic bacteria that use metals to sustain their bioenergetic metabolism
Ricardo Louro, Inorganic Biochemistry and NMR

The role of Base Excision Repair (BER) for the extreme radiation resistance of *Deinococcus radiodurans*
Elin Moe, Structural Genomics

Institute of Life Sciences, Scuola Superiore Sant'Anna
Mario Enrico Pè, Paolo Bàrberi and Vincenzo Lionetti. Scuola Superiore Sant'Anna, Italy

Selenium does it better, or the fundamental role of Selenocysteine in [NiFeSe] hydrogenase maturation and catalysis
Pedro Matias, Industry and Medicine Applied Crystallography

Healthier Crops: the genomic approach to answer public concerns
Carlota Vaz Patto, Genetics and Genomics of Plant Complex Traits (PlantX)

A three-act play: fungi, chemicals and demise
Cristina Silva Pereira, Applied and Environmental Mycology

Omics inputs for non-model organisms' outputs
Ana Varela Coelho, Proteomics of Non-Model Organisms

Nanopore experiments for everyone!
James Yates, Single Molecule Processes

The coherent competences of IBET for Biopharmaceuticals
Manuel J. T. Carrondo Lab, Engineering Cellular Applications

Biophysical Constrains in the Evolution of Drug Resistance: the Case of Dihydrofolate Reductase
João Rodrigues, ITQB NOVA ALUMNI, Harvard University

Continuous Advances in the Synthesis of Active
Emília p. T. Leitão, Hovione FarmaCiência SA, Process Chemistry Development

Life in the Lab
Round table organized within Summer School "Summer Science @ITQB NOVA"

Science Out of the Box
Round table organized within Summer School "Summer Science @ITQB NOVA"

Assessing the role of phenotypic heterogeneity on *Staphylococcus aureus* tolerance to beta-lactams
Vincent de Bakker, Master student

Molecular structure of FoxE, the putative iron oxidase of *Rhodobacter ferrooxidans* SW2
Carlos Frazão, Structural Biology Lab

Endoplasmic reticulum stress in the Drosophila eye
Pedro Domingos, Cell Signaling in Drosophila

Bioinformatics Services @ IGC in the context of BioData.pt and ONEIDA
Daniel Sobral, Bioinformatics Unit, IGC

Opportunities and Challenges in R&D for Biologics Discovery and Development
Paula Alves, Animal Cell Technology Unit

IBET-ITQB NOVA SEMINAR

Joint seminars IBET and ITQB NOVA

The intersection between chemical and biomedical engineering: green technologies towards the development of enhanced biomaterials
Rita Cruz Duarte, 3B´s Research Group, Dept. of Polymer Engineering, University of Minho

DD Biologics – an overview on challenges and opportunities
Simone Kardinahl, Cell & Protein Sciences, Biologics Research, Bayer AG

Manufacturing human pluripotent Stem Cells and their progenies
Robert Zweigerdt, Hannover Medical School (MHH)

Drug and cell delivery systems for cardiac repair
Felipe Prosper, Clinica Universidad de Navarra

Knowledge Management
Alain Bernard, Independent advisor to pharma executives, Institut National Agronomique Paris

Addressing unmet medical need: Key drivers for Drug Discovery at Bayer
Andreas Busch, Head of Drug Discovery – Bayer Pharmaceuticals

A Uniform-Shear-Rate Microfluidic Bioreactor for Real-Time Analysis of Proplatelet Formation and Rapidly-Released Platelets
William M. Miller, Chemical and Biological Engineering, Northwestern University Evanston, USA

Regulated lysosomal exocytosis, an unconventional pathway in cancer progression
Eda Machado, St. Jude Children's Research Hospital, Memphis, USA, ITQB NOVA ALUMNI

Small molecule modulation of lipid metabolism protect ß cells against Lipotoxic induced dysfunction
El Hadji M Dioum, Nestlé Institute of Health Sciences, Lausanne Switzerland

Biopharmaceutical Process Development and Manufacturing: Industry Experience and Perspective from an ITQB alumnus
Nuno Fontes, Executive Director of Process Science, Boehringer-Ingelheim, Fremont, California, USA

HiSeedTech Presentation and Roadshow HiTech

PHD THESES

ITQB NOVA

Sónia de Fátima Estevão Neto, Biochemistry
Unravelling the molecular mechanisms that orchestrate eléctron transfer in the anaerobic respiratory metabolismo of MR-1

Filipa Baltazar da Costa Vaz, Biology
Bacteria present mechanisms that evade celular and humoral responses mediated through peptidoglycan recognition by PGRP-SA and PGRP-LC

Carmen Sofia Pedro dos Santos, Biology
Genomic approaches to understand the genetic response to *Phytophthora cinnamomi* Rands in Castanea spp

Cláudia Alhinho Mourato, Biochemistry
Biological Interconversion of Hydrogen and Formate

Sandra Isabel Pereira Santos, Biochemistry
Unraveling the protection mechanisms in the radiation resistant bacterium *Deinococcus radiodurans*: Cross-talk between Dps proteins triggers manganese distribution as a defense strategy against oxidative stress

Soraia Cristina Marques Caetano, Biology
Stress response mechanisms underlying metal detoxification in yeast: The cases of cobalto, cadmium and iron

André Miguel Henriques Cordeiro, Biology
The rice Phytochrome-Interacting Factor 14 – a regular of cold, jasmonic acid and light related genes

Hugo Ferrão Dias de Almeida, Technological and Enginering Science
Treatment of aqueous effluents contamined with active pharmaceutical ingredient

Maria Cecília Marques dos Santos Mousinho Almadanim da Câmara Pina, Biology
OsCPK17, a calcium-dependent protein kinase that modulates rice response to abiotic stress

Saúl Alves Graça da Silva, Chemistry
Aziridines and their asymmetric conversion to bioactive compounds: Approaches to Terpestacin, Oseltamivir and analogues

Pedro Rafael da Silva Álvaro Magalhães, Biochemistry
Inclusion of protonation effects in the simulation of proteins in membrane environments

Sara Teresa Neves da Silva, Biochemistry
Structural insights into the human multifunctional protein RuvBL2

Inês Rodrigues Silva Cristo, Biology
Grainy Head in Wound Healing: Maintaining Identity within Caos

Inês Margarida Lourenço Figueira, Biochemistry
Deciphering the potential of berries polyphenol metabolites for Parkinson's Disease: Digestion, blood-brain barrier transposition and neuroprotective effect

Nazua Farida Lima Ferreira da Costa, Biochemistry
Gram positive bacteria do it differently? – Probing the molecular bases for the efficient extracellular electron transfer performed by *Thermincola potens* JR

INSTITUTO GULBENKIAN DE CIÊNCIA

Maria Inês da Silva Pais, Biology
Understanding the microbiota community of *Drosophila melanogaster* and its role on the immune system

Maria Adelina Gonçalves Jerónimo, Biology
The origin and development of novelty: eyespots and immunity

Ana Stankovic, Biology
Cell cycle-based mechanism of epigenetic centromere propagation

Caetano Souto Maior Mendes, Biology
Model-based inferences in host-pathogen-symbiont interactions: Implications for the design of experimental and observational studies

Pedro Ângelo Pereira da Silva, Biology
Quantitative image analysis of cells using morphodynamical models: Sea urchin spermatozoa as case study

Ozhan Ozkaya, Biology
Dynamics of Interbacterial Cooperation and Cheating

Ana Martins Ribeiro, Biology
Nrf2 Confers Disease Tolerance to Bloodstream Infections

Ewa Renata Piskadlo, Biology
Maintenance of metaphase chromosome architecture by condensin I

Sascha Werner, Biology
The role of intraflagellar transport in ciliary maintenance

Elvira Lafuente Mazuecos, Biology
Evolution and regulation of developmental plasticity: body size and pigmentation in Drosophila

CHAMPALIMAUD FOUNDATION

Jacques Edgard Angelo Bourg, Biology
Amplification in cortical networks

Niccolò Bonacchi, Biology
Spatial goals and actions in the orbitofrontal cortex

Samantha Lucille Herbert, Biology
How the nervous system responds to and regulates amino acid homeostasis

Samuel James Walker, Biology
More than Fruit Flies: Neuronal mechanisms of nutrient selection in Drosophila

Sofia Lima da Silva Soares, Biology
Time in the basal ganglia: The contributions of striatal and midbrain dopamine neurons to timing behavior

MASTER THESES

MASTER IN BIOCHEMISTRY FOR HEALTH

SUPERVISED AT ITQB NOVA

Ana Rita de Jesus Nogueira
Otimização da produção de proteínas recombinantes em culturas de células vegetais: edição de genoma de células de tabaco BY-2 através de CRISPR-Cas9

Andreia Sofia da Costa Vieira
Rethinking Triazoles as Antifungals: Synthesis and Evaluation of New Triazole derivatives

Bárbara Almeida Rebelo
Chemical Synthesis of New Histone Deacetylase Inhibitors and their Evaluation as Inducers of Recombinant Protein Production In Plants

Daryna Piontkivska
Unravelling how the biosynthesis of sphingolipids impacts stress responses in Aspergillus nidulans

Diana Marisa Marques dos Santos
Improving a bacterial pyranose 2-oxidase from Arthrobacter siccitolerans though directed evolution

Joana Grand-Guillaume Perrenoud Silvestre Ferreira
The role of post-translational modifications on STAT3 interactions

Joana Lisboa da Silva Gonçalves
Molecular and Cellular Investigation of Malate: quinone oxidoreductases from *Staphylococcus aureus*

Marcela Tatiana Barros Vaz
Unraveling phytochemicals with potential therapeutic application for neurodegeneration

Patrícia Alexandra Soares Sequeira
Elucidate the biosynthesis and the functional role of new class of antimicrobial peptaibiotics in *Neurospora crassa*

Sara Cristina Pardal Conceição
Insights in dissimilatory sulfite reductase proteins

SUPERVISED AT NMS - FCM

Ana Raquel Lourenço Sousa
HIV-1 infection on Follicular Helper T cells

Miguel Carvalho Ravasco Milhano Correia
Modulation of the Carotid body activity to treat obesity

SUPERVISED AT FCT NOVA

António Guevara Ferreira Exposto Rodriguez Lopez
Photothermal therapy using gold nanoparticles

Carlota Moutinho Pascoal
Immunological aspects of glycosylation: from aberrant to defective glycosylation

Maria Constança Gomes Radinha Pais do Amaral
In vitro and in vivo models to assess cancer metastasis

Melanie Santos Matos
Exploring the potential of natural extracts obtained from winemaking waste streams for cosmetic applications

Patrícia Costinha Marques
The role of PGN hydrolases in the ability of *Staphylococcus aureus* to evade the host innate immune system

Kamila Kappe Dias
Safety Assessment of Polymeric Nanoparticle Carriers for Drug Delivery in Human Osteoblasts

MASTER IN SCIENCE COMMUNICATION

SUPERVISED AT ITQB NOVA

Vera Lia de Oliveira Sequeira
Comunicação estratégica de ciência: análise de benchmarking de instituições científicas nacionais e internacionais e proposta de plano de comunicação para o MARE - Centro de Ciência do Mar e do Ambiente

SUPERVISED AT FCSH NOVA

Daniel José da Costa Ribeiro
Sinalética nos Centros de Ciência: estudo de caso no Centro Ciência Viva de Guimarães

Helena João Paraíso Diniz Gonçalves Santos Pinto
MAAT - Museu de Arte, Arquitectura e Tecnologia. Diagnóstico e avaliação da comunicação do circuito expositivo

Ana Isabel Fernandes Sousa
Exhibit Development in a Science Centre - Internship at the Glasgow Science Centre

Mariana Adeodato Alves de Souza
Angariação de fundos para investigação científica em Portugal: o Caso da Maratona da Saúde

RESEARCH HIGHLIGHTS

Regulating the regulators
Novel silencing enzyme acts on double and single-stranded RNAs with important consequences for host-microbe interactions
Nucleic Acids Research, 2016 1 doi: 10.1093/nar/gkw1234

How selenium does the trick
ITQB NOVA researchers unravel the molecular basis for high activity and oxygen tolerance in a special hydrogenase
Nature Chemical Biology (2017) doi:10.1038/nchembio.2335

Portuguese chestnuts resist
ITQB NOVA and INIAV researchers unveiled chestnut defense mechanism to pathogen
Frontiers in Plant Science doi: 10.3389/fpls.2017.00515

Evolution in a test tube
Engineering a bacterial enzyme to degrade natural raw material
ACS Catal. 2017, 7, 3454−3465 DOI 10.1021/acscatal.6b03331
PLOS Genetics13(4): e1006674

The emergence of antibiotic resistance
ITQB NOVA researchers have shown how antibiotic resistance emerged from an harmless gene in bacteria
PLOS Genetics13(4): e1006674

The origin of Portuguese bean
500 years of natural adaptation and farmers' selection have made Portuguese bean unique
Front. Plant Sci., 26 July 2017

Tasty and healthy
Researchers found berries' metabolites that can be neuroprotective
Scientific Reports 7, Article number: 11456 (2017)

Crosstalking molecules
ITQB NOVA researchers shed light on the formation of bacterial biofilms
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Environment can be more harmful to rice than genetic engineering INSA and ITQB NOVA research measured the impact of environmental stress on plant genes and proteins throughout 8 generations
Scientific Reports 7, Article number: 10624 (2017) doi:10.1038/s41598-017-09646-8

ITQB NOVA research on the spotlight
Lígia Martins Lab's work distinguished by the American Chemical Society
ACS Catal. 2017, 7, 3454−3465 DOI 10.1021/acscatal.6b03331

New tools for drug design
K4DD project results published today in Nature Communications
Nature Comms. 2017 Doi: 10.1038/s41467-017-02258-w

FULL LIST OF PUBLISHED PAPERS 2017

Articles indexed in Web of Science Core Colletion

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Book Editors

1 Oliveira MM & Abreu IAA (Editors), Proteomics in Plant–Environment Interactions, 2017, Special Issue of Proteomes (ISSN 2227-7382).

Book Chapters

1 Cerqueira, M. Â. P. R., Pinheiro, A. C. B., Do Carmo, C. V. S., Duarte, C. M. M., Da Cunha, M. D. G. C., & Vicente, A. A. M. D. O. S. (2017) Nanostructured biobased systems for nutrient and bioactive compounds delivery. In Nutrient Delivery, pp. 43-85. Elsevier. DOI: 10.1016/B978-0-12-804304-2.00002-0

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5 Ferreira, L. J., Ravasco, S., Figueiredo, D. D., Peterhänsel, C., Saibo, N. J., Santos, A. P., & Oliveira, M. M. (2017) Deciphering Histone Modifications in Rice by Chromatin Immunoprecipitation (ChIP): Applications to Study the Impact of Stress Imposition. In J. Li (Ed.), Advances in International Rice Research, InTech. DOI: 10.5772/66424

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ONGOING PROJECTS 2017

PROJECTS FUNDED BY FCT

1	MIT – Bioengineering Systems	MIT-PT/BS/0004/2006	Cláudio M. Soares	5 877,63
2	Nanoengineered exosomes to treat glioma	ENMed/0001/2013	Júlia Costa	99 600,00
3	Modulation Ire1 to prevent Parkinson' Disease	FCT-ANR/NEU-NMC/0006/2013	Pedro Domingos	200 000,00
4	Investigating Novel Valuable bio-therapeutics and expression systems (INNOVATE)	ERA-IB2/0006/2013	Paula ALves	75 000,00
5	Biocatalysis for tackling lignin recalcitrance	PTDC/BBB-EBB/0122/2014	Lígia Martins	179 886,00
6	Structural and functional analysis of the Haa1 transcription factor required for yeast response and resistance to acetic acid	PTDC/BBB-BEP/0385/2014	Carlos Frazão	12 937,00
7	DNA repair from bacteria to man: Insights into structural and mechanistic features of Base Excision Repair (BER) initiation	PTDC/BBBBEP/0561/2014	Elin Moe	147 930,00
8	Deciphering the grass pea (*Lathyrus sativus*) quality riddle. How can the omics technologies contribute to a demand-driven improvement in legume quality?	PTDC/AGR-TEC/0992/2014	Carlota Vaz Patto	155 484,00
9	Determination of the architecture and the RNA degradation strategy of Ribonuclease R: implications for pathogen control	PTDC/BIA-MIC/1399/2014	Cecília Arraiano	199 780,00
10	Functional characterization of genes required for neurodegeneration caused by endoplasmic reticulum stress	PTDC/NEU-NMC/2459/2014	Pedro Domingos	199 474,00
11	Designing poly(ionic liquid)-based engineered membranes for hydrogen purification	PTDC/CTM-POL/2676/2014	Liliana Tomé	59 404,80
12	Reduction of CO_2 for sustainable biofuel production	PTDC/BBB-EBB/2723/2014	Inês Cardoso Pereira	140 598,00
13	Engineering a highly active NiFeSe Hydrogenase for electrocatalytic and photocatalytic applications	PTDC/BBB-BEP/2885/2014	Pedro Matias	199 595,00
14	Diiron proteins in the microbial response to oxidative or nitrosative stress	PTDC/BBBBQB/3135/2014	Miguel Teixeira	187 137,00
15	Deciphering the role of BolA in persistence and biofilm formation	PTDC/BIA-MIC/4046/2014	Ricardo Moreira	196 143,00
16	The difference a cell wallmakes:optimization of bioelectrochemical systems by exploring the paradigm of extracellular electron transfer in Gram-positive bacteria	PTDC/BBBBQB/4178/2014	Catarina Paquete	147 025,00
17	An RNA-based approach to bacterial infection: The function of PNPase and regulatory noncoding RNAs in Listeria virulence	PTDC/IMI-MIC/4463/2014	José Andrade	184 582,00
18	Biosynthesis of modified tetrapyrroles in Staphyloccocus aureus	PTDC/BBB-BQB/5069/2014	Susana Lobo	171 354,00
19	Targetting inhibition of microbial sulfidogenesis: Biochemical and structural characterization of DsrD	PTDC/BIA-MIC/6512/2014	Sofia Venceslau	133 496,00
20	Discovery and training of microbial biocatalysts for biomass conversion using moving bed technology(MBT)	ERAMBT/0003/2014	Elin Moe	124 956,00
21	Powdery Mildew susceptibility in grapevine: phenotype-genotype linkage in the Portuguese germplasm	PTDC/AGR-PRO/4261/2014	Pedro Fevereiro	64 059,00

22	Natural Deep Eutectic Solvents: A platform to Boost *Eucalyptus globulus* and *Quercus suber* cork integrated Biorefineries	PTDC/AGR-TEC/1191/2014	Cristina Silva Pereira	72 897,00
23	Structure and Function of a Dodecameric Molecular Machine: the human RuvBL1/RuvBL2 Complex and its Role in Disease	PTDC/BBB-BEP/1463/2014	Pedro Matias	33 481,00
24	The way forward: optimization of respiratory electron transfer chains toward sustainable microbial electricity production	PTDC/BBB-BQB/3554/2014	Catarina Paquete	49 526,00
25	An integrated systems approach to uncover the key players in complex protein N-glycosylation in *Trypanosoma brucei*	PTDC/BBB-BSS/0827/2014	Rita Ventura	55 344,00
26	EvoMod- Origin and Evolutionary establishment of a transcriptional module controlling flower asymmetry	PTDC/BIA-PLA/1402/2014	Célia Romão	27 900,00
27	Nonsense-mediated mRNA decay in genetic diseases and cancer: key players, mechanisms, and a novel approach for suppression therapy	PTDC/BIM-MEC/3749/2014	Sandra Viegas	50 400,00
28	Nanoheaters and nanothermometers playing together: towards applications in Brownian motion and hyperthermia	PTDC/CTM-NAN/4647/2014	Federico Herrera	15 120,00
29	MolybdenumnanoparticlecoatingtoreduceMRSAcontaminationofpublicandhealthcareenvironments	PTDC/DTPEPI/0842/2014	Hermínia de Lencastre	93 612,00
30	Microfluidics Liquid Crystal Based Bifuncional Bacterial Infeccion Sensor	PTDC/FIS-NAN/0117/2014	Maria Miragaia	15 000,00
31	Small-molecule inhibitors of human proteasome: a step forward in anticancer drug discovery	PTDC/QEQ-MED/7042/2014	Margarida Archer	19 200,00

Projects coordinated by ITQB Researchers/ Projects where ITQB Researchers participate

EXPLORATORY PROJETCTS (IF POSITIONS)

32	IF/00376/2012/CP0165/CT0003	Carla António	50 000,00
33	IF/01023/2013/CP1173/CT0003	Colin Edward McVey	50 000,00
34	IF/00094/2013/CP1173/CT0005	Federico Herrera	50 000,00
35	IF/00268/2013/CP1173/CT0006	Mónica Serrano	50 000,00
36	IF/00109/2014/CP1244/CT0007	Ana Petronilho	50 000,00
37	IF/00961/2014/CP1244/CT0012	José Andrade	50 000,00
38	IF/01004/2014/CP1244/CT0011	João Vicente	50 000,00
39	IF/00124/2015	Catarina Pimentel	50 000,00
40	IF/00217/2015	Sandra Viegas	50 000,00

PORTUGAL 2020

41	Plataforma Ómica para Prevenção e Controlo de Infeções e de Resistência aos Antimicrobianos (ONEIDA)	16417	Raquel Sá Leão	2 495 054,09
42	ITQB + : Um compromisso para a internacionalização da Investigação e Desenvolvimento no ITQB	22053	Margarida Trindade	82 645,99

PROJETOS DE INFRAESTRUTURAS DE INVESTIGAÇÃO NO ROTEIRO NACIONAL DE INFRAESTRUTURAS DE INVESTIGAÇÃO

43	Plataforma Portuguesa de Bioimagem (PPBI)	POCI-01-0145-FEDER-22122	Adriano O. Henriques	318 680,00
44	Rede Nacional de Espectrometria de Massa (RNEM)	Lisboa-01-0145-FEDER-022125	Isabel Abreu	185 307,54
45	Infraestrutura Portuguesa de Dados Biológicos (BIODATA)	Lisboa-01-0145-FEDER-022231	Nelson Saibo	63 820,00
46	Rede Nacional de Ressonânica Magnética Nuclear (RMN)	POCI-01-0145-FEDER-022161	Pedro Lamosa	858 287,24

PROJECTS FUNDED BY PFIZER

47	Pneumo S-Influence of cigarette smoking in the dynamics of carriage of *Streptococcus pneumoniae*: a longitudinal study	WI183695	Raquel Sá Leão	242 676,00
48	PneumoY2: Evolution and adapatation of *Streptococcus pneumoniae* population in the era of expanded conjugates vaccines	WI182109	Raquel Sá Leão	225 000,00
49	PneumoY3 – Effect of universal use of the 13-valent pneumococcal conjugate vaccine on pneumococcal colonization: a study following several years of use of PCVs in the private market in Portugal	WI230921	Raquel Sá Leão	240 024,00

PROJECTS FUNDED UNDER ERASMUS + PROGRAMME

50	TRANSPEER: A transnational skills programme to enhance the employability of researchers.	2017-1-SE01-KA203-034535	Margarida Trindade	60 850,00
51	ERASMUS+ Strategic Partnerships - Science starts at school		Ana Sofia Fortunato	19 965,00

PROJECTS FUNDED BY EUROPEAN COMISSION:

52	Legumes for the Agriculture of tomorrow (LEGATO)	613551	Carlota Vaz Pato	335 000,00
53	Understanding the Clostridium Spore, a Prerequiste for disease intreventions and explotation (CLOSPORE)	642068	Adriano Henriques	476 712,72
54	Embedding crop diversity and networking for local high quality food systems (DIVERSIFOOD)	633571	Carlota Vaz Patto	140 000,00
55	A stepping stone approach towards the genetics clinic of the future (GCOF)	643439	Mara Almeida	127 500,00
56	Exploiting native endowments by re-factoring, re-programming and implementing novel control loops in Pseudomonas putida for bespoke biocatalysis (EmPowerPutida)	635536	Cecília Arraiano	621 250,00

57	Infrastructure for NMR, EM and X-ray crystallography for translational research (iNEXT)	653706	Margarida Archer	31 250,00
58	Foreseeing Opportunities, Risks and Emergent Science Issues for the next Generation: Highlighting Trends (FORESIGHT)	722968	Joana Lobo Antunes	12 500,00
59	FLow Induced Phase Transitions, a new low energy paradigm for polymer processing (FLIPT)	713475	Cristina S. Pereira	296 368,75
60	Releasing the full potential of Instruct to expand and consolidate infrastructure services for integrated structural life science research (INSTRUCT-ULTRA)	731005	Arménia Carrondo / Margarida Archer	100 000,00

ERC

61	Finding new mechanisms for protein localization in Bacteria (ProteinLocalization)	ERC-2012-StG-20111109 - Grant Greement 310987	Mariana Pinho	1 656 960,00
62	Development of biomaterials through mimesis of plant defensive interfaces to fight wound infections (MIMESIS)	ERC-2014-CoG- 647928	Cristina Silva Pereira	1 795 967,50

EUROPEAN DEFENCE AGENCY

63	Risk Assessment for CB Exposure after Decontamination (RACED)	A-1152-RT-GP	Adriano O. Henriques	60 000,00

NOVARTIS

64	90 Segundos de Ciência		Joana Lobo Antunes	36 760,00

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