annual report 2016

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 Instituto Gulbenkian de Ciência or otherwise use laboratory space from the Instituto Nacional de Investigação Agrária e Veterinária (INIAV).

ITQB NOVA was one of the first research institutions to be awarded the status of Laboratório Associado (LA) 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, 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
Maria Arménia Carrondo, ITQB NOVA
Manuel Carrondo, ITQB NOVA
Miguel Nuno Teixeira, ITQB NOVA
Paula Maria Marques Alves, ITQB NOVA
Aristides Mendes (student), ITQB NOVA

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Fernando Jorge Tavares (responsible for financial and property management)

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Isabel Marrucho

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Raquel Sá-Leão (Mariana Pinho)

Plant Biology
Nelson Saibo - Division Coordinator
Rita Abranches (Mª Carlota Vaz Patto)

Technology
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Abel Oliva (Ana Sofia Coroadinha)

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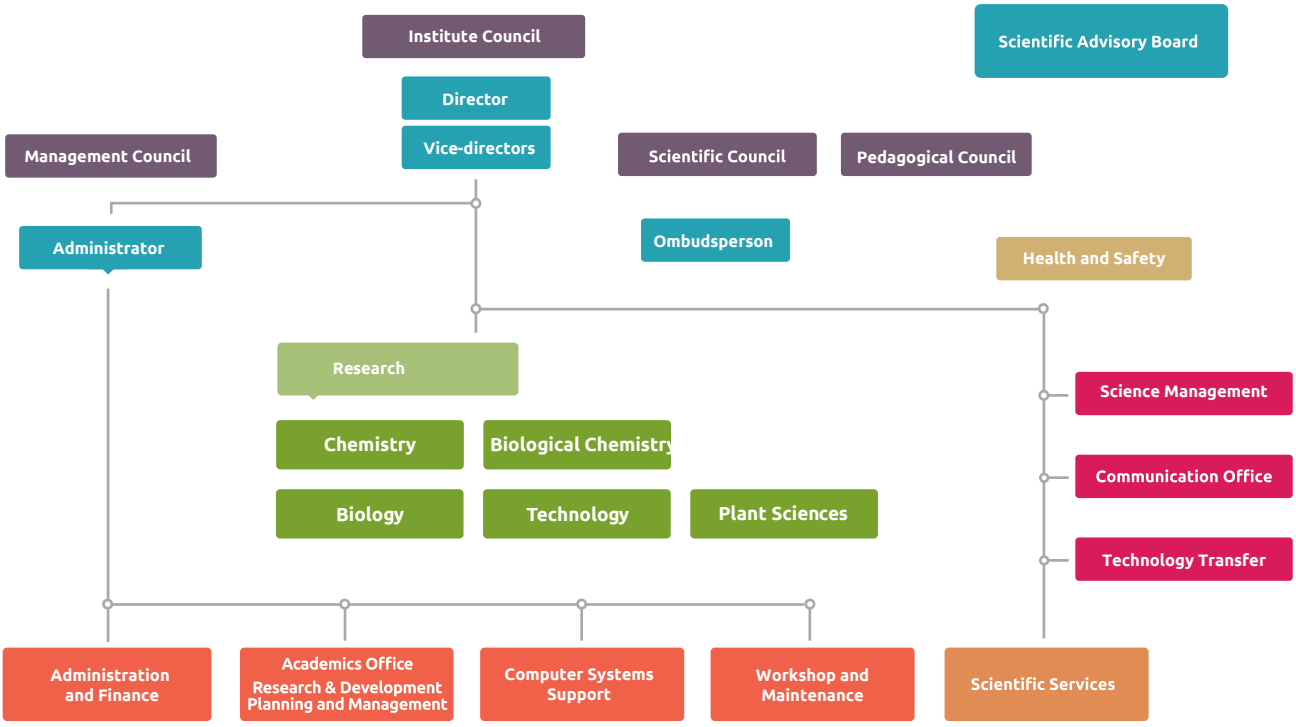
Bonnie L. Bassler, Department of Molecular Biology, Princeton University, USA

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



HEALTH AND SAFETY

Helena Matias, Chairman
Margarida Oliveira, Vice Director

Nuno Monteiro
First Floor Coordinator/Workshops & Maintenance (Alexandre Maia)

Fernando Tavares
Second Floor Coord. (Cristina Afonso)

Manolis Matzapetakis
Third Floor Coordinator (Ricardo Louro)

Abel Oliva
Fourth Floor Coordinator (Júlia Costa)

Lígia Martins
Fifth Floor Coordinator (Teresa Crespo)

Cândido Pinto Ricardo
Sixth Floor Coordinator (Nelson Saibo)

Rita Delgado
Seventh Floor Coordinator (Margarida Archer)

Cristina Silva Pereira
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

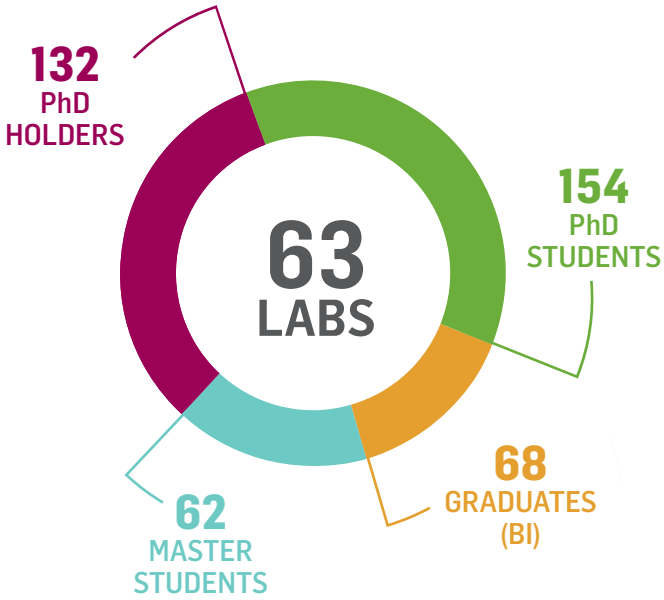
Library
Isabel Murta

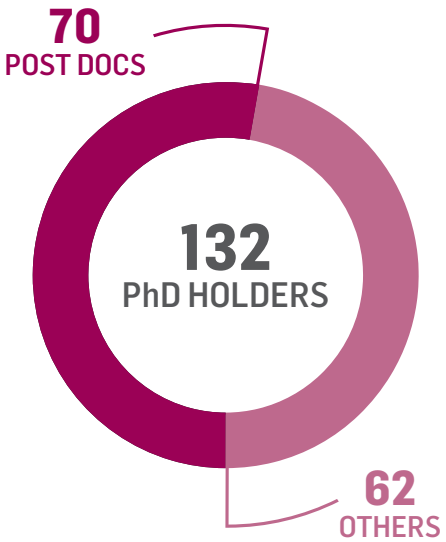
Teaching Laboratory
Teresa Baptista da Silva

CTQB ADMINISTRATION

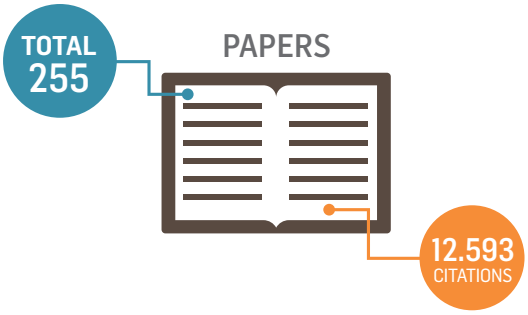
Cândido Pinto Ricardo (President)
Inês Cardoso Pereira (Vogal)
Júlia Costa (Vogal)

PEOPLE



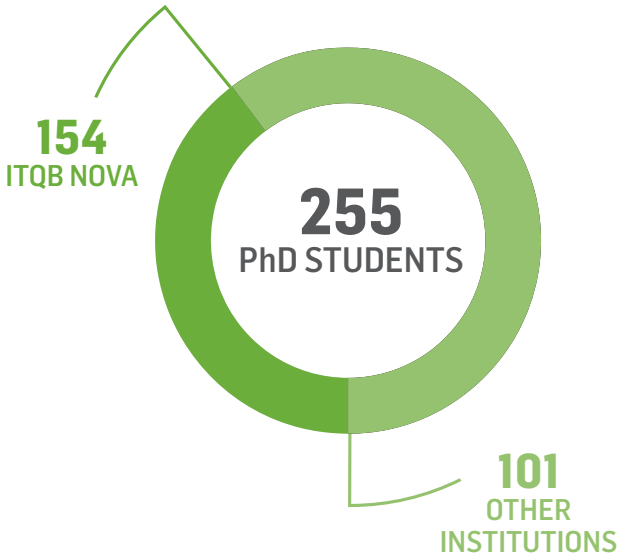


RESEARCH

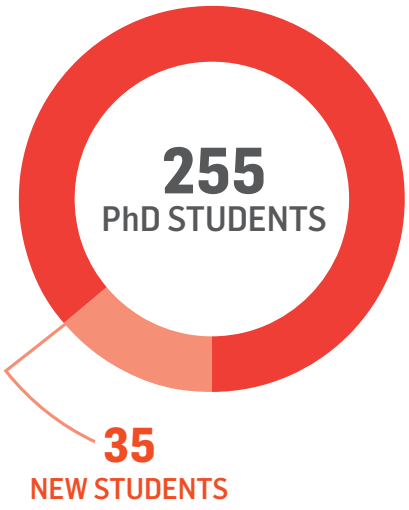


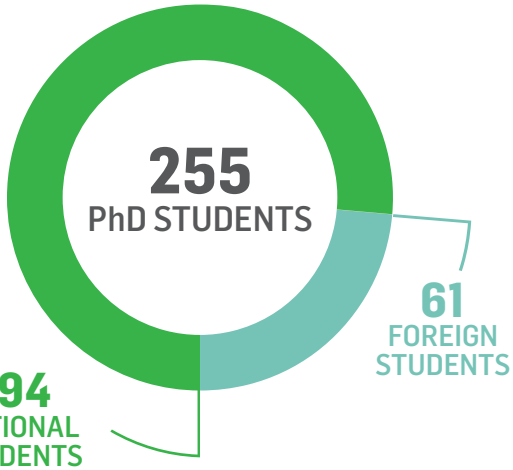
ONGOING RESERCH
PROJECTS

EDUCATION

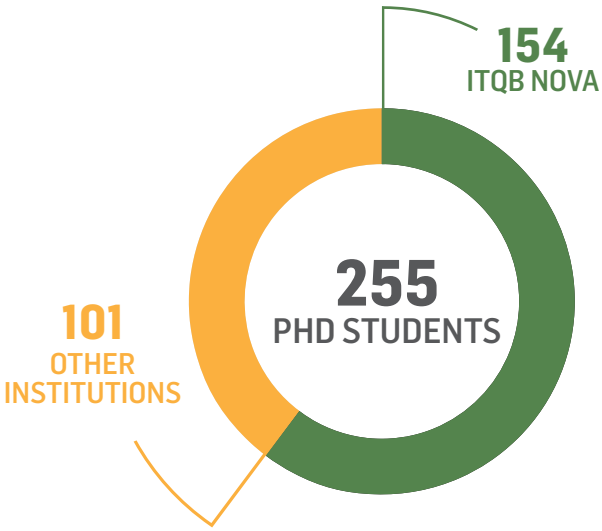


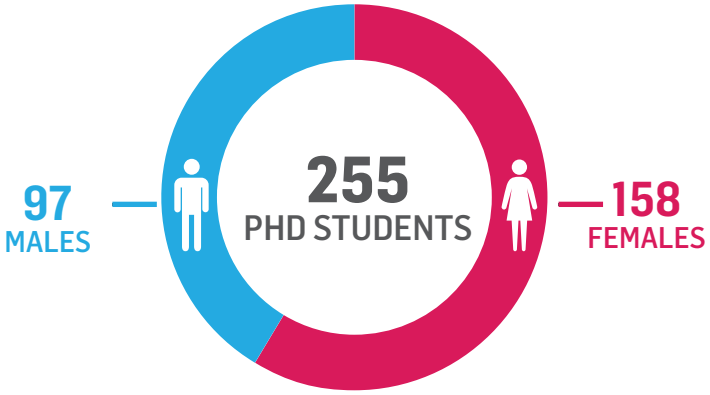
51
Phd
degrees
awarded



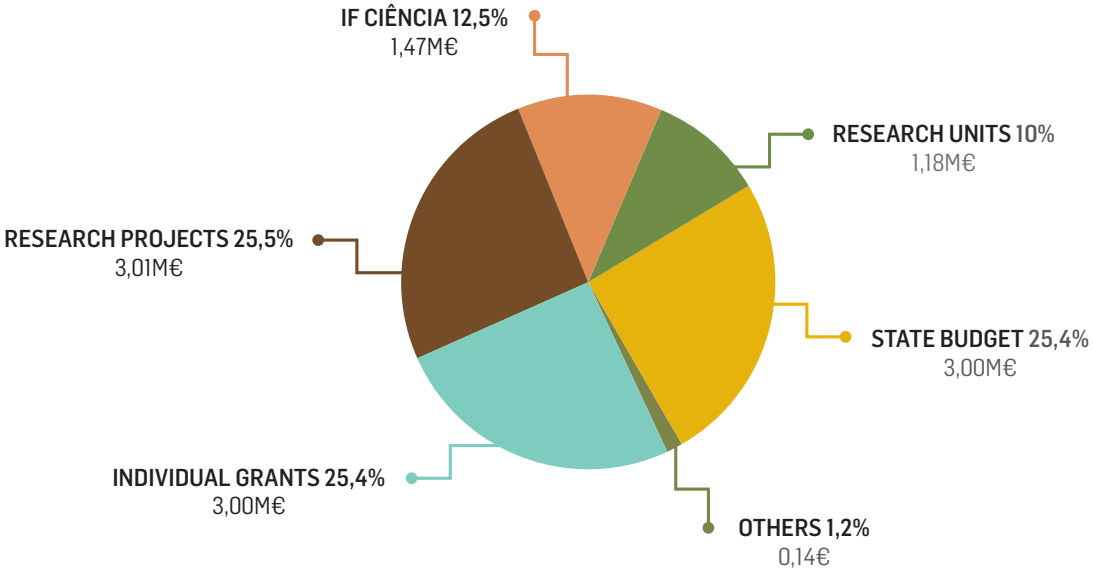


EDUCATION





FUNDING

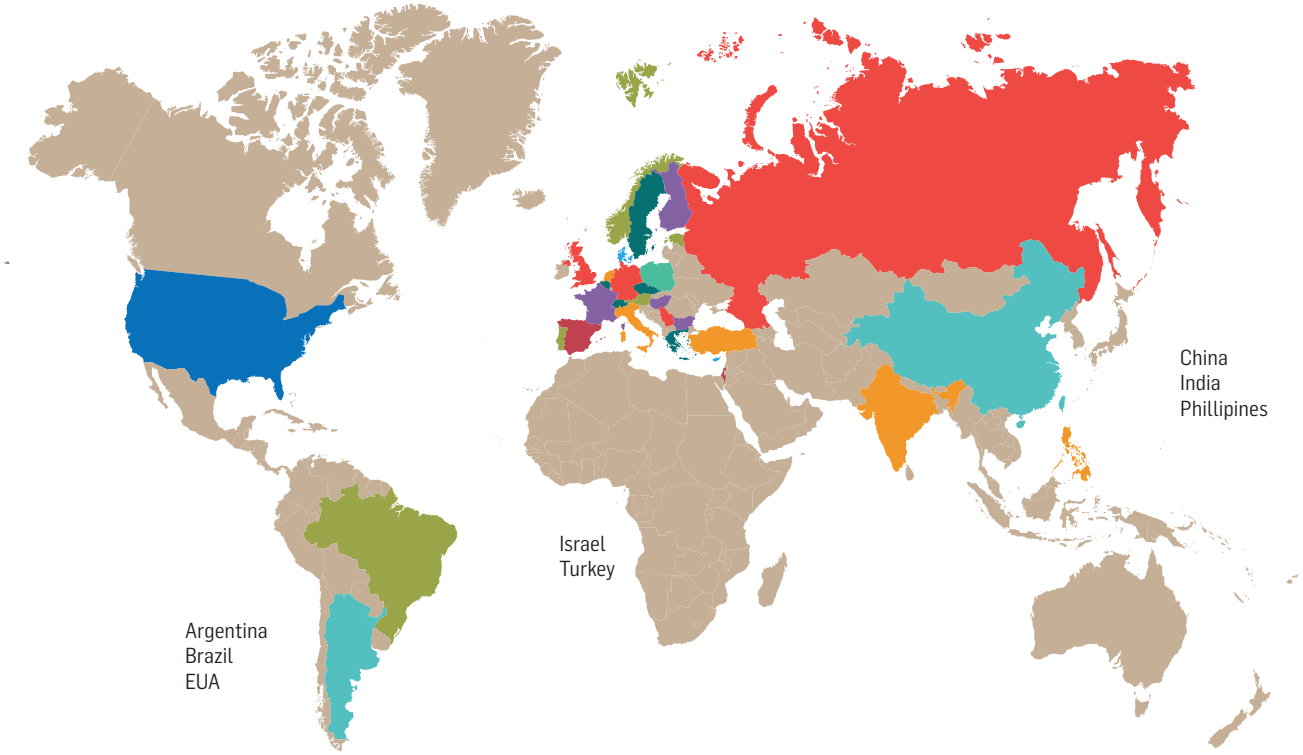


TOTAL 11,8M€

INTERNATIONALIZATION

Countries with projects in colaboration with ITQB NOVA.

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



A YEAR IN REVIEW

JANUARY

JAN 7
Welcome SessionMolBioS 2016 PhD Students

JAN 30 TO FEV 2
Biostruct-X
Workshop on Ensemble Refinement of Protein Crystal Structures

FEBRUARY

FEB 4
FCT new Board of Directors appointed, with Ana Sanchez from ITQB NOVA

FEB 12
Creation of ITQB NOVA Postdoc Association

FEB 26
Applications open for the 1st ITQB NOVA Summer School Summer Science @ ITQB NOVA

MARCH

MAR 2
Seminar of Rector of Universidade Nova de Lisboa, on becoming a Foundation

MAR 4
Visit of FCT President Paulo Ferrão to ITQB NOVA
Welcome party for ITQB NOVA PhD students

MAR 7
Welcome session Plants for Life 2016 PhD Students

MAR 9
João Cascão, ITQB NOVA PhD Student, was awarded Prémio Estímulo à Investigação from Fundação Calouste Gulbenkian

MAR 14
Call for applications MolBioS PhD Program 2017

MAR 18
Opening of the exhibition "An awesome universe", with Instituto de Astrofísica e Ciências do Espaço
Open Labs Week, for university students wishing to explore research opportunities at ITQB NOVA

MAR 21
Mini-Symposium "Molecular Microbiology - Positive thinking!"

MAR 28
Research Project in Diabetes Mellitus wins award from the Portuguese Society of Diabetology

APRIL

APR 1
Mini-Symposium "Antimicrobial Resistance and evolution in staphylococci"
Call for applications for New Master in Biotechnology for Sustainability

APR 8
Mini-Symposium "Bacterial Life, Death and Infection"

APR 12
Meeting of Universidade Nova de Lisboa Rector with ITQB NOVA Institute Council and Scientific Council, on becoming a Foundation

APR 15
Researcher Cecília Arraiano elected to the European Academy of Microbiology
Call for applications for Advanced Integrated Microsystems PhD Program 2016

APR18
Seminar on Laboratory waste management

APR 21
Exhibition "Gut Thinking - How your Microbes Influence your Life", with Champalimaud Neuroscience Programme.

APR 29
Mini-symposium "Fungal Biology, from ecology to drug resistance"

MAY 2
CombStruct Course 2016 – Integrating X-ray Crystallography and scattering with electron microscopy. How to deal with complexes and membrane proteins?

MAY 6
Call for applications for Master in Science Communication 2016/2017

MAY 10
Call for proposals for Prémio António Xavier 2016

JULY 7
2nd General meeting Green-it research unit

JULY 11
Meeting of the Portuguese Centre for Integrated Structural Biology PCISBIO

JULY 25
17th anniversary of Pavilhão do Conhecimento, ITQB NOVA is scientific associated partner

Visit of Prof. M. Lahcen Daoundi Minister, Morocco

JULY 25-29
1st Summer School Summer Science @ ITQB NOVA

JULY 29
Five FCT investigator positions awarded at ITQB NOVA

Applications Open to international PhD Program Plants for Life 2017

MAY | JUNE | JULY | AUG

JUN 6
ITQB NOVA hosts debate on Public Health @NOVA University

JUN 14
National opening of the movie "The Fly Room", with hands on activities and round table with Drosophila researchers.

JUN 17
Official launch of AGRO-TECH Campus consortium, with ITQB NOVA, INIAV and iBET
5th ENURS Meeting of Portuguese Synchrotron Radiation Users

JUN 18
1st iNOVA4Health research unit Annual Meeting at NOVA University of Lisbon

JUN 21-24
9th CERMAX practical course on basic NMR

JUN 24
ITQB NOVA Day, celebrating 23 years of ITQB's in Universidade Nova de Lisboa

António Xavier Prize attributed to Paulo Marques

Best PhD Thesis 2015 awarded to Cátia Nunes Soares

AUG22
Visit of State Administration of Foreign Experts Affairs, China

SEPTEMBER

SEP 9
Welcome session for the Master in Biochemistry for Health students

SEP 28
International Society for Extremophiles Lifetime Achievement Award to Helena Santos

SEP 30
European researcher's night

OCTOBER

OCT 11-14
2nd International Legume Society Conference held in Tróia, Portugal

OCT 14-15
MolBioS and Plants for Life PhD Students retreat

OCT 19-21
3rd Cross-Institutional Meeting of Young Researchers, with ITQB NOVA, IMM, IGC and Champalimaud post doctoral researchers

NOVEMBER

NOV 17-25
ITQB NOVA scientists go to schools - Science and Technology week

NOV 20
10th anniversary of Centro Ciência Viva de Sintra, ITQB NOVA is scientific associated partner

NOV 21
90 segundos de Ciência, ITQB NOVA and FCSH NOVA science radio program for Antena 1 is launched

NOV 23-25
7th ITQB NOVA PhD Students Meeting

DECEMBER

DEC 7
1st ITQB NOVA PostDocs Meeting

DEC 12
Meeting "The New Breeding Techniques, Scientific, Technical, Social and Legal Aspects"

DEC 14
Open applications for Sustainable Chemistry PhD Program 2017

DEC 16
Six new positions for collaborative projects between ITQB NOVA labs Interface Fellowships

DEC 20
Christmas party

DEC 21
EJIBCE 2016 4º Encontro de Jovens Investigadores de Biologia Computacional

DEC 22
ITQB NOVA alumni wine and cheese

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

Antonio 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.

Ligia 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.

Ligia 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.

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.

Cecilia 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.

Sergio R. Filipe Lab
Bacterial Cell Surfaces and Pathogenesis

We study how bacteria synthesize a major component of their cell surface, the peptidoglycan, while simultaneously preventing the infected host from detecting this inflammatory macromolecule that can trigger an innate immune response.

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.

Ana Teixeira Lab
Bioengineering and Systems Biology
Animal Cell Technology Unit
Our research is primarily focused on studying the systems level metabolism of animal cells, combining computational and experimental tools to identify key regulatory mechanisms that control cell metabolic phenotypes (target biological systems include biopharmaceutical cell factories, stem cells used in expansion and differentiation protocols, as well as brain and cancer cell models). We also develop monitoring and control tools to support bioprocess optimization and batch-to-batch consistency.

Andreas Bohn Lab
Systems Biodynamics
The Systems Biodynamics Laboratory uses computational and mathematical methods to analyze and predict the response of biological systems like plant leaves or microbial biofilms to dynamical variations of environmental conditions.

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.

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.

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), thar 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. Funding obtained in this way accounted for 74,6% of the total annual funding for the institute in 2016.

In March 2016, the ITQB NOVA Science Funding Office was created to support the institution and researchers in the preparation of competitive external funding applications. This office helps assembling funding proposals by getting involved in finding and disseminating opportunities, engaging with external stakeholders, strategic planning and advice, proposal preparation and submission, and contract negotiation. The aim is to encourage researchers and institution to submit more and better quality proposals, thereby increasing and diversifying the ITQB NOVA external funding portfolio.

In 2016, the Science Funding Office registered 122 proposals submitted to national (73) and international (49) funding agencies, having so far secured € 2 million for the ITQB NOVA for the incoming years (3 proposals submitted in 2016 are 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.

Throughout the year, the office developed several specific targeted actions, such as information sessions on particular calls (FCT individual fellowships), in-house training of research managers (Joana Ribeiro, FCT NOVA), hosting of international visitors (Chiara Carbonaro, ISV SSSA, Pisa, Italy) and internships (ERASMUS; BESTPRACT). Finally, the office won a grant of 82 645€ (incentive; total grant 206 614€) to support researchers in the preparation of European grants according to a predefined two-year calendar established jointly by researchers, directors and the Science Funding staff (project ITQB+, reference 022053, funded by FEDER) which is currently being implemented.

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.

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.

BIO-E Doctoral Program

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 (coordinated by FCT-UNL).

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.

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.

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.

SUMMER SCIENCE @ITQB

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 (or within the Oeiras Associated Laboratory). 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 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. In 2016, we received 10 visits with a total of 268 students.
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. In 2016, 24 researchers went to 33 schools and reached 2.125 students.
During 2016, ITQB NOVA also held Open Labs for prospective students, coordinated the Summer Training for high schools students "Ciência Viva nas Férias", hosted Job Shadowing also for high school Students and participated in the Teachers day with Câmara Municipal de Oeiras.

SCIENCE DISPLAYS

Since 2002, ITQB NOVA is one of the associate partners of Pavilhão do Conhecimento Ciência Viva, in Lisbon, and collaborates frequently in science displays and exhibitions they organize. In 2016, ITQB NOVA researchers have participated in 3 science displays and organized an exhibition and movie screening at Pavilhão do Conhecimento.
Since 2014, ITQB NOVA is also partner of Centro Ciência 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 provides 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 science displays with other institutions, such as Câmara Municipal de Oeiras or Champalimaud Foundation, during 2016.

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. In 2016, 158 PhD Students and researchers from ITQB NOVA and Universidade Nova de Lisboa were trained through our Science Communication courses: Communicating Science Visually and Social Media for Scientists.

MEDIA AND SOCIAL MEDIA

ITQB NOVA maintains an active communication with the outside world through its website, social media and press releases. ITQB NOVA maintains active accounts on Facebook, Twitter, YouTube, Instagram and LinkedIn.
In 2016, we produced 49 news for the website and had 232 mentions in national and international media.
In November 2016, the radio program "90 Segundos de Ciência" was released. This is a science dissemination 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.

MAIN SEMINARS

INVITED SPEAKERS

Seminars by invited speakers at ITQB NOVA

Exploiting Ionic Liquids and Polymeric Ionic Liquids in Multidimensional Gas Chromatography and Sample Preparation
Jared L. Anderson, Depart. of Chemistry, Iowa State University, USA

On the digestibility of pulse protein
Joyce Boye, Science and Technology Branch, Agriculture and Agri-Food Canada

NOVA becoming a Foundation
Professor António Bensabat Rendas, Dean of NOVA, Portugal

Routine use of next generation sequencing in Clinical Microbiology
Henrik Westh, Hvridrove Hospital, Denmark

Plant Sciences: Discover, Innovate, communicate with Society
Marc Van Montagu, Ghent University, Belgium

Plant vascular formation – a model for functional characterization of conserved genes
Ana Campilho, CIBIO-InBIO, Universidade do Porto, Portugal

Making a thermosensor- temperature perception mechanisms in plants
Phil Wigge, Sainsbury Laboratory, University of Cambridge, UK

The uncovering of new transcription factors involved in ripening and post-harvest life of tomato and strawberry fruits.
Sonia Osorio-Algar, Molecular Biology and Biochemistry Department, University of Malaga, Spain

Cognitive Aging And Its Relationship To Neuronal Structure And Function
Michelle Adams, Department of Psychology and Neuroscience, Bilkent University

C3-C4 intermediate photosynthesis - prerequisite for C4 photosynthesis
Andreas Weber, Universität Düsseldorf

The evolution of C4 photosynthesis
Julian Hibberd, University of Cambridge

The functions of WHIRLY1 functions in stress and senescence
Christine H. Foyer, Centre for Plant Sciences, Univ. of Leeds, Leeds, UK

Signaling in PAMP-triggered immunity
Dierk Scheel, Leibniz Institute of Plant Biochemistry, Germany

Bacterial small RNAs: From strings of nucleotides to RNA networks
Kai Papenfort, Ludwig-Maximilians-University, Munich, Germany

Genetic engineering of wood quality to improve biomass processing
Wout Boerjan, VIB Department of Plant Systems Biology and Bioinformatics, Ghent University

Laboratory waste management
Margarida Marques, EcoDeal

Metabolic engineering and synthetic biology for the creation of novel plant chemodiversity
Paul Christou, Applied Plant Biotechnology Lab., University of Lleida

Molecular control of xylem cell death and impact on plant performance
Hannele Tuominen, Umeå Plant Science Centre, Department of Plant Physiology, Umeå University, Sweden

Uncovering the enigmatic Co(II)-transporting P-type ATPases
Tamin Al-Jubair, Dept. of Translational Medicine, Lund University

General patterns in biomass allocation and allometry among higher plants
Hendrik Poorter, Forschungszentrum Juelich GmbH

Some thoughts on early evolution: from the origin of life to the habitat and nature of early microbial lineages
William F. Martin, University of Düsseldorf

Multi-scale Computer Simulations of Biological Systems: Extending Time- and Size-Limits of Molecular Resolution Models
Michele Cascella, University of Oslo, Norway

How bacteria can respire O_2 in sulfide-rich environments: a new role for cytochrome bd
Alessandro Giuffrè, CNR Institute of Molecular Biology and Pathology, Italy

Thermophilic Anode Respiring Bacteria
Bradley Lusk, Swette Center for Environmental Biotechnology, Arizona State University

Regulation of potassium uptake and storage
Jose M. Pardo, Instituto de Bioquimica Vegetal y Fotosintesis (IBVF-CSIC), Spain

Bioelectrochemical Systems as Experimental Platforms for Studying Microbial Physiology
Jay Regan, Environmental Engineering, Penn State University, Pennsylvania, USA

Atomistic Simulations of Bacterial Outer Membrane Models
Thereza A. Soares, Universidade Federal de Pernambuco, Brazil & Umeå University, Sweden

NMR Studies of Challenging Biological Systems
Aldino Viegas, Institute of Physical Biology, Heinrich-Heine-University Düsseldorf, Germany

BIOINFORMATICS and INCT- Biological Nitrogen Fixation
Berenice Reynaud Steffens, Universidade Federal do Paraná, Brasil

Forests, biorefineries and the bioeconomy in New Zealand
Elspeth Mac Rae, Scion, New Zealand

Discovering a common radical response to viral infection
Kourosh H. Ebrahimi, The Armstrong Research Group, Oxford University, UK

Optimising CO2 assimilation and crop yields in fluctuating environments
Elizabete Carmo-Silva, Lancaster Environment Centre, Lancaster University, UK

Mycobacteria-HIV coalition: the cellular events behind the emerging threat
Sharmistha Banerjee, School of Life Sciences, Univ. of Hyderabad, India

Mycobacterial GroEL's: Moonlighting in Non-specific Binding
Shekhar Mande, National Centre for Cell Science, NCCS Complex, India

What are new breeding techniques?
Pedro Fevereiro, CIB and ITQB NOVA

Scientific and application aspects of new breeding techniques
Wendy Harwood, John Innes Centre, Norwich, England

Legal and social framework of new breeding techniques
Joachim Schiemann, Federal Research Centre for Cultivated Plants, Germany.

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.

Biomimetics & Magnetism in Bioengineering
Cecília Roque, Chemistry Department, FCT-UNL

Bioenergetic Adventures in Mammalian Reproduction and Stem Cell Pluripotenc
João Santos, Centro de Neurociências e Biologia Celular CNC

Environmental sensing by innate lymphoid cells
Henrique Veiga Fernandes, Instituto de medicina Molecular, IMM

Why is the European rabbit such a fascinating species? Insights on the processes of speciation and domestication
Nuno Ferrand, Faculty of Science University of Porto

Cancer: From classic pathology to precision medicine
Manuel Sobrinho Simões, IPATIMUP

Food for the future: trends and challenges
Manuela Pintado, Centro de Biotec. e Química Fina, Univ. Católica

Towards a More Sustainable Future: High-Value Chemicals, Polymers and Materials from renewable resources
Armando Domingues Silvestre, CICECO, Universidade de Aveiro

Green electronics: a technology for a sustainable future
Elvira Fortunato, FCT NOVA

The economic valorisation of research
Carlos Faro, Universidade de Coimbra

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.

Dissection and use of plant receptor kinase-mediated innate immunity
Cyril Zipfel, The Sainsbury Laboratory, Norwich Research Park, Norwich, UK

Cell differentiation in staphylococcal biofilms
Daniel Lopez, Molecular infection Biology Lab, Spanish Research Council (CSIC)

Metal-based chemical entities: OPPORTUNITIES IN chemical BIOLOGY and TO ACHIEVE targeted therapeutic agents
Angela Casini, Chair of Medicinal and Bioinorganic Chemistry School, School of Chemistry, Cardiff University, UK

Chewing rocks – physiology and mechanisms of iron-oxidizing bacteria and their habitats on modern and ancient earth
Andreas Kappler, Center for Applied Geoscience (ZAG), Eberhard-Karls-University, Tuebingen

SCAN SEMINARS

Seminars by inhouse researchers and ITQB NOVA alumni.

Fusing simulation and experiment: Structure and activity studies on the influenza fusion peptide
Diana Lousa, Protein Modeling, ITQB NOVA

Plant biofactories for the production of recombinant proteins
Rita Abranches, Plant Cell Biology Lab, ITQB NOVA

A protein trisulfide couples dissimilatory sulfate reduction to energy conservation
Inês Cardoso Pereira, Bacterial Energy Metabolism Lab, ITQB NOVA

Mitochondria Function and Parkinson's Disease: the role of PINK1
Vanessa Morais, IMM, ITQB NOVA Alumni

What can the Industry Liaison Office of ITQB do for me
Marta Ribeiro, ITQB NOVA

A novel CRISPR system found in the human pathogen Listeria
José Andrade, Cecilia Arraiano Lab, ITQB NOVA

The ITQB Postdoc Association
ITQB NOVA Pda

Examining the antimicrobial activity and toxicity to animal cells of different types of CO-releasing molecules
Lígia Nobre, Lígia M. Saraiva Lab, ITQB NOVA

Post-transcriptional regulation of Drosophila Xbp1 a mediator of the ER stress response
Fátima Cairrão, Pedro Domingos Lab, ITQB NOVA

UniMS: Mass Spectrometry for ITQB, iBET, and beyond
Isabel Abreu, UNIMS ITQB NOVA/iBET

CDP-inositol: the exquisite inositol donor for the synthesis of thermoprotectors and phospholipids in prokaryotes
Carla Jorge, Helena Santos Lab, ITQB NOVA

'Stinking' biochemistry: Hydrogen sulfide metabolism in human (patho)physiology
João B. Vicente, Structural Genomics, ITQB NOVA

The role of Toll signaling and fucosylation in regulating host physiology
Magda Atilano, Dept. Biochemistry, Univ. Oxford, ITQB NOVA Alumni

The Pivotal Role of LANA in Kaposi Sarcoma Herpesvirus (KSHV) infection
Colin E. McVey, Structural Virology Lab, ITQB NOVA

ITQB Science Funding Office: plan and activities
Margarida Trindade, ITQB NOVA Science Funding Office

Ionic Liquid-based Materials for Advanced CO2 Separation Membranes
Liliana C. Tomé, Isabel Marrucho Lab, ITQB NOVA

Molecular processes of peptides and proteins at model membranes
Peter Hildebrandt, Berlin TU, ITQB NOVA Alumni

Searching for molecular regulators of cork cambium in a cork non-producing model tree
Célia Miguel, Forest Biotech Lab, ITQB NOVA

A biofilm regulatory protein is involved in spore coat assembly in Bacillus subtilis
Mónica Serrano, Adriano Henriques Lab, ITQB NOVA

Two is company, three is a crowd: a tale on thiosulfate dehydrogenases
José Brito, Margarida Archer Lab, ITQB NOVA

Manipulation of mammalian host cells by Salmonella
Jaime Mota, UCIBIO-REQUINTE, Life Sciences Dept., FCT NOVA, ITQB NOVA Alumni

Small is beautiful
Teresa Crespo, Microbiology of Man-Made Environments Lab, ITQB NOVA/iBET

Advanced Cell Models: are we there yet?
Catarina Brito, Advanced Cell Models Lab, ITQB NOVA & iBET

Non-invasive measurements it is possible?
Abel Oliva, Biomolecular Diagnostics Lab, ITQB NOVA

Opposing effects of Folding and Assembly Chaperones on RuBisCO Evolution
Paulo Durão, Gulbenkian Institute for Science, ITQB NOVA alumni

From diet to the brain: disclosing the neuroprotective potential of novel human polyphenol metabolites
Cláudia Santos, Molecular Nutrition and Health Lab, ITQB NOVA/iBET

The strange case of CCC1 gene regulation: a two-in-one strategy for dealing with iron overload or a memory of the past?
Catarina Pimentel, Claudina R. Pousada Lab, ITQB NOVA

Alternative questions to a fish without bones
Ana Cristina Paulo, Raquel Sá Leão Lab, ITQB NOVA

PhD, and then what?
Rui Ferreira, Hovione FarmaCiência, ITQB NOVA Alumni

Plant Metabolomics Lab: a three year journey at ITQB NOVA
Carla António, Plant Metabolomics Lab, ITQB NOVA

Distinct roles of N-acetyl and 5-methoxy groups in the antiproliferative and neuroprotective effects of melatonin
Federico Herrera, Cell Structure and Dynamics, ITQB NOVA

Desulfovibrio vulgaris CbiKP cobaltochelatase: evolution of a haem binding protein orchestrated by the incorporation of two histidine residues
Susana Lobo, Lígia M. Saraiva Lab, ITQB NOVA

Science beyond the lab
Mara Almeida, Science, Policy & Society, ITQB NOVA

NMR metabolomics toward diagnosis of central nervous system metastasis
Gonçalo Graça, Helena Santos Lab, ITQB NOVA

Towards standardization in Synthetic Biology: modulation of gene expression through RNA stability determinants and sRNA riboregulators
Sandra Viegas, Cecília Arraiano Lab, ITQB NOVA

Gene expression regulation in Eukaryotes: E pur si muove!
Pedro Fevereiro, Plant Cell Biotechnology Lab, ITQB NOVA

Development of mesenchymal stem cell based advanced therapy medicinal products
Helder Cruz, ECBio, R&D in Biotechnology SA, ITQB NOVA Alumni

Minimizing transcriptional noise during development in a bacterial pathogen
Adriano Henriques, Microbial Development Lab, ITQB NOVA

Putting the 'Multi' in Multiscale Modeling
Manuel N. Melo, Multiscale Modeling Lab, ITQB NOVA

IBET-ITQB NOVA SEMINAR

Joint seminars IBET and ITQB NOVA

Developability Assessment of therapeutic Antibodies
Thorsten Lorenz, Novartis Pharma AG, Basel, Switzerland

Quality by Design and Phase Appropriate Development for Cell Therapies
Brian Murphy, Celgene Cellular Therapeutics, USA

Vaccine development and manufacturing for those most in need of vaccines
Katey Owen, Bill & Melinda Gates Foundation

Developability Assessment of therapeutic Antibodies - A concept for early Lead Selection
Thorsten Lorenz, Group Head Developability Assessment , Integrated Biologics Profiling, Novartis Pharma AG, Basel – Switzerland.

Quality by Design and Phase Appropriate Development for Cell Therapies
Brian Murphy, Director of Development, Celgene Cellular Therapeutics, USA

PHD THESES

Ana Carina Santos Ferreira da Silva, Technological and Engineering Sciences
Strategies for improved Adenovirus and PPR vaccine production in diferente cell lines: from bioprocess development to final formulation

Débora Alexandra Marques Tavares da Venda, Biology
Studies on non-typeability and molecular identification of the pneumococcus

Joana Rita Gonçalves Araújo Rolo Mateus, Biology
Origin and evolution of the ß-lactam resistance determinant in staphylococci

Maria Inês Ramos Grilo, Biology
Unfolding the physiological roles of the binding of Atl to eDNA in Staphylococcus aureus

Tânia Catarina Cidade da Costa Silva Ferreira, Biology
The role of PKCs in Morphogenesis

Paula Cristina de Azevedo Alves Marques, Biochemistry
Triggering secondary metabolite biosynthesis: exploring the effects of ionic liquids in fungal metabolism

Sowmiah Subbiah, Chemistry
Synthetic approach towards biomass derived pyridinium salts

Luís Carlos Santos Filipe, Chemistry
Studying the structural features of peptide dendrimers using a combined computational and experimental approach

Tiago Martins da Costa Duarte, Technological and Engineering Sciences
Probing CHO cells using metabolomics and fluxomics tools

Bruno Sousa Cardoso da Costa Marreiros, Biochemistry
Exploring NADH:quinone oxidoreductases, Complex I and alternative dehydrogenase – NDH-2

Filipe Manuel Beata da Silva Almeida, Biology
Functional analyses of inclusion membrane proteins of Chlamydia trachomatis

Adelina Margarida Lima P. Rodrigues Parente, Biochemistry
Defences of Helicobacter species against host antimicrobials

Diego Melo Almeida, Biochemistry
Regulation of the OsNHX1 gene expression: identification and characterization of novel transcription factos

Maria Sarmento de Matos Paiva Raposo da Cunha, Biology
Identification and characterization of type III secretion effectors in Chlamydia trachomatis

Bruno Alexandre Caetano Afonso, Biology
Natural selection and evolution of behaviour and its variability in experimental populations

Liliana de Jesus Duarte Ferreira, Biology
Insights into the epigenetic regulation of the rice genome: the role of DNA methylation and histone modifications in salt stress responses

Matilde de Vasconcelos Manso de Ataíde Cordeiro, Biology
Salinity adaptation in Tunisian and Portuguese Medicago truncatula populations

Ana Margarida Sarilho Ferro, Biochemistry
A reverse genetics approach to identify Cynara cardunculus L. genotypes with improved bioactive content

Ana Sofia Cabral e Sousa de Almeida, Biology
Carbon monoxide modulation of neuronal diffentiation – disclosing celular mechanisms

Victor João Martins Taveira Carocha, Biology
Critical Players and Gene Expression Regulation in Eucalyptus Xylogenesis

Vìtor Gouveia Faria, Biology
Host-microbe interaction and evolution: infection, symbiosis, immunity and adaptation

Mariana Miguel Rebelo da Palma, Biology
Study of seasonal weight loss tolerance in small ruminants – an NMR-Metabolomics approach

MASTER THESES

MASTER IN BIOCHEMISTRY FOR HEALTH

SUPERVISED AT ITQB NOVA

Ana Sofia Martins Roda
Nanoparticles for recognition and delivery in metastatic colorectal cancer cells

Anis Hamdi
Novel Chromatographic Methodology for Virus Particles Purification

Diana Oliveira da Silva
Chemical synthesis of new histone deacetylase inhibitors and their evaluation as anticancer agents

Inês de Brito Trindade
Emerging human pathogens from the Shewanella genus: understanding the Molecular mechanism behing ferric ironsiderophore reduction

Joana Campainhas Bastos
Ionic Liquids in the Development of Novel Biomaterials

Joana Nata Albino Guerreiro
Exploring the Anti-Diabetic Effect of White Wine

Khrystyna Kucheryava
Production, biochemical characterization and stability assessment of human IgG4 therapeutic antibodies

Margarida Lourenço Ferreira
New Artificial Blood Substitutes using Fluorinated Ionic Liquids

SUPERVISED AT NMS - FCM

Joana Patricia Mota Guerreiro
Deflamin bioactivities - A novel inhibitory protein of MMP-9 from Lupinus albus

Nuno José Prego Ramos
Crosslinked Hyaluronic Acid nanoparticles as delivery vehicles for dendritic cell-targeted vaccines

SUPERVISED AT FCT NOVA

Diana Isabel Pacheco de Sousa
Improving the anti-tumor imune responses against cancer cells.

MASTER IN SCIENCE COMMUNICATION

SUPERVISED AT ITQB NOVA

Rita Filipa de Almeida Neves
Comunicar (neuro)ciência: da rua para o laboratório e do laboratório para a rua

Manuel Leite Valença
Comunicação Pública de Ciência - Um Guia para Cientistas

Rita de Sousa Caré
Jogo interactivo sobre experimentação em modelos biológicos - construção de um guião.

Patrícia Miguel Marques Pires
Avaliação de eventos de divulgação de ciência num centro de investigação científica

SUPERVISED AT FCSH NOVA

Sara Teixeira Saraiva
A Revista VISÃO: O processo de reestruturação e os desafios perante oa media sociais

Rita Isabel Pedro Aroeira
Mente e cérebro: comunicação de ciência na comunidade sénior

Nuno Miguel Passarinho Trindade
Comunicação de ciência e investigação e inovação responsáveis: o projecto europeu RRI TOOLS

MASTER IN MEDICAL MICROBIOLOGY

SUPERVISED AT ITQB NOVA

Inês Cunha Portinha
Exploring the evolutionary link between biofilms and spores formation in sporeformers

Maria Gabriela Grego Rodrigues Bento
Assessment of the genetic determinants involved in the expression of high-level oxacillin resistance in contemporary clinical MRSA strains

SUPERVISED AT IHMT NOVA

Adriana Manuela Sardiña Aldeia
Identificação molecular de bacterias do genero Leptospira em coleções de água doce no distrito de Leiria

Ana Catarina Ramos Batista Antão (FCT NOVA | NMS-FCM NOVA)
Infeção de culturas primárias de monócitos humanos com a bactéria Legionella pneumophila.

Ana Sofia Mourão Simões (NMS-FCM NOVA)
Contribuição do efluxo para a aquisição de resistência aos antibióticos em isolados clínicos de Acinetobacter baumannii.

Elizeth do Rosário Delgado Lopes
Desenvolvimento de novas estratégias metodológicas para avaliação de compostos com potencial terapêutico para a tuberculose e outras micobacterioses

Joana Catarina Pena Dantas (FCT NOVA | NMS-FCM NOVA)
Study of the Legionella-dependent induction of apoptosis in the natural host Acanthamoeba castellanii.

Joana Lourenço Messias Calado
Perfil de resistência aos antibióticos e caracterização molecular de estirpes resistentes de Neisseria gonorrhoeae isoladas numa população de homens que têm sexo com homens da área de Lisboa

Mariana dos Santos Nunes
Caracterização de infecção por Neisseria gonorrhoeae e Chlamydia trachomatis em utentes de unidades de rastreio de infecção pelo VIH e outras infecções sexualmente transmissíveis

Marta Maria Almeida Dias Nascimento
Desenvolvimento e optimização da técnica LAMP (Loop Mediated Isothermal DNA Amplification) para a identificação das principais genoespécies do complexo Borrelia burgdorferi sensu lato

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Ana Catarina R. Batista Antão (IHMT NOVA | NMS-FCM NOVA)
Infeção de culturas primárias de monócitos humanos com a bactéria Legionella pneumophila.

Joana Catarina Pena Dantas (IHMT NOVA | NMS-FCM NOVA)
Study of the Legionella-dependent induction of apoptosis in the natural host Acanthamoeba castellanii.

Joana Filipa Gomes da Silva
Characterization of the major autolysin in Staphylococcus aureus

SUPERVISED AT NMS - FCM

Ana Catarina Ramos Batista Antão (FCT NOVA | IHMT NOVA)
Infeção de culturas primárias de monócitos humanos com a bactéria Legionella pneumophila.

Ana Sofia Mourão Simões (IHMT NOVA)
Contribuição do efluxo para a aquisição de resistência aos antibióticos em isolados clínicos de Acinetobacter baumannii.
Catarina Raquel Adrião Machado
Rastreio neonatal de infeção citomegálica

Fábio André Dias Ferreira
Genotipagem do vírus citomegálico humano na infeção congénita.

Joana Catarina Pena Dantas (FCT NOVA | IHMT NOVA)
Study of the Legionella-dependent induction of apoptosis in the natural host Acanthamoeba castellanii.

Maria de Fátima Mendes Carvalho
Deteção de Bacteroides spp. e Prevotella spp. em amostras clínicas por PCR em tempo real

Vera Geraldes Vicente
Estudo da prevalência das Imunoglobinas G para o vírus da rubéola em São Tomé e Príncipe com recurso aos Guthrie Cards.

RESEARCH HIGHLIGHTS

Intercellular communication 101
Clostridium difficile sheds lights on the evolution of spore formation
Molecular Microbiology (2015) Accepted Author Manuscript
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Researchers develop new method to cultivate 3D tumour cell models
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New reductive process for removal of pharmaceutical contaminants
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ITQB NOVA research is “Paper of the Week”
X-ray Crystallography ends scientific controversy
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New method to detect and quantify plant regulator
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FULL LIST OF PUBLISHED PAPERS 2016

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ONGOING PROJECTS 2015

PROJECTS FUNDED BY FCT

1	2nd phase of the MIT Portugal Program (2013 – 2017)	MIT-PT/BS/0004/2006	Cláudio Soares	24 195,96
2	Sampling and biomarker optimization and harmonization in ALS and other motor neuron diseases	JPND/0003/2011	Júlia Costa	80 000,00
3	Tailor-made expression hosts depleted in protease activity for recombinat protein production	ERA-IB/0001/2012	Rita Abranches	80 000,00
4	An Omics approach for diagnosis tuberculose (Tbomics)	New-Indigo/0001/2012	Ana Coelho	100 000,00
5	The intriguing function of cytoskeleton-associated proteins in Gram-positive bacteria	ANR/BEX-BCM/0150/2012	Mariana Pinho	248 326,00
6	NMR Net - National facility for nuclear magnetic resonance: from molecular structure and dynamics to protein function, cell physiology and metabolics	RECI/BBB-BQB/0230/2012	Pedro Lamosa	294 901,00
7	Mechanisms of post transcriptional regulation of Xbp1: a potential modulator of the UPR and associatecd pathologies	PTDC/BEX-BCM/1217/2012	Fátima Cairrão	138 220,00
8	Understanding echinoderms outstanding nervous system regeneration capabilities using a phosphepreoteomics approach	PTDC/MAR-BIO/2174/2012	Catarina F. Franco	170 860,00
9	Rethinking Bacterial Cell Wall Synthesis: a combined synthetic and enzymatic approach	PTDC/QEQ-QOR/2132/2012	Sérgio Filipe	50 097,00
10	Interaction between Legionella pneumophila and the host cell actin cytoskeleton	PTDC/BIA-MIC/2821/2012	Margarida Archer	16 440,00
11	Plant strategies for detection of the inflammatory bacterial peptidoglycan molecule	PTDC/BIA-PLA/3432/2012	Sérgio Filipe	173 948,00
12	Carbon Nanomaterials and Ionic Liquids; From fundamentals to sustainable technology applications.	FCT-ANR/CTM-NAN/0135/2012	Luís P. Rebelo	41 400,00
13	Molecular and Nano Tools for Cancer Theranostics	EXCL/QEQ-MED/0233/2012	Olga Iranzo	18 000,00
14	Nanoengineered exosomes to treat glioma	ENMed/0001/2013	Júlia Costa	99 600,00
15	Modulation Ire1 to prevent Parkinson' Disease	FCT-ANR/NEU-NMC/0006/2013	Pedro Domingos	200 000,00
16	Investigating Novel Valuable bio-therapeutics and expression systems (INNOVATE)	ERA-IB2/0006/2013	Paula ALves	75 000,00
17	Biocatalysis for tackling lignin recalcitrance	PTDC/BBB-EBB/0122/2014	Lígia Martins	179 886,00
18	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
19	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
20	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 V. Patto	155 484,00
21	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
22	Functional characterization of genes required for neurodegeneration caused by endoplasmic reticulum stress	PTDC/NEU-NMC/2459/2014	Pedro Domingos	199 474,00
23	Designing poly(ionic liquid)-based engineered membranes for hydrogen purification	PTDC/CTM-POL/2676/2014	Liliana Tomé	59 404,80
24	Reduction of CO2 for sustainable biofuel production	PTDC/BBB-EBB/2723/2014	Inês C. Pereira	140 598,00
25	Engineering a highly active NiFeSe Hydrogenase for electrocatalytic and photocatalytic applications	PTDC/BBB-BEP/2885/2014	Pedro Matias	199 595,00

26	Diiron proteins in the microbial response to oxidative or nitrosativestress	PTDC/BBBBQB/3135/2014	Miguel Teixeira	187 137,00
27	Deciphering the role of BolA in persistence and biofilm formation	PTDC/BIA-MIC/4046/2014	Ricardo Moreira	196 143,00
28	the difference a cell wall makes: optimization of bioelectrochemical systems by exploring the paradigm of extracellular electron transferinGrampositivebacteria	PTDC/BBBBQB/4178/2014	Catarina Paquete	147 025,00
29	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
30	Biosynthesis of modified tetrapyrroles in Staphyloccocus aureus	PTDC/BBB-BQB/5069/2014	Susana Lobo	171 354,00
31	Targetting inhibition of microbial sulfidogenesis: Biochemical and structural characterization of DsrD	PTDC/BIA-MIC/6512/2014	Sofia Venceslau	133 496,00
32	Discovery and training of microbial biocatalysts for biomass conversion usingmovingbedtechnology(MBT)	ERAMBT/0003/2014	Elin Moe	124 956,00
33	Powdery Mildew susceptibility in grapevine: phenotype-genotype linkage in the Portuguese germplasm	PTDC/AGR-PRO/4261/2014	Pedro Fevereiro	64 059,00
34	Natural Deep Eutectic Solvents: A platform to Boost Eucalyptus globulus and Quercus suber cork integrated Biorefineries	PTDC/AGR-TEC/1191/2014	Cristina S. Pereira	72 897,00
35	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
36	The way forward: optimization of respiratory electron transfer chains toward sustainable microbial electricity production	PTDC/BBB-BQB/3554/2014	Catarina Paquete	49 526,00
37	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
38	EvoMod- Origin and Evolutionary establishment of a transcriptional module controlling flower asymmetry	PTDC/BIA-PLA/1402/2014	Célia Romão	27 900,00
39	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
40	Nanoheaters and nanothermometers playing together: towards applications in Brownian motion and hyperthermia	PTDC/CTM-NAN/4647/2014	Federico Herrera	15 120,00
41	Molybdenum nanoparticle coating to reduce MRSA contaminationofpublicandhealthcareenvironments	PTDC/DTPEPI/0842/2014	Hermínia de Lencastre	93 612,00
42	Microfluidics Liquid Crystal Based Bifuncional Bacterial Infeccion Sensor	PTDC/FIS-NAN/0117/2014	Maria Miragaia	15 000,00
43	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)

44	IF/00376/2012/CP0165/CT0003	Carla António	50 000,00
45	IF/01023/2013/CP1173/CT0003	Colin McVey	50 000,00
46	IF/00094/2013/CP1173/CT0005	Federico Herrera	50 000,00
47	IF/00268/2013/CP1173/CT0006	Monica Serrano	50 000,00
48	IF/00109/2014/CP1244/CT0007	Ana Petronilho	50 000,00
49	IF/00210/2014/CP1244/CT0003	João M. Mendes	50 000,00
50	IF/00961/2014/CP1244/CT0012	José Andrade	50 000,00
51	IF/01004/2014/CP1244/CT0011	João Vicente	50 000,00

PROJECTS FUNDED BY PFIZER

52	Pneumo S-Influence of cigarette smoking in the dynamics of carriage of Steptococcus pneumoniae: a longitudinal study	WI183695	Raquel Sá Leão	242 676,00
53	PneumoY2: Evolution and adapatation of Streptococcus pneumoniae population in the era of expanded conjugates vaccines	WI182109	Raquel Sá Leão	225 000,00

PROJECTS FUNDED BY NOVARTIS

54	90 Segundos de Ciência		Joana Lobo Antunes	25.000

PROJECTS FUNDED BY EUROPEAN COMISSION

54	Transnational access and enhancement of integrated Biological Structure determination at synchrotron X-ray radiation facilities (BioStruct-X)	283570	Mª Arménia Carrondo	49 814,92
55	3 to 4: Converting C3 to C4 ptotosynthesis for sustainable agriculture (3 to 4)	289582	Manuela Chaves	51 200,00
56	Combining innovation in vineyard management and genetic diversity for a sustainable European viticulture (INNOVINE)	311775	Manuela Chaves	137 449,00
57	Ionnovative ionic polymers frm natural sources for energy & environment (IONRUN)	318873	Isabel Marrucho	174 700,00
58	A stepping stone approach towards the genetics clinic of the future (GCOF)	643439	Mara Almeida	127 500,00
59	Legumes for the Agriculture of tomorrow (LEGATO)	613551	Carlota Vaz Pato	335 000,00
60	Understanding the Clostridium Spore, a Prerequiste for disease intreventions and explotation (CLOSPORE)	642068	Adriano Henriques	476 712,72
61	Embedding crop diversity and networking for local high quality food systems (DIVERSIFOOD)	633571	Carlota Vaz Patto	140 000,00
62	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
63	Infrastructure for NMR, EM and X-ray crystallography for translational research (iNEXT)	653706	Margarida Archer	31 250,00
64	Foreseeing Opportunities, Risks and Emergent Science Issues for the next Generation: Highlighting Trends (FORESIGHT)	722968	Joana Lobo Antunes	12 500,00
65	FLow Induced Phase Transitions, a new low energy paradigm for polymer processing (FLIPT)	713475	Cristina S. Pereira	296 368,75

PROJECT FUNDED BY EUROPEAN RESEARCH COUNCIL (ERC)

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

PROJECT FUNDED BY EUROPEAN DEFENCE AGENCY

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

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