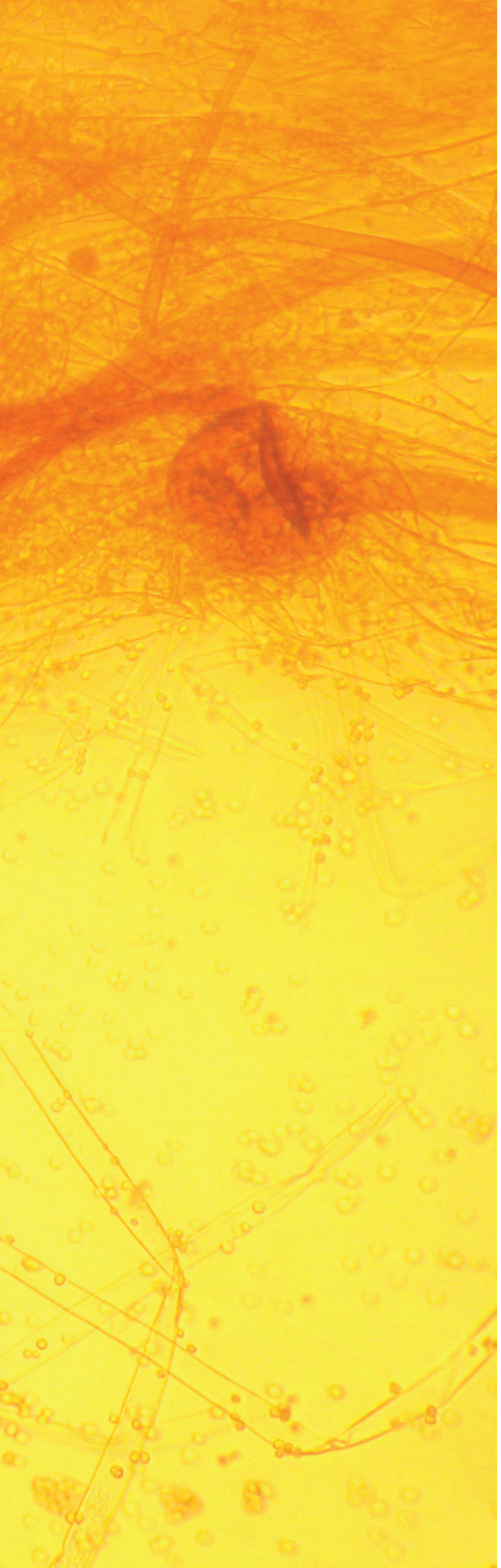

itqb

Annual Report 2008

Instituto de Tecnologia Química e Biológica
Universidade Nova de Lisboa

Contents

The *Instituto de Tecnologia Química e Biológica* (ITQB) is a research and advanced training institute of the Universidade Nova de Lisboa. Its mission is to develop high-quality research in chemistry and the life sciences, considering all levels of complexity and their potential applications, so as to contribute to the understanding of life's mechanisms. Its highly multidisciplinary nature makes ITQB a leading centre for advanced training of researchers in Portugal. Currently, ITQB hosts 60 independent laboratories grouped in five research divisions and consisting of a scientific staff of more than 350 researchers with different scientific interests and backgrounds. Researchers at ITQB benefit from outstanding facilities, equipment, and support services, some of which are unique in the country. Since 2001, the important contribution of ITQB in research and development has been highly enriched by the partnership with the *Instituto Gulbenkian de Ciência* and the *Instituto de Biologia Experimental e Tecnológica*. This scientific cluster was one of the first to be awarded the title of *Laboratório Associado* by the Portuguese Government in recognition of its scientific excellence as determined by international evaluation panels. ITQB's commitment to high quality scientific research includes a programme for raising public awareness of science.

Further information on ITQB's research and other activities can be found at www.itqb.unl.pt.

Organization of the Institute

Directorate

José Artur Martinho Simões	Director
Luís Paulo N. Rebelo	Vice-Director
Rosina Faruk Gadit	Secretariat

Management Council

José Artur M. Simões	Director
Luís Paulo N. Rebelo	Vice-Director
Margarida Martinez	Head of Administrative Services

Coordination Committee of the Scientific Council (CCSC)

Directorate	José Artur M. Simões - Director Luís Paulo N. Rebelo - Vice-Director
Chemistry Division	Christopher Maycock - Head of Division Carlos Romão (Eurico Melo)
Biology Division	Helena Santos - Head of Division Hermínia de Lencastre (Adriano Henriques)
Biological Chemistry Div.	Maria Arménia Carrondo - Head of Division Inês Cardoso Pereira (Manuela Pereira)
Technology Division	Teresa Crespo - Head of Division Abel Oliva (Ana V. Coelho)
Plant Sciences Division	Cândido Pinto Ricardo - Head of Division Margarida Oliveira (Phil Jackson)
IBET Representative	Manuel J.T. Carrondo (Paula Alves)

External Advisory Board

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Massachusetts Institute of Technology, USA

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Leiden Institute of Chemistry, Netherlands

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Institut de Science Biomoléculaire, Switzerland

Geoffrey Cole
The University of Birmingham, United Kingdom

Joachim Klein
Technische Universität Braunschweig, Germany

Leslie Dutton
Johnson Foundation for Molecular Biophysics/ Unniversity of Pensilvania, USA

Michael J. Kearsey
The University of Birmingham, Birmingham, United Kingdom

Pere Puigdoménech
Institut de Biologia Molecular de Barcelona, Spain

Peter J. Sadler
University of Edinburgh, United Kingdom

Staffan Normark
Karolinska Institutet, Stockholm, Sweden

Infra-structure Support Committee

José Artur M. Simões	Director (Chairman)
Fátima Madeira	Secretary
Ana Rute Neves	ITQB I Building
Chris Maycock	Chemistry
Henrique C. Nunes	Safety Workshop & Maintenance
Nuno Monteiro	Safety Workshop & Maintenance
Madalena Pereira	Administrative
Fernando Tavares	Accounting
João Rodrigues	Stores
Carlos Frazão	Computing & Networks
Carlos Cordeiro	Computing & Networks
Daniel Branco	Computing & Networks
Lurdes Conceição	Academic Services
Ana M. Sanchez	External Affairs
Susana Lopes	Library
Teresa Baptista da Silva	Equipment Washrooms
Teresa Crespo	Analytical Services
Cláudia Almeida	Lab Manager

Safety and Floor Coordination Committee

Helena Matias	Chairman
José Artur M. Simões	Director
Cristina Lopes	Secretary
Henrique C.Nunes (Alexandre Maia)	First Floor/ Workshops & Maintenance
Fernando Tavares (Nuno Lopes)	Second Floor
Inês Cardoso Pereira (Cláudio Gomes)	Third Floor
Abel Oliva (Júlia Costa)	Fourth Floor
Teresa Crespo (Victória San Romão)	Fifth Floor
Cândido Pinto Ricardo (Margarida Oliveira)	Sixth Floor
Rita Delgado (Ana Simplicio)	Seventh Floor
Jaime Mota (Ana Rute Neves)	ITQB I Building
Christopher Maycock (Rita Ventura)	Chemistry Building
Cecília Arraiano (Adriano Henriques)	Radioactive Sources
Rosario Mato Labajos	Biological Hazards ITQB I
Sérgio Filipe	Biological Hazards ITQB II
Beatriz Royo	Solvent Handling
Helena Santos MD	Medicine and Health
António Cunha	Pilot Plant
Teresa Baptista da Silva	Equipment Washrooms


BRAND
SCHOTT
DURAN

Research Staff

Researchers: Investigador Auxiliar < Investigador Principal < Investigador Coordenador

Professors: Professor Auxiliar < Professor Associado < Professor Catedrático

BI - *Bolsa de Investigação* = Graduate Fellow

Chemistry Division

Bioinorganic Chemistry and Peptide design

Olga Iranzo, *Investigador Auxiliar*

Bioorganic Chemistry

Rita Ventura, *Investigador Auxiliar*

Ana Rita Neves dos Santos	BI
Eva Correia Lourenço	BI

Colloids Polymers & Surfaces

António Lopes, *Professor Associado U. Lusófona*

Carla Teresa Ribeiro Antunes	PhD Student
José Filipe da Silva Lapas Almeida	PhD Student

Coordination and Supramolecular Chemistry

Rita Delgado, *Professor Associado com Agregação* IST

Nicolas Christian Sylvain Bernier	Post Doc
Luís Miguel Barroso Pereira Lima	PhD Student
Pedro Miguel Veríssimo Mateus	PhD Student
Carla Patrícia Madeira Cruz	PhD Student

Homogeneous Catalysis

Beatriz Royo Cantabrana, *Investigador Auxiliar*

Patrícia Matias Reis Francisco	Post Doc
Veera Venkata Krishna Mohan Kandepi	Post Doc
André Filipe Pontes da Costa	PhD Student
José Angel Brito	PhD Student

Micro-Heterogeneous Systems

Eurico de Melo, *Professor Auxiliar* IST

Maria Helena Lopes Lameiro	PhD Student
Rute Cristina Martins Silveira Mesquita	PhD Student
Sofia Cristina Leite de Souza	PhD Student

Organic Synthesis

Christopher Maycock, *Professor Associado* FCUL

Ana Sofia da Cunha Miguel	PhD Student
Paula Alexandra Carvalho Rodrigues	PhD Student
More Vijaykumar Shivdas	BI
Mário Rui Costa Soromenho	BI

Organometallic Chemistry

Carlos C. Romão, *Professor Catedrático*

Jan Honzicek	Post Doc
José Alberto Pires Fernandes	Post Doc
Patrícia Isabel Carvalho Oliveira	Post Doc
Rita Gusmão de Noronha	Post Doc
João Daniel Silva Seixas	PhD Student
Maria Carlota Veiga de Macedo	PhD Student

Single Molecule Processes

Yann Astier, *Investigador Auxiliar*

Biological Chemistry

Biomolecular NMR

Manolis Matzapetakis, *Investigador Auxiliar*

Genomics and Stress

Claudina Rodrigues-Pousada, *Professor Catedrático Convidado*

Regina Andrade Menezes	Post Doc
Tracy Laura Nevitt Gonçalves	Post Doc
Catarina Isabel Ribeiro Pimentel	Post Doc
Jorge Augusto Machado Pereira	Post Doc
Catarina Sá Almeida Amaral	PhD Student
Liliana Sofia Batista Nascimento	PhD Student
Fábio de Oliveira Morais e Silva	PhD Student
Ana Catarina Varela Raposo	BI

Inorganic Biochemistry and NMR

Ricardo Saraiva L. Oliveira Louro, *Investigador Auxiliar*

Catarina Morais Vaz Paquete	Post Doc
Bruno Miguel Oliveira Maia da Fonseca	PhD Student
Ivo Miguel Henriques Saraiva	PhD Student
Eduardo Paulo de Oliveira Lopes Calçada	Master Student
Maria Alexandra Alves	BI
Isabel Pacheco (col. Inês Cardoso Pereira)	Technician

Biological Che

Macromolecular Crystallography Unit

Industry and Medicine Applied Crystallography

Pedro Manuel Marques Matias, *Investigador Principal*

Susana Margarida Pires Gonçalves	PhD Student

Macromolecular Crystallography Unit

Membrane Protein Crystallography

Margarida Archer Frazão, *Investigador Auxiliar*

Maria Luísa Rodrigues (cosup. Inês Cardoso Pereira)	Post Doc
Miguel Pedro Januário Pessanha	Post Doc
José Artur Alves de Brito	PhD Student
Tânia Pais de Oliveira (cosup. Inês Cardoso Pereira)	PhD Student
Ana Lúcia Rebelo do Rosário	PhD Student
Przemyslaw Nogly	BI

Metalloproteins and Bioenergetics

Miguel Teixeira, *Professor Catedrático*

Ana Margarida Nunes Portugal Carvalho Melo	Invited Researcher
Célia Romão (col. Maria Arménia Carrondo)	*Investigador Auxiliar*
Manuela Alexandra Abreu Serra Marques Pereira	*Investigador Auxiliar*
João Filipe Bogalho Vicente	Post Doc
Ana Filipa Carapinha Pinto	PhD Student
Ana Patrícia Neto Refojo	PhD Student
Ana Paula Gonçalves Batista	PhD Student
Maria Filipa Baltazar de Lima de Sousa	PhD Student
Sandra Isabel Pereira dos Santos	BI

Microbial Biochemistry

Inês Cardoso Pereira, *Investigador Auxiliar*

Maria Luísa Rodrigues (cosup. Margarida Archer)	Post Doc
Tânia Pais de Oliveira (cosup. Margarida Archer)	PhD Student
Sofia Isabel Marques da Silva	PhD Student
Sofia Cristina dos Santos Venceslau	PhD Student
Ana Raquel Martinho Ramos	BI
Filipa Maria Martins Pereira de Almeida Cunha	BI
Marta Franco Coimbra Marques	BI
Isabel Pacheco (col. Ricardo Louro)	Technician

Microbial & Enzyme Technology

Lígia O. Martins, *Professor Auxiliar Convidado*

Marta Sobral Ribeiro de Menezes da Silva Graça	Invited Researcher
Luciana José Ribeiro Pereira	Post Doc
Vânia Sofia Brissos	Post Doc
Zhenjia Chen	Post Doc
André João Tavares Fernandes	PhD Student
Paulo Jorge Rego Durão	PhD Student
Pedro Miguel Cambeiro Barrulas	BI
Sónia Alexandra Gonçalves Mendes	BI

mistry Division

Molecular Genetics of Microbial Resistance

Lígia Saraiva, *Investigador Auxiliar*

Marta Sofia Guedes de Campos Justino	Post Doc
Lígia Isabel Santos Nobre	PhD Student
Susana André Lima Lobo	PhD Student
Vera Lúcia Faria Viola Gonçalves	PhD Student
Joana Morais Baptista	PhD Student
Ana Filipa Nogueira Tavares	PhD Student
Mafalda Cristina de Oliveira Figueiredo	BI

Molecular Interactions and NMR

Patrick Groves, *Investigador Auxiliar*

Malgorzata Palczewska	Invited Researcher

Molecular Simulation

António Baptista, *Investigador Auxiliar*

Miguel Ângelo dos Santos Machuqueiro	Post Doc
Sara Isabel Rasteiro Campos	PhD Student
Luís Carlos Santos Filipe	Master Student
Pedro Rafael Silva Álvaro Magalhães	Master Student

Mössbauer Spectroscopy

Filipe Tiago de Oliveira, *Professor Auxiliar*

Protein Biochemistry Folding & Stability

Cláudio M. Gomes, *Investigador Auxiliar*

João Vieira Rodrigues	Post Doc
Sónia Cristina Alves Dickson Leal Solano	Post Doc
Ema Luís Pereira Gomes Alves	Post Doc
Ana Raquel Viegas Correia	PhD Student
Bárbara Joana de Almeida Henriques	PhD Student
Hugo Miguel Raposo Correia Botelho	PhD Student
Vesna Prosinecki	PhD Student

Protein Modelling

Cláudio Soares, *Professor Associado*

Bruno Lourenço da Silva Victor	Post Doc
Ana Sofia Fernandes de Oliveira	PhD Student
Diana Andreia Pereira Lousa	PhD Student
João Miguel Marques Mateus Damas	PhD Student
Carla Baltazar	Master Student
Luís Manuel Pinto Pereira	BI

Raman Spectroscopy

Smilja Todorovic, *Investigador Auxiliar*

Zélia Licínia Ferreira Gouveia	PhD Student

Macromolecular Crystallography Unit

Structural Biology

Carlos Maria Franco Frazão, *Investigador Principal*

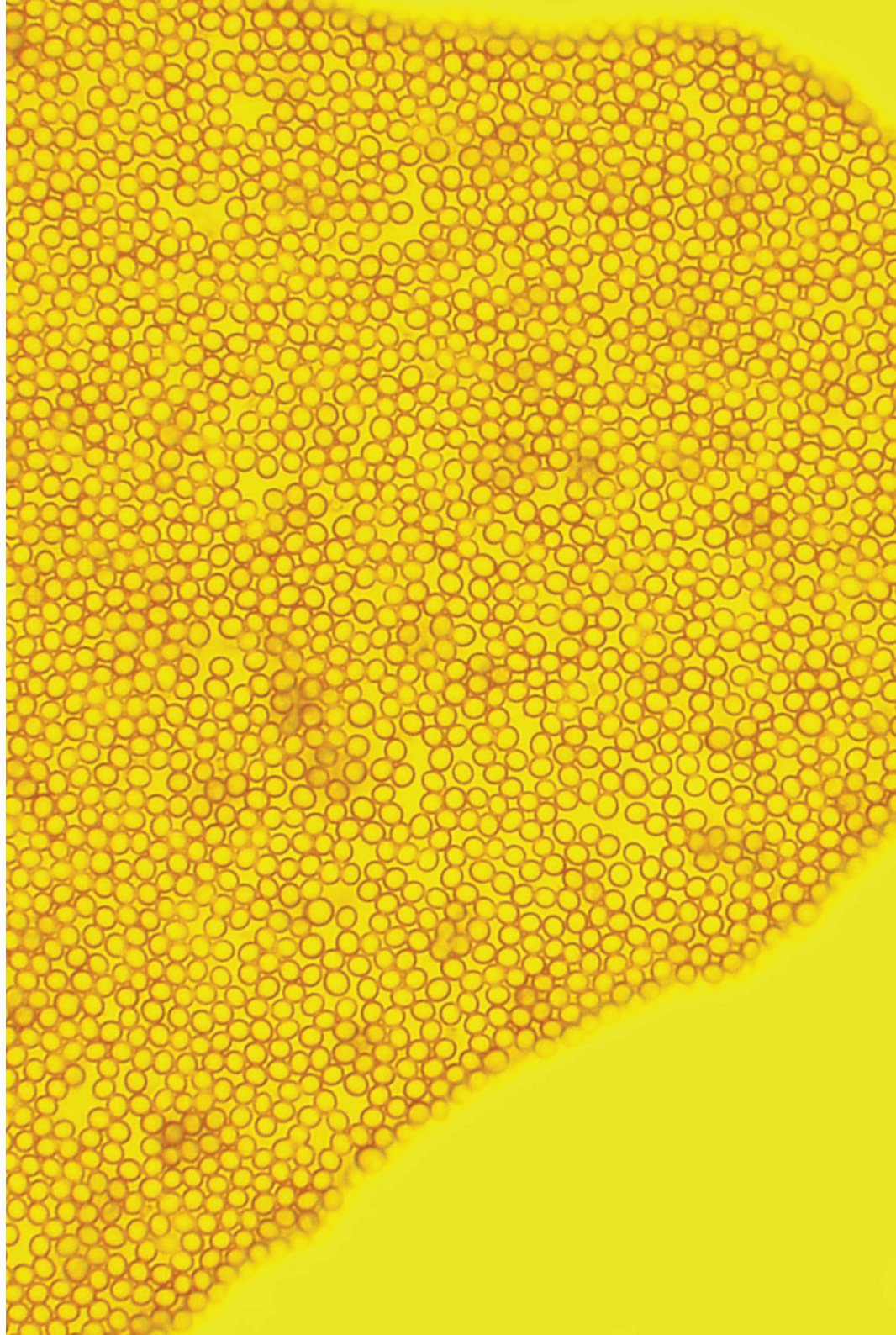
Joana Raquel Morgado Rocha	PhD Student

Macromolecular Crystallography Unit

Structural Genomics

Maria Arménia Carrondo, *Professor Catedrático*

Isabel Maria Travassos Almeida de Jesus Bento	*Investigador Auxiliar*
Tiago Miguel Guerra Miranda Bandeiras - IBET	*Investigador Auxiliar*
Colin Edward McVey	Post Doc
Alexander Athanasiadis - IGC	Post Doc
Ricardo Emanuel Sirgado Miranda Coelho	Technician
Mário José Pedrosa Correia	PhD Student
Catarina Isabel Simões Pires da Silva	PhD Student
Ana Teresa da Silva Gonçalves	BI
Bruno Manuel C. Gonçalves Correia	BI



Biology

Bacterial Cell Biology

Mariana Pinho, *Investigador Auxiliar*

Patricia Reed	Post Doc
Maria Margarida Moreira dos Santos	Post Doc
Ana Maria Rodrigues Jorge	PhD Student
Helena Maria Pinto Veiga	PhD Student
Pedro Matos Pereira	PhD Student
João Miguel da Silva Queirogo Monteiro	Master Student
Ana Domingas Sousa Paraíso Tavares Manso	BI

Bacterial Pathogenesis

Sérgio Filipe, *Investigador Auxiliar*

James Yates	Post Doc
Mafalda Soeiro Xavier Henriques	PhD Student
Magda Luciana Dias Pereira Atilano	PhD Student
Madalena Moreira Carido Pereira	BI

Bacterial Membrane Proteomics

Dirk-Jan Scheffers, *Investigador Auxiliar*

Bacterial Signaling

Karina Xavier, *Investigador Auxiliar*

Michal Bejerano-Sagie - IGC	Post-doc
Catarina Pereira - IGC	PhD student
João Marques - IGC	BI
António Santos - IGC	BI

Cell Physiology and NMR

Helena Santos, *Professor Catedrático*

David Turner	*Professor Catedrático* Convidado
Maria Teresa Nunes Mangas Catarino	*Professor Auxiliar*
Nuno Miguel Formiga Borges	*Investigador Auxiliar*
Pedro Miguel Lamosa António	*Investigador Auxiliar*
Luís Maria Figueiredo M. Lopes Fonseca	Post Doc
Tiago Quininha Faria	Post Doc
Luís Pedro Gafeira Gonçalves	Post Doc
Tony James Anthony Collins	Post Doc
Melinda Cármen Noronha	Post Doc
Carla Alexandre Duarte Jorge	Post Doc
Filipa Maria Lage Dias Silva Cardoso	PhD Student
Marta Viseu Rodrigues	PhD Student
Tiago Vasconcelos Duarte Moreira Pais	PhD Student
Pedro Oliveira Quintas	PhD Student
Ana Lúcia Serafim de Carvalho	PhD Student
Rute de Almeida Ferreira de Castro	PhD Student
Ana Isabel Canas Ferreira Mingote	BI
Ana Laura Mautado dos Santos Seara Paixão	BI
Carla Patrícia da Silva Almeida	BI
Cristiana da Silva Faria	BI

Cell Signaling in *Drosophila*

Pedro Domingos, *Investigador Auxiliar*

Maria de Fátima Afonso Cairrão	Post Doc
Vanya Ivanova Rasheva	Post Doc
Gonçalo Manuel Pinho Ribeiro de Oliveira Poças	Master Student
Dina Coelho	Master Student

Control of Gene Expression

Cecília Arraiano, *Investigador Principal com Agregação*

Patrick Oliveira Freire	Post Doc
Ana Lúcia Freitas Mesquita Barbas	Post Doc
Sandra Cristina de Oliveira Viegas	Post Doc
Susana Margarida Lopes Martins Domingues	Post Doc
José Eduardo Marques Andrade	Post Doc
Ana Filipa de Melo Tadeu Pereira dos Reis	PhD Student
Inês de Jesus de Almeida e Silva	PhD Student
Inês Gabriel e Silva Batista e Guinote	PhD Student
Rute Margarida Gonçalves Matos	PhD Student
Ricardo António Neves Moreira	PhD Student
Vânia Sofia Fidalgo Pobre	BI

Glycobiology

Júlia Costa, *Investigador Principal*

Carla Alexandra Duarte Jorge	Post Doc
Catarina Heitor Gomes	PhD Student
Cristina Isabel Caniço Escrevente	PhD Student
Eda Rita Gomes Soares Machado	PhD Student
Ricardo Jorge Martins Gouveia	PhD Student

Microbial Development

Adriano Henriques, *Professor Associado*

Ana Filipa Matos Almeida Valente	Post Doc
Anabela Lopes Isidro	Post Doc
Gonçalo Bruno F. Real Rodrigues de Carvalho	Post Doc
Mónica Paula Fernandes Serrano Miranda	Post Doc
Teresa Parente Madureira Vasconcelos Costa	Post Doc
Catarina Alexandra Gonçalves Fernandes	PhD Student
Cláudia Alexandra dos Reis Serra	PhD Student
Maria de Fátima Cardoso Pereira	PhD Student
Maria Luísa Gouveia e Freitas Côrte	PhD Student
Carla Esteves	Master Student
Pedro Rodrigues	Master Student

iology Division

Microbial Genetics

Isabel Sá Nogueira, *Professor Associado* UNL

Maria Isabel Lopes Correia	PhD Student
Lia Raquel Marques Godinho	Master Student
Mário José Rodrigues Ferreira	Master Student
Joana Catarina Reis Pedro	BI

Infection Biology

Luís Jaime Mota, *Investigador Auxiliar*

Filipe Manuel Baeta da Silva Almeida	Master Student

Lactic Acid Bacteria & In Vivo NMR

Ana Rute Ramos Neves, *Investigador Auxiliar*

Paula Gaspar	Post-doc
Sandra Costa Carvalho	PhD Student
Teresa Maio	Master Student
Ana Manso (col. Mariana Pinho)	BI

Molecular Genetics

Hermínia de Lencastre, *Professor Catedrático*

Alexander Tomasz	Invited Professor
Ana Madalena de Drummond Ludovice	*Professor Auxiliar*
Maria Leopoldina Amorim Miragaia Ryder	*Investigador Auxiliar*
Rosario Mato Labajos	*Investigador Auxiliar*
Susana Maria Lavado de Oliveira Gardete	Post Doc
Rita Gonçalves Sobral Almeida	Post Doc
Alexandra Sofia Oliveira Simões	PhD Student
Ana Lopes Tavares	PhD Student
Catarina Isabel Catarino Milheiriço	PhD Student
Nelson Emanuel da Silva Frazão	PhD Student
Nuno Alexandre Gomes Faria	PhD Student
Sandro Filipe Fernandes Pereira	PhD Student
Sónia das Neves Nicolau Nunes Leitão	PhD Student
Teresa Carla de Almeida Figueiredo	PhD Student
Teresa Margarida Gomes da Conceição	PhD Student
Joana Rita Gonçalves Araújo Rolo	Master Student
Maria Inês Ramos Grilo	Master Student
Bruno Miguel de Oliveira Guerra	BI
Carina Alexandra Pereira Valente	BI
Débora Alexandra Marques Tavares	BI

Plants

Disease and Stress Biology

Ricardo Boavida Ferreira, *Professor Catedrático* ISA-UTL

Maria Cláudia Godinho Nunes Santos	Post Doc
Damiano Vesentini	Post Doc
Sara Alexandra Monteiro	Post Doc
Lucélia Rodrigues Tavares	PhD Student
Regina Maria Fonseca da Luz Freitas	PhD Student
Paula Cristina Branco Cabrita Cunha	PhD Student
Roberto Plebani	Master Student
Stella Tatiana Liahuca de Esteves	Master Student
Alexandre Filipe Guerreiro Borges	BI
Vanessa Alexandra Falcão Borrego	BI

Forest Biotech

Célia Miguel, *Investigador Auxiliar*

Liliana Maria Bota Marum	PhD Student
Marta Andreia Horta Simões	PhD Student
Ana Filipa Gonçalves Milhinhos	PhD Student
Andreia Lúcia Campos dos Santos Ferreira Miguel	PhD Student
Lara Currais	BI

Plant Biochemistry

Cândido Pinto Ricardo, *Professor Catedrático Jubilado* ISA-UTL

José António Pires Passarinho	Invited investigator INRB
Carla Maria Alexandre Pinheiro	*Investigador Auxiliar*
Ana Isabel Faria Ribeiro	*Investigador Auxiliar*
Jingsi Liang	Post Doc
Ana Sofia Correia Fortunato	Post Doc
Marta Alexandra Marques Alves	PhD Student
Isa Catarina Monteiro Brás Ribeiro	BI

Plant Cell Biology

Rita Abranches, *Investigador Auxiliar*

José António Melo da Costa Nunes	Post Doc
Nuno Duarte Caixinha Geraldo	Post Doc
Ana Sofia de Carvalho Paiva Fernandes Pires	PhD Student
Stefanie Nunes Rosa	PhD Student
Bruno Filipe Rijo Ramos	Master Student

Plant Division

Plant Cell Biotechnology

Pedro Fevereiro, *Professor Auxiliar* FCUL *com Agregação*

Changhe-He Zhang	Post Doc
Dulce Maria Metelo Fernandes dos Santos	Post Doc
Inês Maria Silva Almeida Chaves	Post Doc
Maria Carlota Morais Cunha Vaz Patto	Post Doc
Susana de Sousa Araújo	Post Doc
Susana Maria Sousa da Silva Neves	Post Doc
Maria Margarida Rocheta	Post Doc
Jorge Almiro Caldeira Pinto Paiva	Post Doc
Ana Sofia Roldão Lopes Amaral Duque	PhD Student
Cátia Maria de Jesus Nunes	PhD Student
Inês Garcia de Oliveira Trindade	PhD Student
Matilde de Vasconcelos Manso Ataide Cordeiro	PhD Student
Silvana Coelho Cardoso	PhD Student
Ana Rita dos Santos Morgado	Master Student
Joana Filipa Calça Prata	Master Student
Mara Lisa Vieira Alves	BI
Nuno Felipe Alves de Almeida	BI

Plant Cell Wall

Philip Jackson, *Investigador Auxiliar*

Luís Filipe Sanches Goulão	Post Doc
Ada Doroteia Vatulescu	PhD Student
José Mário Leitão Ribeiro	PhD Student

Plant Developmental Genetics

Jorge Almeida, *Professor Associado* ISA-UTL

Maria Lisete Galego Dias	*Investigador Auxiliar*
Hugo Monteiro Pais Tavares	BI

Plant Genectic Engineering

Margarida Oliveira, *Professor Associado com Agregação*

Nelson José Madeira Saibo	*Investigador Auxiliar*
Ana Paula Leitão dos Santos	Post Doc
Isabel Alexandra Aguiar de Abreu	Post Doc
Sam Cherian	Post Doc
Sónia Sandra Cabrita Negrão	Post Doc
Tiago Filipe dos Santos Lourenço	Post Doc
Ana Margarida Janeiro Lopes Santos	PhD Student
Duarte Dionísio Figueiredo	PhD Student
Milene Soares Costa	PhD Student
Pedro Miguel Rodrigues de Barros	PhD Student
Tânia Sofia Lobato Paulo Serra	PhD Student
Subhash Chander	PhD Student
Liliana de Jesus Duarte Ferreira	BI

Plant D

Plant Molecular Ecophysiology

Manuela Chaves, *Professor Catedrático*

Alla Schvaleva	Post Doc
Ana Paula Martins Alves Ferreira Regalado	Post Doc
Olfa Zarrouk	Post Doc
Tiago Pedreira dos Santos	Post Doc
Joaquim Miguel Costa	Post Doc
Ana Paula Dias Rodrigues	Técn. Sup. ISA
Lukasz Tronina	PhD Student
Rita Maria de Brito Francisco	PhD Student
Ana Rita Leandro dos Santos	PhD Student
Sara Nobre Gonçalves Domingos	BI

Technology

Analytical Chemistry

Luís Filipe Silva Castro Vilas Boas, *Professor Associado* IST

Maria do Rosário Beja Figueiredo G. Bronze	*Professor Auxiliar* FFUL
Maria Nubélia Bravo	PhD
Ludovina Galego	PhD Student
Antero Augusto Ramos	Technician

Antibiotic Stress and Virulence of Enterococci

Fátima Lopes, *Investigador Auxiliar*

Paulo Emanuel de Oliveira Marujo	Post Doc
Tânia Catarino Ribeiro	PhD Student
Marta Maria Coelho dos Santos Abrantes	PhD Student
Teresa Marina Fonseca de Almeida Santos Braga	PhD Student
Renata Filipa Cruz de Matos	PhD Student
Sofia Alexandra Muchacho Santos	Master Student
Neuza Prazeres Teixeira	BI
Marta Isabel da Silva Ruivo	BI
Daniela Sofia Marques Pinto	BI

Applied and Environmental Mycology

Cristina Maria da Costa Silva Pereira, *Investigador Auxiliar*

Mariana Boavida Lopes Carvalho	PhD Student
Isabel Tavares Lima Martins	PhD Student
Adélia Varela Castro	PhD Student
Helga Margarida Correia Ferreira Garcia	PhD Student
Cátia Filipa Mendes Rodrigues	BI
Paula Cristina de Azevedo Alves	BI
Sandra Raquel de Oliveira Tavares	BI

Biomathematics

Jonas S. Almeida, *Professor Catedrático Convidado*

Biomolecular Diagnostic

Abel Oliva, *Investigador Auxiliar*

Cláudia Sánchez Lara	Post Doc
Elisa Regina Figueiras Julião Inácio de Campos	PhD Student
Marta Gomes da Silva	PhD Student
Ana Raquel da Silva Santos	Master Student
Haline Garcia Victório	Master Student
José Valério Nascimento Palmeira	Master Student
Gisela Cristina Lourenço Henriques	BI

Techn

Animal Cell Technology Unit

Cell Bioprocesses

Paula M. Alves, *Investigador Principal*

José Eduardo Marques Bragança	*Investigador Auxiliar*
Ana Catarina Maurício Brito	Post Doc
Helena de Araújo Vieira	Post Doc
Isabel Eloi Marcelino	Post Doc
Joana Paiva Gomes Miranda	Post Doc
Ana Carina Santos Ferreira Silva	PhD Student
Ana Isabel Porém Amaral	PhD Student
Cláudia Queiroga (cosup. Helena Vieira)	PhD Student
Leonor da Gama Carvalho Norton	PhD Student
Maria Cândida Mellado	PhD Student
Maria Margarida de Carvalho Negrão Serra	PhD Student
Nuno Eduardo Buxo Carinhas	PhD Student
Rita Maria Maia Malpique	PhD Student
Sofia Margarida Leite	PhD Student
Sónia Santos Rocha	PhD Student
Rui Tostões (cosup. Manuel Carrondo) - MIT Portugal	PhD Student
Armanda Rodrigues	Master Student
Paulo Fernandes	Master Student
Marcos Filipe Quintino de Sousa	Technician
Ana Luísa Tátá Carvalho Escapa	Technician

Animal Cell Technology Unit

Cell Line Development and Molecular Biology

Ana Sofia Coroadinha, *Investigador Auxiliar*

Ana Filipa Albuquerque Ferreira Rodrigues	PhD Student
Joana Lamego (cosup. Ana Luísa Simplicio)	PhD Student
Ana Mendes	BI
Núria Filipa Cristina Viana	BI
Telma Lança	BI
Vanessa Isabel Ferreira Veríssimo	BI
Virgínia Manuela Santiago Pinto	BI

Animal Cell Technology Unit

Engineering Cellular Applications

Manuel Carrondo, *Professor Catedrático* FCT-UNL

Pedro Cruz	*Investigador Principal*
Ana Margarida Teixeira	Post Doc
Vicente Bernal Sánchez	Post Doc
António Manuel Missionário Roldão	PhD Student
Marlene Isabel Rosa Carmo	PhD Student
Ricardo Perdigão	PhD Student
Rui Tostões (cosup. Paula Alves) - MIT Portugal	PhD Student
Tiago Manuel Vicente	PhD Student
Teresa Rodrigues	PhD Student
Francisca Monteiro	Master Student
Cristina Maria da Costa Peixoto Lisboa	Technician

nology Division

Food Microbial Technology

Cidália Peres, *Investigador Principal* INRB

Maria Dulce de Azevedo Carneiro de Brito	Research Assoc. INRB
Amélia Maria Muralha Delgado	Post Doc
Maria Cristina de Almeida Pelejão Serrano	Technician INRB
Luísa Reis	Technician INRB
Luís Filipe Duarte Catulo	Technician INRB
Alexandra Pereira	BI
Ana Marta Franco	BI
Liliana Ferraz Moreira	BI

Mass Spectrometry

Ana Coelho, *Professor Auxiliar Convidado*

Renata Filipe Soares	Post Doc
Ricardo Jorge dos Anjos Gomes	Post Doc
Romana Lopes Almeida dos Santos	Post Doc
André Martinho de Almeida	Post Doc
Catarina de Matos Franco	PhD Student
Gonçalo Martins Conde da Costa	PhD Student
Patrícia Isabel Gomes Alves	PhD Student
Elsa Cristina Carona De Sousa Lamy	PhD Student
Sérgio Miguel Mota	PhD Student
Duarte Nuno Toubarro Tiago	PhD Student
Marta Maria Lavouras Mendes	PhD Student
Mariana Ramires de Carvalho	Master Student
Elisabete Andrade Alves Pires	Technician
Catarina da Fonseca Nunes Pereira	Technician

Microbiology of Man-Made Environments

Teresa Crespo, *Investigador Principal* IBET

Vanessa Pereira	Post Doc
Gilda Sousa de Carvalho	Post Doc
Patrícia Rodrigues Noronha da Costa	Post Doc
Cristina Sofia Torres de Matos	Post Doc
Ana Filipa Correia Silva	PhD Student
Frédérique Bustos Gaspar	PhD Student
Helena Isabel dos Santos	PhD Student
Cristina Isabel Tavares Pereira	PhD Student
Bárbara Fonseca de Almeida	BI
Sandra Marisa Lourenço Sanches	BI
Joana Isabel Galinha Marques Ricardo	Technician
Paula Isabel Loução Lopes Alves	Technician

Molecular Thermodynamics

Luís Paulo N. Rebelo, *Professor Associado com Agregação*

Isabel Maria Delgado Jana Marrucho Ferreira	*Investigador Auxiliar*
José Manuel da Silva Simões Esperança	*Investigador Auxiliar*
Mohammad Tariq	Post Doc
Marija Petkovic	PhD Student
Ana Mafalda Leitão Macatrão	BI
Helena Isabel Abrantes de Gouveia da Mota Veiga	BI
Paulo Alexandre dos Santos Forte	BI
Rui Manuel Cordeiro Ferreira	BI

Nutraceuticals and Delivery

Catarina Duarte, *Investigador Auxiliar*

Ana Teresa de Carvalho Negrão Serra	PhD Student
Ana Alexandra Figueiredo Matias	PhD Student
Ana Raquel Sampaio de Sousa	PhD Student
Mariana Isabel Ferreira Nobre de Sousa Costa	PhD Student
Carlos Alberto Garcia González	PhD Student
Raquel Frutuoso Machado Frade	PhD Student
Duarte Maria Torres Alves Sousa Rêgo	BI

Pharmacokinetics and Biopharmaceutical Analysis

Ana L. Simplício, *Investigador Auxiliar*

Hugo Ortolá de Abreu e Serra	PhD Student
Joana Catarina Rocha Lamego	PhD Student
Vanessa de Jesus Segeira	Master Student

Physiology of Environmental Conditioned Microbiota

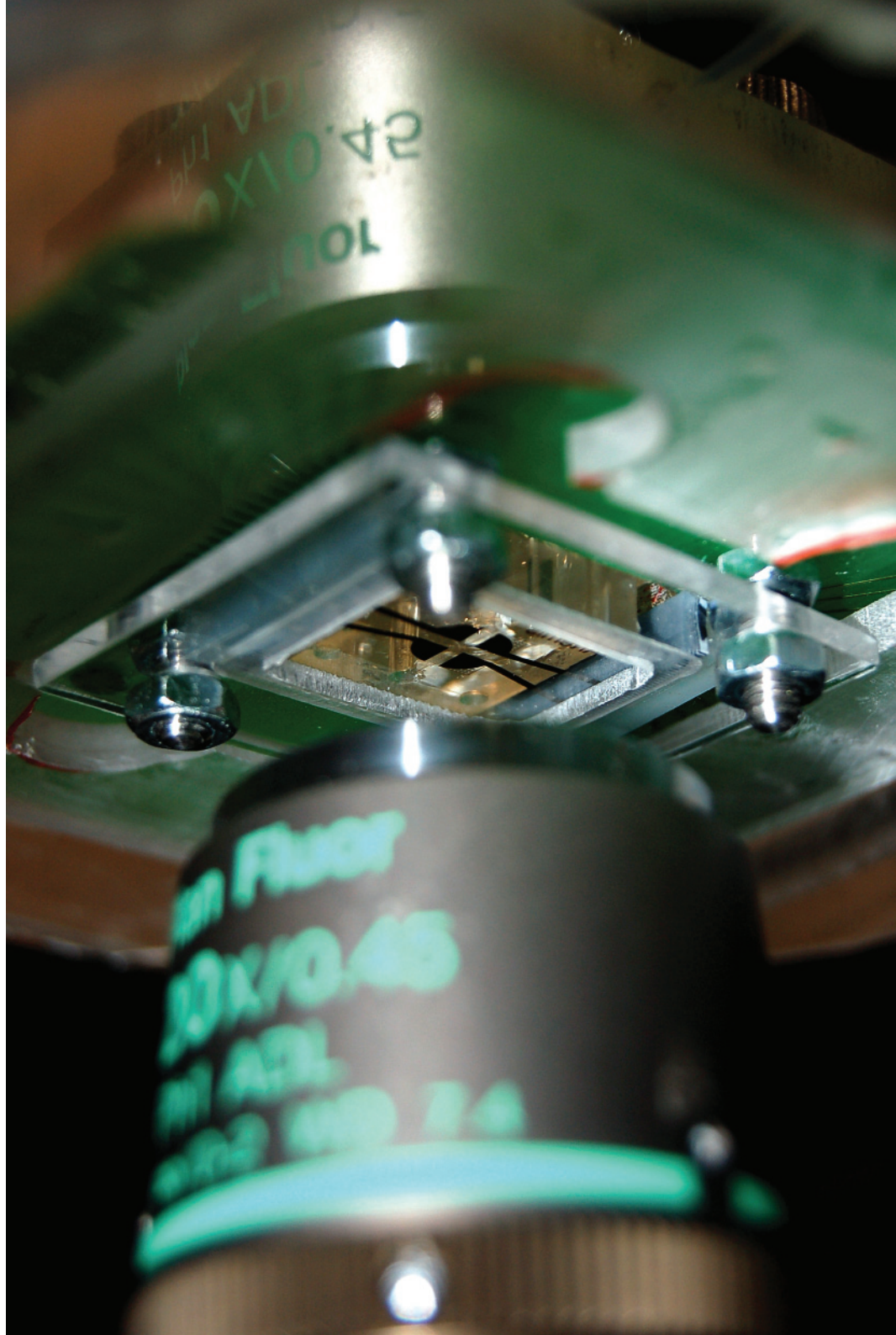
Vitória San Romão, *Investigador Coordenador* INRB

Ana Paula Gomes Marques	PhD Student
Maria do Carmo Barreto Baptista Basílio	PhD Student

Systems Biodynamics

Andreas Bohn, *Investigador Auxiliar*

João Nuno Alves Duarte Santos	BI
Sofia Inês de Matos Antunes	BI



Invited and Visiting Professors

Alessandro Giuffrè, Università di Roma “La Sapienza”, IT
Fast Kinetics

Alexander A. Konstantinov, Moscow State University, RU
Bioenergetics

Alexander Tomasz, The Rockfeller University, USA
Microbiology

Daniel H. Murgida, Technische Universität Berlin, DE
Raman spectroscopy

David Edward Onions, Invitrogen Corporation, USA
Virology / Vectorology

David L. Turner, University of Southampton, UK
Biology

Hansjörg Hauser, Gesellschaft für Biotechnologische Forschung GmbH.
Eukaryotic Molecular Biology

John G. Aunins, Merk Research Laboratories, West Point, USA
Bioprocess Engineering

Jonas Almeida, University of Texas, USA
Biomathematics

José Artur Martinho Simões, Universidade de Lisboa, PT
Chemistry

José Canongia Lopes, Instituto Superior Técnico, PT
Molecular Simulation

Kenneth R. Seddon, The Queen´s University of Belfast, UK
Ionic Liquids

Peter Alfred Donner, Direvo Biotech, Köln, DE

Peter F. Lindley, Birkbeck College London, UK
Structural Biology

Peter G. Hildebrandt, Technische Universität Berlin, DE
Raman Spectroscopy

Robert Archibald Samson, Kasetsart University of Bankok, TH
Plant Pathology

Winchil L. Cláudio Vaz, Universidade de Coimbra, PT
Biophysics

Support Staff

Support Staff

Academics and Projects Office

Head: Maria de Lurdes Madaleno Conceição
Ana Cristina Profírio Amaral
Ana Maria Cerveira e Castro da Silveira Portocarrero
Isabel Cristina Respicio Valente Almeida Lopes
Isabel Maria Coelho Gonçalves Guerreiro Murta
Maria Alexandra Ferreira Lopes Pinto dos Santos

Workshop and Maintenance

Head: Henrique José Vaz de Campas Nunes
Alexandre Saturnino Largo Maia
Aníbal José Neves Ribeiro
António Veiga Ramalho
António Miguel Diogo Rodrigues
João Carlos Zanão Simões
José Luís Pereira Liberato
Luís Miguel Sousa Gonçalves
Nuno Miguel de Jesus Soares
Nuno Monteiro (Power Management)
Rómulo M. Dias Correia
Rui Hélder Amor Pereira Dias
Tiago Manuel dos Reis Escóbar (since October)

External Affairs & Science Communication

Head: Ana Maria Beirão Reis de la Fuente Sanchez
Cláudia Lopes Pinheiro
Luís Manuel Ramalho Morgado

Administrative and Accounting Services

Personnel Section

Head: Maria Cristina Pereira Pinto
Ana Luísa Silva Teixeira Cruz
Goretti Anjos Gomes da Rocha
Helena Isabel Gomes Cordeiro Rodrigues
Maria Madalena Albuquerque Marques Pereira

Mailling and Archive

Artur Elias dos Santos Freitas

Accounting, Treasury & Stores

Head: Fernando Jorge Dias Tavares

Accounting

Ana Cristina Afonso Silva
Ana Mónica Adriano Vieira
Isabel Maria Soares Palma Mestre
Nuno Miguel Nobre Lopes
Sónia Cristina Serra Ermida

Treasury Section

Ana Dores dos Santos Freire
Anabela dos Santos Bernardo Costa

Stores

Ana Isabel Soares Jesus Francisco dos Santos
Bruno Alexandre Lucas Gouveia
Carlos Eduardo Branco de Matos Aires Martins
João Augusto Lourenço Rodrigues
Ricardo Manuel Pereira Pinto

Secretariat

Maria de Fátima Costa Madeira
Rosina Faruk Gadit

Support Staff

Washrooms
(Coordinator: Teresa Baptista da Silva)
Ana Cristina Martins Barreiros
Carmen Popula Pereira de Jesus Fernandes
Helena Isabel Pinto Vilaranda
Maria Alice Rosa Ferreira
Maria Eugénia Ferreira Pereira dos Santos
Pilar da Conceição Lobo da Costa Campos
Sónia Cristina Capucho Serrano
Sónia Maria Lacerda Moita (since October)

Support to the Molecular Genetics Laboratory
Isilda Gueifão

Computer Systems Support
(Coordinator: Carlos Frazão)
Executive coordinator: Daniel Feliciano Branco
Carlos Manuel dos Santos Cordeiro
Hugo Gonçalo Metelo dos Santos Cordeiro (since April)
José Miguel de São Bento Figueiredo Loureiro
Maria Isabel da Costa Baía (until March)
Maria Manuel Isaías Paulo Rato
Rui Pinto Garcia Fernandes (until November)
Rui Miguel Roquete Cunha Alves (since December)

Library
Librarian: Susana Lopes

Library Advisor Committee
Chairman: Miguel S. Teixeira
Carlos Romão
Adriano O. Henriques
Margarida Oliveira

Lab Management
Lab Manager: Cláudia Conde de Almeida
(Coordinator: Lígia M. Saraiva)

Teaching laboratory
Teresa Baptista da Silva
(Coordinator: Adriano O. Henriques)

Fermentation
João Nuno Carichas Carita
(Coordinator: Miguel S. Teixiera)

ITQB/IBET Analytical Services Unit
(Coordinator: Teresa Crespo)
Ana Maria de Jesus Bispo Varela Coelho
Elizabete Pires
Maria da Conceição Lucas Carvalho Pereira de Almeida
Maria Manuela Sobral Martins Alberto Regalla
Mário Patrício
Paula Isabel Alves
Paula Maria Gonçalves de Oliveira Roldão Chicau
Sandra Silva

Crystallography
Isabel Bento

CERMAX
(Coordinator: Helena Santos)
Manager: Pedro Miguel Lamosa
Helena Pereira Matias
João Pires

Scientific Services

Scientific Services

Nuclear Magnetic Resonance

ITQB hosts the largest Portuguese NMR facility - Centro de Ressonância Magnética António Xavier. CERMAX has several NMR spectrometers (300, 400, 500 and 800 MHz), including the highest field spectrometer in Portugal. This equipment is part of the National NMR Network Facility and serves the Portuguese scientific community. The Centre is headed by Helena Santos, *Professor Catedrático* at ITQB; the manager of CERMAX is Pedro Lamosa, Investigador Auxiliar.

Manager: Pedro Lamosa, lamosa@itqb.unl.pt
Helena Matias, lenap@itqb.unl.pt
João Pires, jopires@itqb.unl.pt

Small Molecule X-ray Crystallography

This X-ray crystallography facility is an analytical service that involves a close collaboration between three different institutions: ITQB, IST and ITN. X-ray diffraction by a single crystal is used to determine the three dimensional structure of small molecules.

Isabel Bento, bento@itqb.unl.pt
Coordinator: M. A. Carrondo

Analytical Services Unit

The Analytical Services Unit is a partnership between *Instituto de Biologia Experimental e Tecnológica* (IBET) and ITQB under the executive management of IBET. The Unit is certified by the INFARMED (Portuguese Pharmacy and Medicines Agency) and IPQ (Portuguese Institute for Quality) as compliant with Good Laboratory Practices Principles (GLP).
The Analytical Services Unit is divided in three Laboratories with different expertise.

Direction of GLP Unit: Maria Teresa Crespo | Maria do Rosário Bronze
Quality Assurance Unit: Ana Luísa Simplicio

Analytical Laboratory

The laboratory has a long track record of providing services using chromatographic (HPLC and GC with several detectors) and electrophoretic methods for pharmaceutical, agro and chemical industry and academia.
António Ferreira, antoniof@itqb.unl.pt

Microbiology Laboratory

Services include *in vitro* potency assays, protein quantification, molecular biology analysis (GMOs in food and feed and other) and detection and quantification of impurities or contaminants in pharmaceuticals.
Fernanda Rodrigues, spinola@itqb.unl.pt

Protein Characterization and Mass Spectrometry Laboratory

Develops and validates analytical methods and performs routine analyses for a broad range of chemical compounds, from small organic and inorganic compounds to peptides, oligosaccharides, nucleotides, and proteins. The laboratory is associated with the Mass Spectrometry National Network Facility.
Ana Varela Coelho, varela@itqb.unl.pt

Fermentation Unit

This unit is only available for in-house researchers, and is devoted to small or large scale cell growth of a multitude of diferent organisms. The unit is in charge of keeping the relevant collection of bacterial strains.
João Carita, carita@itqb.unl.pt
Coordinator: M. S. Teixeira

Teaching Laboratory

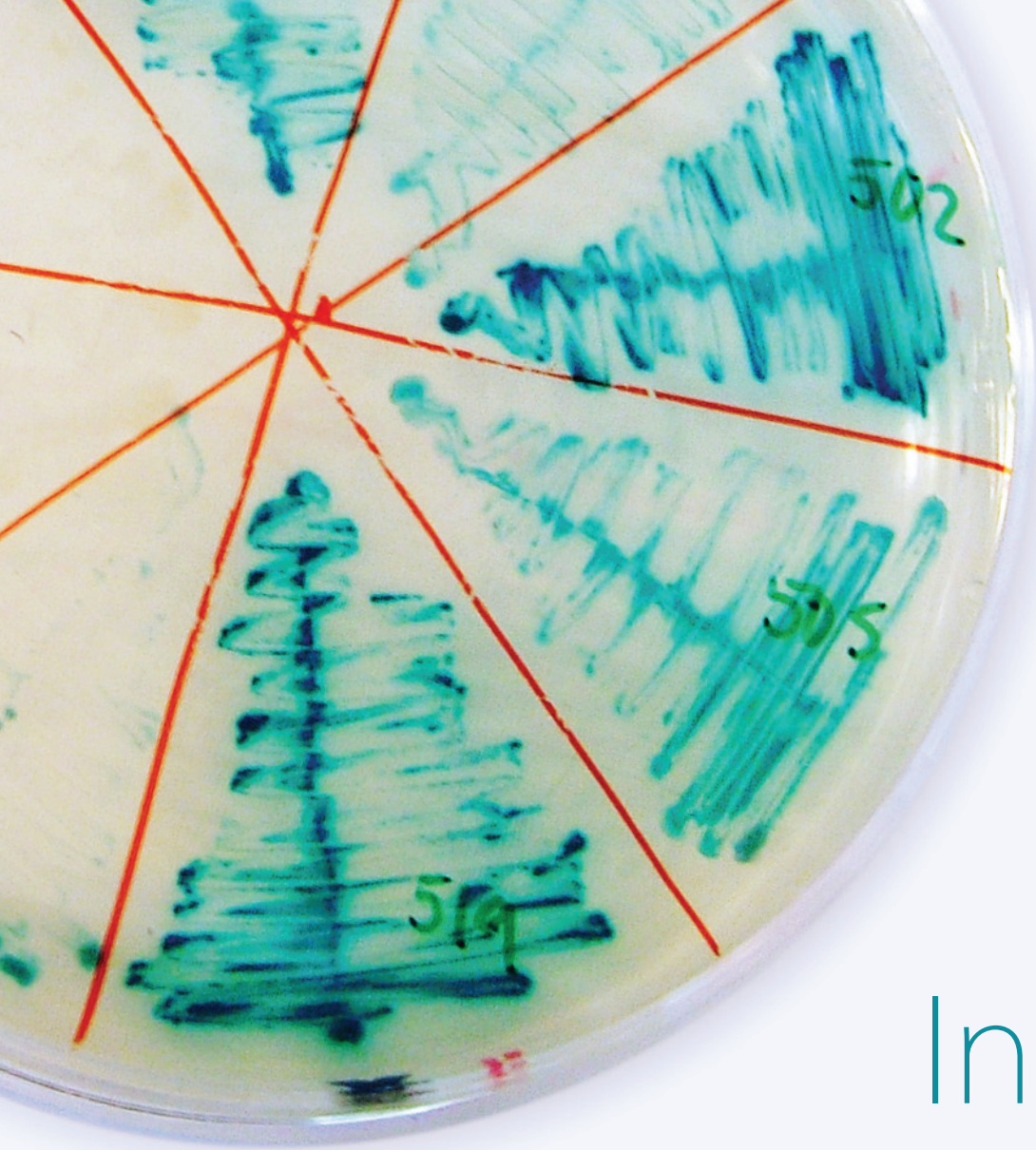
The Teaching Laboratory is designed and equipped to support the teaching activities of the Institute in areas ranging from Biochemistry to Genetics.
Teresa Baptista da Silva, teresas@itqb.unl.pt
Coordinator: A. O. Henriques

Laboratory Manager

The ITQB Lab Manager is responsible for the purchase and maintenance of scientific equipment for the Institute. Besides establishing efficient and professional purchase procedures, the Lab Manager supervises the common scientific equipment and supports researchers who need to acquire laboratory instruments, leading to significant budget savings for the whole institute.
Cláudia Almeida, calmeida@itqb.unl.pt
Coordinator: L. M. Saraiva

Major equipment available at ITQB

- ATR-FT- Infra Red Spectroscopy
- Circular Dichroism Spectropolarimeter
- Computational Cluster for Structural Bioinformatics
- Dynamic Light Scattering Particle Sizer / Instrument for Zeta Potential and Molecular Mass Determination
- Electron Paramagnetic Resonance Spectroscopy
- Fluorescence Deconvolution Microscope
- Fluorescence Recovery After Photobleaching (FRAP)
- Greenhouse 300m2
- High-Performance Anion-Exchange Chromatography with Pulsed Amperometric Detection
- ITQB/IBET Pilot Plant
- Mass Spectrometer (MALDI-TOF, API-3D ion trap, LC-API-3D ion trap, LC-nanoESI-linear ion trap)
- NMR spectrometers (300, 400, 2x500 and 800 MHz)
- Raman Spectrometer, including surface enhanced and time resolved Raman
- Room Temperature Time Resolved Phosphorescence
- Steady State Fluorescence and Steady State Fluorescence Anisotropy
- Surface Plasmon Resonance (Biacore)
- Walk-in Plant Growth Chambers (2x6m2) and Rooms 3x2m2
- X-ray Difractometer
- Several Stopped Flow Systems
- Oxygen and nitric oxide amperometers
- Differential Scanning Calorimeter



Institutional Relationships

Protocols established between ITQB and other institutions:

ITQB/IBET

ITQB's association with the *Instituto de Biologia Experimental e Tecnológica* (IBET), located in the same building, provides the interface between fundamental research and economic activities.

Laboratório Associado

ITQB 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 to maximize its research and development potential.

ITQB/FCT-UNL/IBET

A 2007 protocol signed between ITQB, IBET, and *Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa* established joint collaborations in undergraduate and graduate courses.

ITQB/FCUL

A 2005 protocol regulates the cooperation of ITQB and *Faculdade de Ciências da Universidade de Lisboa* in research activities and advanced education.

ITQB/ISA

ITQB and *Instituto Superior de Agronomia* signed a protocol in 2004 to encourage cooperation in scientific research activities and advanced education and to strengthen the research efforts in applied biology and biotechnology of both institutions.

Rede Nacional de Ressonância Magnética Nuclear

ITQB participates in Portuguese NMR network created with the support of the *Fundação para a Ciência e a Tecnologia* (FCT) in the frame of a national programme for the acquisition and upgrading of scientific equipment. The network aims to stimulate the use of advanced facilities by Portuguese researchers and the sharing of the national scientific resources.

Rede Nacional de Espectrometria de Massa

Mass spectrometry is one of the main instrumental supports in scientific research, namely in life, chemical and environmental sciences. ITQB is one of the nine Portuguese academic institutions that integrate RNEM (*Rede Nacional de Espectrometria de Massa*), an infrastructural network launched in 2007, under the general National Program for Scientific Re-equipment.

Massachusetts Institute of Technology - Portugal

The MIT - Portugal partnership is an international collaboration between the Portuguese state and the MIT, focused on the areas of engineering systems. This collaboration is centred on research, technology and higher education, and aims at promoting scientific and technological development. The Associated Laboratory ITQB/IGC/IBET is directly involved in the Focus Area of Bioengineering Systems.

ITQB-Unicat – Unifying Concepts in Catalysis, German Cluster of Excellence

ITQB is an International Partner of UniCat, the acronym for a new initiative in the area of catalysis research in the Berlin-Brandenburg area (Germany). UniCat is a Cluster of Excellence developed within the Excellence Initiative started by the German Federal and State Governments, under the supervision of the German Research Foundation. The Cluster is a Consortium of the three Berlin Universities, two Max-Planck Institutes and the University of Postdam, being coordinated by the Technische Universität Berlin. As External Partners, it includes large companies, and Foreign Academic Partners.

Statistics

Statistics

Researchers

ITQB operates as an open institute with the participation of researchers from other institutions; permanent research and teaching positions are limited. A number of researchers have been hired for 5-year periods under the *Laboratório Associado* contract or under the *Ciência 2007* initiative. The majority of PhD holders is supported through post-doctoral scholarships.

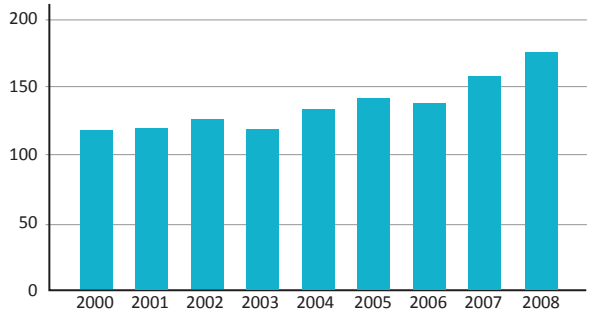
Currently, research at ITQB is supported by 380 researchers excluding undergraduates and visiting scientists.

PhD holders	175
Permanent Staff	19
LA Contract	20
Ciência 2007	19
Other PhDs	8
Other institutions	28
Post Doctoral Fellows	81

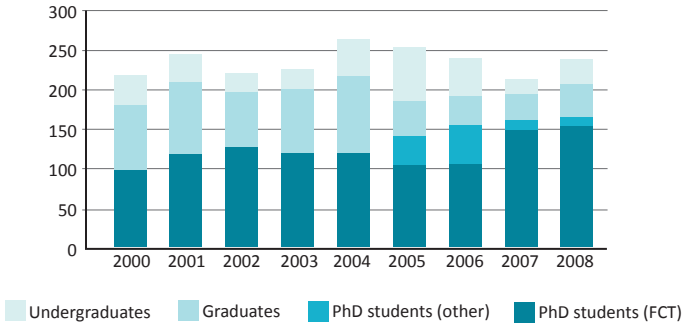
PhD students and other graduates are integrated in research groups. Also, undergraduate students have the opportunity to start their training in scientific research. Only PhD students working at ITQB are accounted for here (students working in other institutions can obtain their degree at ITQB but are accounted for in the Advanced Education Section).

PhD students	163
Other graduates (grantees)	42
Undergraduates	32

PhD holders over the years



Graduate students and undergraduates over the years



Before 2005, PhD students not funded by FCT are accounted for as Graduates.

Researchers by gender:

PhD holder: Female 101 / Male 74
PhD student: Female 126 / Male 37
Science grantees: Female 31 / Male 11

Researchers Funding

The research staff supported by ITQB is limited to 25 (18 are permanent positions). The *Laboratório Associado* Contract and the *Ciência 2007* initiative account for 49 researchers.
Many PhD students and post-doctoral fellows resort to the *Fundação para a Ciência e a Tecnologia* (FCT) for funding. At this moment ITQB has 216 FCT grantees (152 PhD students and 64 post-docs).

Research

Laboratories

Each research group at ITQB, variable both in size and structure, is managed independently by a senior researcher (Laboratory Coordinator). Groups are organized in Research Divisions – Chemistry, Biology, Biological Chemistry, Plant Sciences, and Technology – covering a wide range of scientific topics and methodologies. In many cases the allocation of a particular Laboratory to a Division is an organizational convenience and collaboration between Divisions is strongly encouraged. In 2008, 64 Research Laboratories were operating at ITQB.

Projects

Research at ITQB is mainly supported by contracted projects with R&D funding agencies. Currently, ITQB coordinates 84 research projects and participates in 33 more. The full list of projects currently running at ITQB is given in the Research Output section.

The total 117 ongoing projects are mainly funded by the *Fundação para a Ciência e a Tecnologia* (FCT), but there are additional sources of funding.

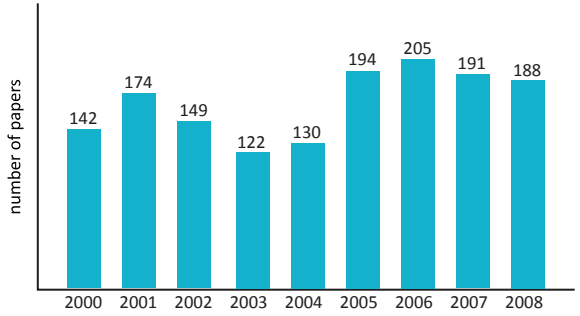
Ongoing projects

103 projects *Fundação para a Ciência e a Tecnologia*
1 project *Sociedade Portuguesa de Gastrenterologia*
1 projects European Economic Area and Norway Grants
8 projects European Commission
2 projects NIH (through Rockfeller University)
1 project as Subcontracting Party (Georgia Institute of Technology)
1 project National Ataxia Foundation (USA)

Publications

During 2008, ITQB research scientists published 188 papers in peer reviewed international journals. The multidisciplinary nature of ITQB research is visible in the range of areas in chemistry and biology covered by these papers (see full list on page 54).

Publications in peer reviewed journals over the year



Publications 1993-2008:

total number of publications 1,904
corresponding citations 30,752
h-index 68

Advanced Education

Advanced education at ITQB includes the student's integration into the research groups. ITQB provides training opportunities for both graduates and undergraduates.

At the graduate level, ITQB provides postgraduate courses, a master's degree, and a PhD program in Chemical and Biological Sciences. ITQB also participates in the MIT-Portugal Program.

Masters Degree Programme

ITQB is involved in the Masters Degree in Medical Microbiology, a collaborative Masters Course from the *Universidade Nova de Lisboa* in conjuction with the *Instituto de Higiene e Medicina Tropical*, the *Faculdade de Ciências Médicas* and the *Faculdade de Ciências e Tecnologia*. During 2008, 9 master students defended their dissertation theses at ITQB.

PhD Degree Programme

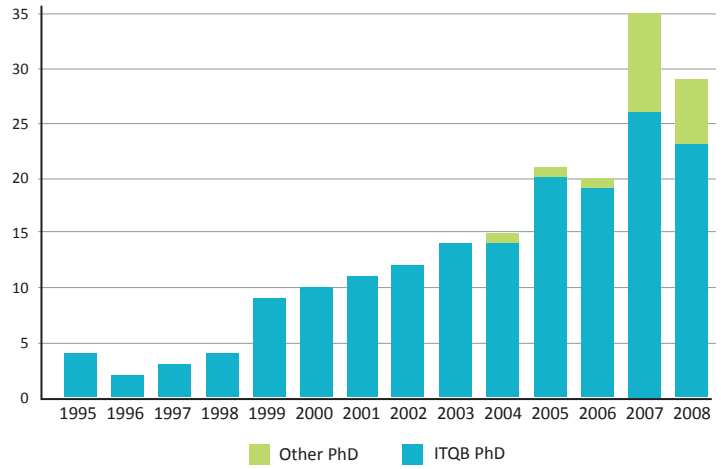
In 2008, 28 students have attended the ITQB PhD programme, an intensive multidisciplinary course mandatory for first year PhD students at ITQB. The PhD Program is now fully re-structured in accordance with the rules of the Bologna Process and will run in a different format in 2009.

PhD Degrees

ITQB awards PhD degrees in Chemistry, Biology, Biochemistry and Chemical Engineering. Since 1995, ITQB has awarded 189 PhD degrees.

In 2008, 29 PhD theses were awarded at ITQB. This total includes 23 ITQB PhD students and 6 PhD students from other institutions and is distributed as follows: 14 in Biology, 12 in Biochemistry and 3 in Chemical Engineering.

PhD degrees awarded at ITQB over the years

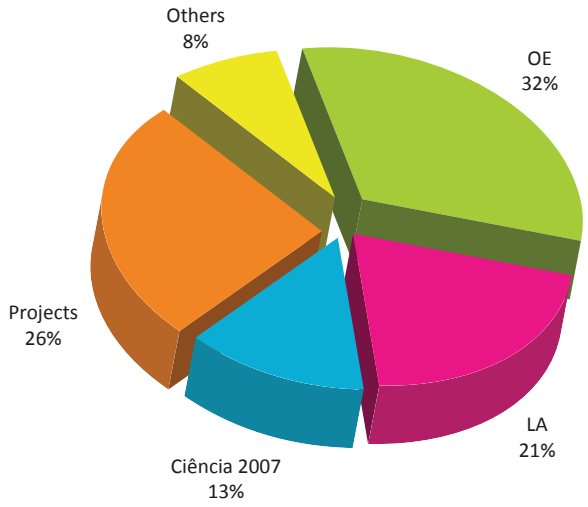


Throughout 2008, 48 new graduates registered at ITQB adding to a total of 246 registered PhD students by the end of the year; about 83 of these students do research at other institutions.

Budget

ITQB has two main sources of revenue; the State Budget (OE), attributed by the Ministry of Science, Technology and Higher Education, and the national science funding agency, *Fundação para a Ciência e a Tecnologia* (FCT). The contribution from the State Budget, through *Universidade Nova de Lisboa*, represents one third of the overall ITQB budget. FCT accounts for three sources of financial support, obtained through competitive funding processes; via the *Laboratório Associado* contract (LA), through research positions under the *Ciência 2007* initiative, and through project funding. Additional sources for research projects include the European Commission, the *Fundação Calouste Gulbenkian*, the NIH, and international cooperation projects. In the chart, "others" refers to bench fees, isolated subsidies, revenues from Masters Degrees, the sale of analytical services, and the rental of rooms and facilities.

The overall budget of ITQB for 2008 was circa 12.4 M€ distributed as follows:



Highlights

Highlights

The 186 papers published in ISI journals during 2008 span a variety of areas in chemistry and biology and reflect the high-quality research at ITQB. To name just a few highlights, in 2008, ITQB researchers demonstrated that some methods of conventional breeding lead to more genome wide changes than genetic engineering; the important contribution of ITQB to the study of bacterial antibiotic resistance reflected in the lead of the publication ranking in the area; equally successful were the highly cited papers in ionic liquids; structural biology is the subject of many (11%) papers and the structure of Desulfovibrio vulgaris hybrid Fe-S cluster protein was even highlighted on the cover of Acta Crystallographica; also noteworthy was the work extending the role of molybdenium catalysts, featured by Chemical Science.

ITQB researchers received many distinctions for their work presented at international scientific meetings and, for the second time in a row, *Prémio Câmara Pestana* recognized in-house work. On a more individual note, Claudina Rodrigues-Pousada received the FEBS *Medaille d'Honneur*, and Cecilia Arraiano was elected EMBO member.

For more detailed information visit www.itqb.unl.pt/About_us/news

■ The results of a bibliometric study of the *Universidade Nova de Lisboa* performed by the Center for Science and Technology Studies of the University of Leiden showed that the impact of the research performed at ITQB is competitive with the world average and has been increasing over the years. ITQB researchers were found to contribute substantially to international scientific networks.

Considering the impact of ITQB research across disciplinary subfields (as defined by the Web of Science) there is an overall good performance. In fact, in seven areas the impact of ITQB research is considered high when compared to the subfield's world average. Combining both impact of research and production levels, ITQB stands out in three areas: microbiology, plant sciences and physical chemistry.

■ Conventional breeding methods in agriculture may lead to more changes in gene expression than genetic engineering. This was the main conclusion of a paper by researchers from ITQB and INSA (*Instituto Nacional de Saúde Doutor Ricardo Jorge*) published in Proceedings of the National Academy of Sciences. The authors of the study, Rita Batista, Nelson Saibo, Tiago Lourenço and Margarida Oliveira, propose that the safety assessment of new plant varieties should be carried out on a case-by-case basis and not restricted to foods obtained by genetic engineering.

The research evaluated the extent of transcriptome modification occurring during rice improvement in two situations: mutation breeding – a conventionally used technique in agriculture – and gene insertion. The authors found that regardless of the method, improving a plant variety through the acquisition of a new desired trait caused a stress response and thus led to changes in the expression of untargeted genes. In fact, the number of genes altered was significantly higher in the case of mutation.

■ According to the analysis performed by Science Watch, in March 2008 Hermínia de Lencastre, full professor at ITQB, has been the scientist with highest number of articles published worldwide on the topic of antibiotic resistance in the last ten years. With 71 papers on Methicillin-Resistant *Staphylococcus aureus* (MRSA), Hermínia de Lencastre led the scientific production ranking in this area among 18,673 international authors. Furthermore, at the time, those papers had received 1,887 citations making Hermínia de Lencastre, head of the Molecular Genetics Laboratory, the fourth most cited author in this study. The list of specialists on MRSA with high number of papers also included (on the 3rd position) Alexander Tomasz, invited full professor at ITQB.

Methicillin-Resistant *Staphylococcus aureus* strains are the leading cause of hospital infections and represent a major public health problem.

■ The paper "Ionic Liquids: First Direct Determination of their Cohesive Energy", published in the Journal of the American Chemical Society by Luís Paulo N. Rebelo (head of the Molecular Thermodynamics Laboratory) and co-workers was featured on the American Chemical Society Publications website as the third most-cited publication in this journal through 2007. The Journal of the American Chemical Society (JACS) is the most cited journal in chemistry (impact factor of 7.696) and has published more articles than any other journal in the category. The featured work results from a collaborative research project by ITQB-UNL, *Universidade do Porto*, and *Universidade de Aveiro*.

■ The cover page of the June 2008 issue of Acta Crystallographica Section D – Biological Crystallography presents a picture of the structure of the *Desulfovibrio vulgaris* hybrid Fe-S cluster protein (HCP). This structure was determined at the Macromolecular Crystallography Unit of ITQB by its former PhD student David Aragão (now a post-doc at Limerick University, Ireland) and co-workers.

■ The paper "Hydrogen activation by high-valent oxo-molybdenum(VI) and -rhenium(VII) and -(V) compounds" published in the March issue of Dalton Transactions by ITQB researchers - Homogeneous Catalysis Laboratory and Organometallic Chemistry Laboratory - in collaboration with researchers from *Universidade de Lisboa* is highlighted in Chemical Sciences, a magazine that provides a snapshot of the latest developments across the chemical sciences.

The team's work expanded the use of molybdenum catalysts to reductive processes using hydrogen. These compounds may even replace the expensive and environmentally hazardous reducing agents typically used, with added advantage of producing only water as a by-product.

■ In its first edition, dedicated to the Life Sciences, the *Prémio de Mérito Científico Santander Totta – Universidade Nova de Lisboa*, was awarded to the researchers Paula Marques Alves, from ITQB, and Rui Oliveira, from *Faculdade de Ciências e Tecnologia*.

The research project aims to optimize the production of new biopharmaceuticals, such as virus-like particles for vaccination, or antibodies for treating certain types of cancer. Both research teams will cooperate in the development of processes to increase the efficiency production of those molecules without affecting their biological activity by integrating bioengineering tools with emerging concepts of biological systems.

■ The *Prémio Câmara Pestana 2008*, one of the most prestigious scientific awards in Portugal, was attributed to the work "Unravelling the dynamics of RNA degradation by ribonuclease II and its RNA-bound complex" published in Nature (2006) by ITQB researchers, Carlos Frazão, Colin E. McVey, Mónica Amblar, Ana Barbas, Cecília M. Arraiano and Maria A. Carrondo. This is the second year in a row that this scientific award is attributed to research work produced at ITQB.

■ In 2008, EMBO (European Molecular Biology Organization) announced the election of 51 new members and 8 associate members to its organisation. Among the new EMBO members is Cecília Arraiano, head of the Control of Gene Expression Laboratory. Cecilia Arraiano has been recognized for her proven excellence in research in the field of ribonucleases and RNA processing and decay.

Membership is a life-long honour with new members being nominated and elected annually by existing members. The current EMBO membership totals 1360 researchers. From the seven EMBO researchers working in Portugal, three are at ITQB: Cecilia Arraiano, Claudina Rodrigues-Pousada, and Maria Arménia Carrondo.

■ The Executive Committee of FEBS (Federation of European Biochemical Societies) has unanimously decided to award the *Medaille d'Honneur* to Claudina Rodrigues-Pousada, Invited Full Professor at ITQB, for her long and devoted contributions to FEBS. The *Medaille d'Honneur* is a distinction awarded every two years to researchers who have contributed significantly to the development of FEBS and the field of Biochemistry.

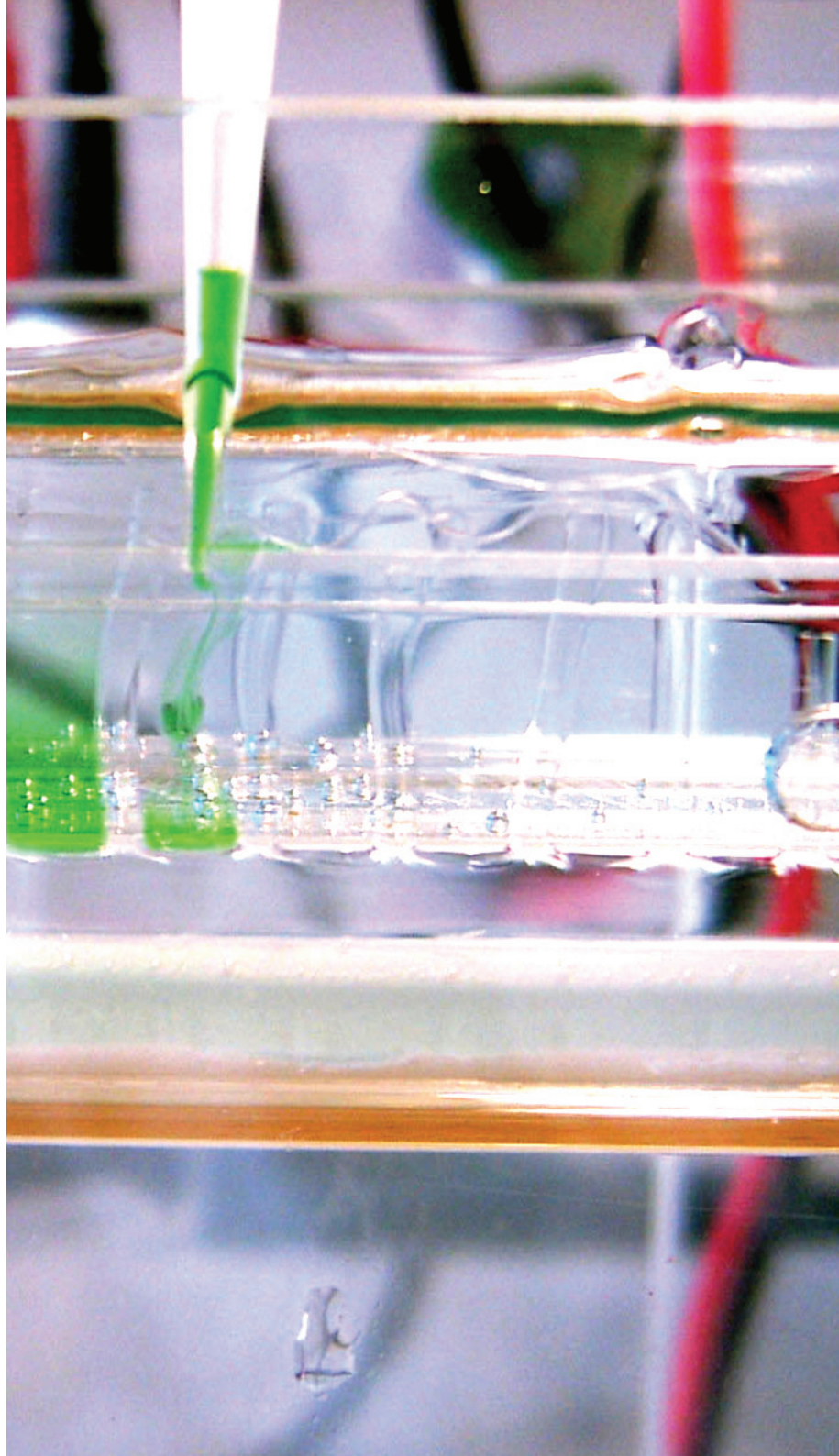
■ To celebrate World Environment Day 2008, ITQB launched a campaign among researchers and staff to raise awareness of the importance of efficient electricity use. Focusing on how saved electricity can be converted into science the idea of this campaign is that small changes in everybody's working habits can make a big difference in overall energy spending and, at the same time, contribute to reducing ITQB's carbon footprint. "Thinking Blue" is what everybody is asked to do: starting with energy saving measures at work and continuing at home. And the same spirit is valid for all other resources. The "Thinking Blue" campaign continued with a photography competition among the staff.

■ A stamp designed by Nuno Micaelo (former ITQB PhD student), featuring the molecular structure of a bacterial enzyme, won the stamp competition organized by CTT. Five stamps were selected by rounds of public votes and further submitted to a jury's evaluation that selected "*Ciência em Portugal*" as the winning stamp. The image used for the stamp is a representation of the molecular structure of the CotA-laccase from Bacillus subtilis. The structure of this enzyme, important for many biotechnological applications (for example: in the pulp and paper industry), was determined at ITQB in 2003. The CotA-laccase is the object of study of many research projects at ITQB.

■ Since September 2008, ITQB is hosting a new seminar series entitled António V. Xavier Seminars, in memory of the scientist and founder of ITQB. Ten distinguished scientists are invited each year to talk about their areas of expertise, covering a wide range of topics.

■ Aiming to recognize the high quality of ITQB PhD theses, the *Instituto de Tecnologia Química e Biológica* created an annual prize for the best PhD thesis resulting from research work mainly performed at the Institute.

All the theses discussed in 2009 will be considered for the first PhD thesis prize. The best ITQB thesis will be awarded 2,500 Euros funded by the *Fundação Jacqueline Dias de Sousa*. The prize will be announced in the first trimester of 2010.



Prizes and Awards

Individual distinctions

Manuela Chaves
Annals of Botany Award

Cecília Arraiano
Elected EMBO Member

Claudina Rodrigues-Pousada
FEBS Medaille d'Honneur

Cristina Silva Pereira
Installation grant Professor António Xavier for young scientists ("Starting in Oeiras 2007/2008") from Oeiras Town Hall, Portugal

Luís Jaime Mota
Installation grant Professor António Xavier for young scientists ("Starting in Oeiras 2007/2008") from Oeiras Town Hall, Portugal

Luís Jaime Mota
Marie-Curie European Reintegration Grant CHLTRT3SE. "Analysis of the cellular function of Type III secretion effectors of Chlamydia trachomatis" (3 years)

Olga Iranzo
Marie Curie International Reintegration Grant MFRosPep "Designing metallopeptides for the removal of Superoxide radicals" (5 years)

Pedro Domingos
Marie Curie International Reintegration Grant DROSOERSTRESS. "ER stress and Photoreceptor Degeneration in Drosophila" (5 years)

Research distinctions

Prémio Câmara Pestana 2008
Attributed to the work "Unravelling the dynamics of RNA degradation by ribonuclease II and its RNA-bound complex" Nature (2006) by Carlos Frazão, Colin E. McVey, Mónica Amblar, Ana Barbas, Cecília M. Arraiano and Maria A. Carrondo.

In scientific meetings

"Cell Culture and Cryopreservation in an alginate environment: applications in cell-based therapies and toxicology testing" by Malpique R, Ehrhart F, Katsen-Globa A, Carrondo MJT, Zimmermann H, Alves PM
Best Poster Award (1st prize) at the Cell Culture Engineering XI, April 2008, Brisbane, Australia.

"Novel techniques for characterization of double and triple-layered rotavirus-like particles" by Mellado MCM, Simplício AL, Lopes A, Carrondo MJT, Alves PM.
Cândida Mellado, PhD student at the Animal Cell Technology Laboratory, won the best student's poster award at the international congress Vaccine Technology II. June 1- 6, Albufeira, Algarve.

"Identification and characterization of a new homologue protein of Plasmodium falciparum, PFS230 in Babesia bovis" by Silva MG, Johnson WC, Goff WL, Bastos RG, Oliva A, Florin-Christensen M, Suarez, CF.
Poster received the 1st prize at "VI International Conference on Tick and Tick-borne Pathogens", September 21-26, 2008, Buenos Aires, Argentina.

"New Hexaaza Macrobicyclic Cyclophane for Recognition of Tetrahedral Dianions" by Mateus P, Delgado R.
Pedro Mateus, PhD student from the Coordination and Supramolecular Chemistry Laboratory, was awarded a prize for best Flash Communication at the 1st Portuguese Young Chemists Meeting, IST, October 15-17, Lisbon.

Editorial Boards

International ISI journals

Claudina Rodrigues-Pousada
Member of Editorial Board of 'YEAST'

Cláudio M. Soares
Member of Editorial Board of 'Journal Biotechnology and Biomedicine'

Dirk-Jan Scheffers
Member of Editorial Advisory Board of 'Molecular Microbiology'

Helena Santos
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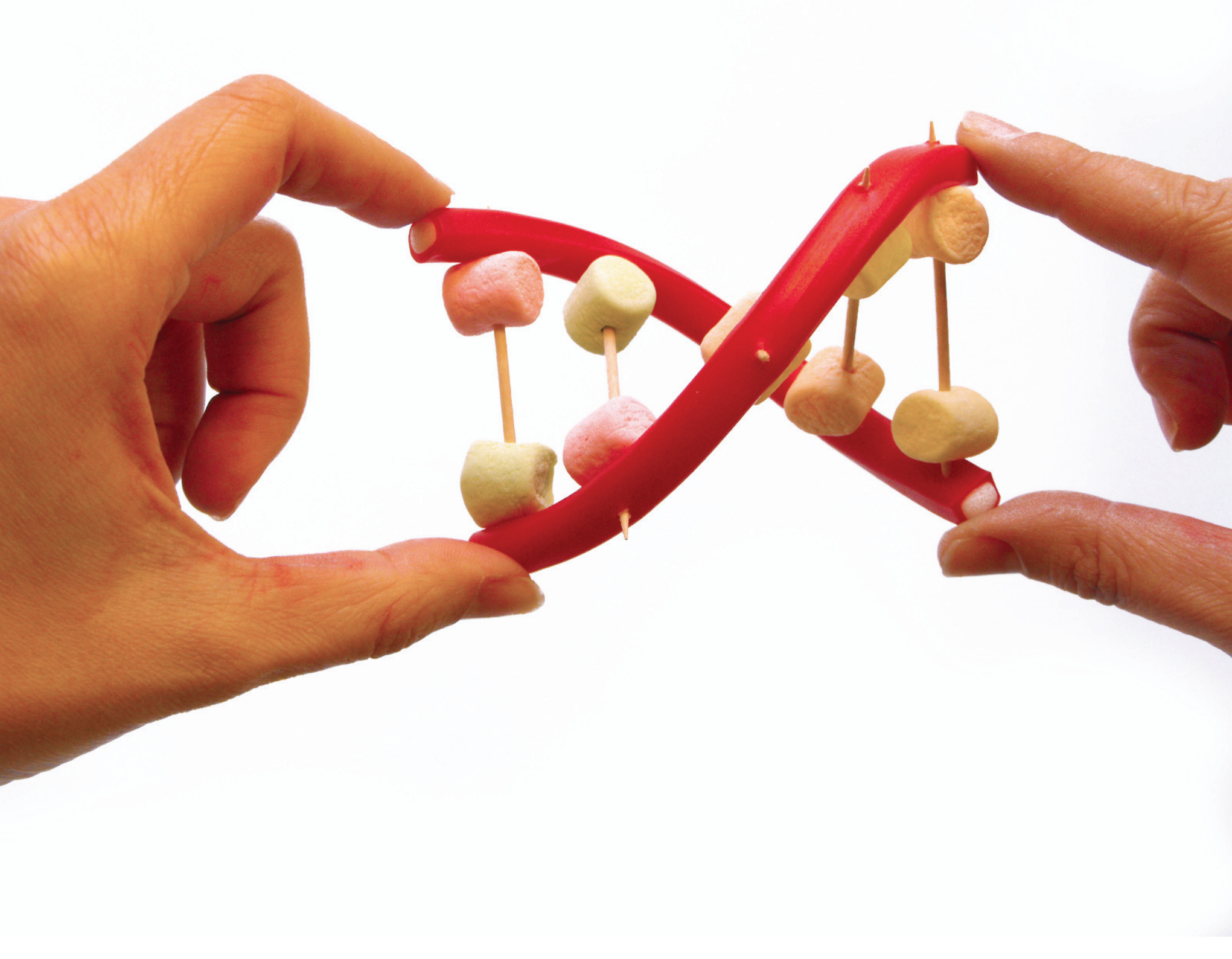
Manuela Chaves
Associate Editor of 'Functional Plant Biology'
Member of Editorial Board of 'Journal of Experimental Botany'
Member of Editorial Board of 'Journal of Plant Physiology'

Maria Arménia Carrondo
Editor of 'Journal of Biological Inorganic Chemistry'

Paula Alves
Member of the 'Editorial Board of Journal of Biotechnology'



Science and Society

Main activities in 2008

ITQB has a Science Communication Office designed to bring researchers and their research closer to the public. While placing emphasis on young students, the outreach activities at ITQB aim to promote the appreciation and understanding of science across all sectors of society. In this view, ITQB has four main lines of action.

1) To reach young people and teachers through regular school visits to the laboratories and scheduled presentations/debates on scientific topics.

In 2008, over 400 students from 13 different schools visited the institute under the ITQB Visits Programme, involving 33 different research laboratories.

Integrating once more the *Ciência Viva* initiative for Science in the summer, four research laboratories hosted high school students interested in getting acquainted with the ups and downs of everyday scientific research.

The National Week for Science & Technology, in November, was highlighted once again by a series of debates, including one on scientific careers, directed at students and teachers. Equaling the success of previous years, one hundred students from the nearby schools registered for this activity.

2) To encourage researchers to engage with the public by participating in several initiatives programmed throughout the year, the most illustrative of these being the Annual Open Day, a day for families to visit the ITQB, meet the researchers, and come into contact with the scientific activities.

Almost 2,000 visitors came to the institute on February 23 for the Open Day. This year, the public was invited to explore life from the ecosystem to the atom; aiming to show how life can be studied at different levels several exhibits and lectures were prepared around this topic. Visitors also had the opportunity to participate in experiments, talk to researchers, learn about the role of computers in the life sciences, and visit laboratories, the NMR centre or the pilot plant.
In November, ITQB researchers were also present at the *Forum Ciência Viva*, a national initiative for science awareness, taking place in Lisbon. Visitors had the opportunity to discuss with researchers how enzymes and microorganisms can be used to benefit the environment.

3) To promote science by stimulating the interface with other disciplines for example, Art and Science initiatives.

Patrícia Noronha was a resident artist at ITQB and developed the project "*Diferentes olhares sobre os objectos científicos*". The result of her work is a beautiful collection of Petri dishes that encourage us to reflect on the boundary between art and science. This collection has been shown in several art exhibits.

As a follow-up to Patrícia Noronha's work, ITQB organized with her collaboration several Art and Science workshops for children aged 6 to 12. In these workshops, children learned about microorganisms such as fungi and bacteria and could see them under the microscope. Afterwards, children were invited to use their imagination to paint with Pasteur pipettes on colored media in Petri dishes.

Creativity was what was asked for from children in the writing and painting competition organized by ITQB and CMO. The challenge was to illustrate the sentence "if I was a microbe" with a drawing or a small text. From the many received, 15 drawings and texts were selected and displayed during the Open Day 2009.

The animation film LIQST_liquid state by Anabela Costa has as its raw material different fluids in a laboratory setting. Some of the portrayed fluids are ionic liquids from the Molecular Thermodynamics Lab. LIQST_liquid state has been selected for many animation film festivals worldwide.

4) To keep the public informed and up-to-date on ITQB's main achievements both through the institute's webpage and by issuing press releases to announce major scientific breakthroughs or other relevant activities at the Institute.

Research Output

Publications 2008

Articles

1. Abranches R., Arcalis E., Marcel S., Altmann F., Ribeiro-Pedro M., Rodriguez J. and Stoger E. (2008). "*Functional specialization of Medicago truncatula leaves and seeds does not affect the subcellular localization of a recombinant protein.*" Planta **227**(3): 649-658.

2. Agapito F., Nunes P. A., Cabral B. J. C., dos Santos R. A. B. and Simões J. A. M. (2008). "*Energetic differences between the five- and six-membered ring hydrocarbons: Strain energies in the parent and radical molecules*." Journal of Organic Chemistry**73**(16): 6213-6223.

3. Ahmed J. S., Oliva A. G. and Seitzer U. (2008). "*Animal health: Harmonisation and distribution of pathogen detection and differentiation tools.*" Transboundary and Emerging Diseases **55**(5-6): 187-189.

4. Aires-de-Sousa, M., B. Correia, H. de Lencastre and the multilaboratory project collaborators: V. Alves, F. Branca, L. Cabral, J. Clemente, I. Daniel, A. Faustino, E. Ferreira, C. Lameiras, J. Lopes, J. Marques, I. Peres, G. Ribeiro, L. Sancho, O. Santos, P. Santos, M. T. Vaz, Z. Videira. (2008). "*Temporal waves in the frequency of five MRSA clones in Portuguese hospitals - surveillance over a 16-year period.*" Journal of Clinical Microbiology **46**(9): 2912-2917.

5. Ali A., Tariq M., Nabi F. and Shahjahan (2008). "*Density, Viscosity, Refractive Index, and Speed of Sound in Binary Mixtures of Pyridine and 1-Alkanols (C-6, C-7, C-8, C-10) at 303.15 K.*" Chinese Journal of Chemistry **26**(11): 2009-2015.

6. Ali A., Tariq M. and Nabi F. (2008). "*Experimental and predicted viscosities of binary mixtures of benzene and chloroalkanes at different temperatures using Isdale's group contribution method.*" Indian Journal of Pure & Applied Physics **46**(8): 545-551.

7. Alonso J. C., Neves P., Silva C., Valente A. A., Brandao P., Quintal S., de Brito M. J. V., Pinto P., Felix V., Drew M. G. B., Pires J., Carvalho A. P., Calhorda M. J. and Ferreira P. (2008). "*Immobilisation of eta(3)-allyidicarbonyl complexes of Mo-II with bidentate nitrogen ligands within aluminium-pillared clays.*" European Journal of Inorganic Chemistry(7): 1147-1156.

8. Amaral A. I., Coroadinha A. S., Merten O. W. and Alves P. M. (2008). "*Improving retroviral vectors production: Role of carbon sources in lipid biosynthesis.*" Journal of Biotechnology **138**(3-4): 57-66.

9. Andrade J. M. and Arraiano C. M. (2008). "*PNPase is a key player in the regulation of small RNAs that control the expression of outer membrane proteins.*" Rna-a Publication of the Rna Society **14**(3): 543-551.

10. António C., Pinheiro C., Chaves M. M., Ricardo C. P., Ortuno M. F. and Thomas-Oates J. (2008). "*Analysis of carbohydrates in Lupinus albus stems on imposition of water deficit, using porous graphitic carbon liquid chromatography-electrospray ionization mass spectrometry.*" Journal of Chromatography A **1187**(1-2): 111-118.

11. Aragão D., Mitchell E. P., Frazão C. F., Carrondo M. A. and Lindley P. F. (2008). "*Structural and functional relationships in the hybrid cluster protein family: structure of the anaerobically purified hybrid cluster protein from Desulfovibrio vulgaris at 1.35 angstrom resolution.*" Acta Crystallographica Section D-Biological Crystallography **64**: 665-674.

12. Arraiano C. M., Barbas A. and Amblar M. (2008) "*Characterizing ribonucleases in vitro: examples of synergies between biochemical and structural analysis.*" in Rna Turnover in Prokaryotes, Archaea and Organelles *Methods in Enzymology* **447**: 131-+.

13. Bai G. Y., Lopes A. and Bastos M. (2008). "*Thermodynamics of micellization of alkylimidazolium surfactants in aqueous solution.*" Journal of Chemical Thermodynamics **40**(10): 1509-1516.

14. Bandeiras T. M., Hillig R. C., Matias P. M., Eberspaecher U., Fanghanel J., Thomaz M., Miranda S., Crusius K., Puetter V., Amstutz P., Gulotti-Georgieva M., Binz H. K., Holz C., Schmitz A. A. P., Lang C., Donner P., Egner U., Carrondo M. A. and Muller-Tiemann B. (2008). "*Structure of wild-type Plk-1 kinase domain in complex with a selective DARPin.*" Acta Crystallographica Section D-Biological Crystallography **64**: 339-353.

15. Barbas A., Matos R. G., Amblar M., Lopez-Vinas E., Gomez-Puertas P. and Arraiano C. M. (2008). "*New insights into the mechanism of RNA degradation by ribonuclease II - Identification of the residue responsible for setting the RNase II end product.*" Journal of Biological Chemistry **283**(19): 13070-13076.

16. Barreiros L., Fernandes A., Ferreira A. C. S., Pereira H., Bastos M., Manaia C. M. and Nunes O. C. (2008). "*New insights into a bacterial metabolic and detoxifying association responsible for the mineralization of the thiocarbamate herbicide molinate.*" Microbiology-Sgm **154**: 1038-1046.

17. Bartels M. D., Nanuashvili A., Boye K., Rohde S. M., Jashiashvili N., Faria N. A., Kereselidze M., Kharebava S. and Westh H. (2008). "*Methicillin-resistant Staphylococcus aureus in hospitals in Tbilisi, the Republic of Georgia, are variants of the Brazilian clone.*" European Journal of Clinical Microbiology & Infectious Diseases **27**(8): 757-760.

Publications

18. Batista A. P., Kletzin A. and Pereira M. M. (2008). "*The dihydrolipoamide dehydrogenase from the crenarchaeon Acidianus ambivalens.*" Fems Microbiology Letters **281**(2): 147-154.

19. Batista R., Saibo N., Lourenço T. and Oliveira M. M. (2008). "*Microarray analyses reveal that plant mutagenesis may induce more transcriptomic changes than transgene insertion.*" Proceedings of the National Academy of Sciences of the United States of America **105**(9): 3640-3645.

20. Blesic M., Lopes A., Melo E., Petrovski Z., Plechkova N. V., Lopes J. N. C., Seddon K. R. and Rebelo L. P. N. (2008). "*On the self-aggregation and fluorescence quenching aptitude of surfactant ionic liquids.*" Journal of Physical Chemistry B **112**(29): 8645-8650.

21. Bohn A. and Garcia-Ojalvo J. (2008). "*Synchronization of coupled biological oscillators under spatially heterogeneous environmental forcing.*" Journal of Theoretical Biology **250**(1): 37-47.

22. Braga M. E. M., Pato M. T. V., Silva H., Ferreira E. I., Gil M. H., Duarte C. M. M. and De Sousa H. C. (2008). "*Supercritical solvent impregnation of ophthalmic drugs on chitosan derivatives.*" Journal of Supercritical Fluids **44**(2): 245-257.

23. Branco-Price C., Kaiser K. A., Jang C. J. H., Larive C. K. and Bailey-Serres J. (2008). "*Selective mRNA translation coordinates energetic and metabolic adjustments to cellular oxygen deprivation and reoxygenation in Arabidopsis thaliana.*" Plant Journal **56**(5): 743-755.

24. Braschler T., Demierre N., Nascimento E., Silva T., Oliva A. G. and Renaud P. (2008). "*Continuous separation of cells by balanced dielectrophoretic forces at multiple frequencies.*" Lab on a Chip **8**(2): 280-286.

25. Bravo M. N., Feliciano R., Silva S., Coelho A. V., Boas L. V. and Bronze M. R. (2008). "*Analysis of trans-resveratrol: Comparison of methods and contents in Muscatel fortified wines from Setubal region in Portugal.*" Journal of Food Composition and Analysis **21**(8): 634-643.

26. Brito C., Kandzia S., Graca I., Conradt H. S. and Costa J. (2008). "*Human fucosyltransferase IX: Specificity towards N-linked glycoproteins and relevance of the cytoplasmic domain in intra-Golgi localization.*" Biochimie **90**(9): 1279-1290.

27. Caeiro A., Ramos P., Teixeira A. and Ferreira R. (2008). "*The ubiquitin/proteasome pathway from Lemna minor subjected to heat shock.*" Biologia Plantarum **52**(4): 695-702.

28. Caldeira A. T., Feio S. S., Arteiro J. M. S., Coelho A. V. and Roseiro J. C. (2008). "*Environmental dynamics of Bacillus amyloliquefaciens CCMI 1051 antifungal activity under different nitrogen patterns.*" Journal of Applied Microbiology **104**(3): 808-816.

29. Carmo M., Panet A., Carrondo M. J. T., Alves P. M. and Cruz P. E. (2008). "*From retroviral vector production to gene transfer: spontaneous inactivation is caused by toss of reverse transcription capacity.*" Journal of Gene Medicine **10**(4): 383-391.

30. Carrondo M. J. T., Merten O. W., Haury M., Alves P. M. and Coroadinha A. S. (2008). "*Impact of retroviral vector components stoichiometry on packaging cell lines: Effects on productivity and vector quality*." Human Gene Therapy **19**(2): 199-210.

31. Carvalho S., Delgado R., Drew M. G. B., Calisto V. and Felix V. (2008). "*Binding studies of a protonated dioxatetraazamacrocycle with carboxylate substrates.*" Tetrahedron **64**(22): 5392-5403.

32. Carvalho S., Delgado R., Drew M. G. B., Felix V., Figueira M. and Henriques R. T. (2008). "*Cascade dicopper architectures of a dibenzodioxatetraazamacrocycle.*" Polyhedron **27**(2): 679-687.

33. Clemente J. J., Monteiro S. M. S., Carrondo M. J. T. and Cunha A. E. (2008). "*Predicting sporulation events in a bioreactor using an electronic nose.*" Biotechnology and Bioengineering **101**(3): 545-552.

34. Correia A. R., Pastore C., Adinolfi S., Pastore A. and Gomes C. M. (2008). "*Dynamics, stability and iron-binding activity of frataxin clinical mutants.*" Febs Journal **275**(14): 3680-3690.

35. Corsetti A., Settanni L., Braga T. M., Lopes M. D. S. and Suzzi G. (2008). "*An investigation of the bacteriocinogenic potential of lactic acid bacteria associated with wheat (Triticum durum) kernels and non-conventional flours.*" Lwt-Food Science and Technology **41**(7): 1173-1182.

36. Costa A. P. d., Viciano M., Sanau M., Merino S., Tejeda J., Peris E. and Royo B. (2008). "*First Cp*-functionalized N-heterocyclic carbene and its coordination to iridium. study of the catalytic properties.*" Organometallics **27**(6): 1305-1309.

37. Costa G. d., Lamy E., Silva F. C. E., Andersen J., Baptista E. S. and Coelho A. V. (2008). "*Salivary amylase induction by tannin-enriched diets as a possible countermeasure against tannins.*" Journal of Chemical Ecology **34**(3): 376-387.

38. Crowley P. B., Matias P. M., Mi H. L., Firbank S. J., Banfield M. J. and Dennison C. (2008). "*Regulation of protein function: Crystal packing interfaces and conformational dimerization.*" Biochemistry **47**(25): 6583-6589.

39. da Costa A. P., Reis P. M., Gamelas C., Romão C. C. and Royo B. (2008). "*Dioxomolybdenum(VI) and -tungsten(VI) BINOL and alkoxide complexes: Synthesis and catalysis in sulfoxidation, olefin epoxidation and hydrosilylation of carbonyl groups.*" Inorganica Chimica Acta **361**(7): 1915-1921.

40. De Lacey A. L., Gutierrez-Sanchez C., Fernandez V. M., Pacheco I. and Pereira I. A. C. (2008). "*FTIR spectroelectrochemical characterization of the Ni-Fe-Se hydrogenase from Desulfovibrio vulgaris Hildenborough.*" Journal of Biological Inorganic Chemistry **13**(8): 1315-1320.

41. de Sanctis D., Bento I., Inácio J. M., Custodio S., de Sa-Nogueira I. and Carrondo M. A. (2008). "*Overproduction, crystallization and preliminary X-ray characterization of Abn2, an endo-1,5-alpha-arabinanase from Bacillus subtilis.*" Acta Crystallographica Section F-Structural Biology and Crystallization Communications **64**: 636-638.

42. de Sanctis D., Rego A. T., Marcal D., McVey C. E., Carrondo M. A. and Enguita F. J. (2008). "*Overexpression, purification and crystallization of the tetrameric form of SorC sorbitol operon regulator.*" Acta Crystallographica Section F-Structural Biology and Crystallization Communications **64**: 22-24.

43. Deus H. F., Stanislaus R., Veiga D. F., Behrens C., Wistuba I. I., Minna J. D., Garner H. R., Swisher S. G., Roth J. A., Correa A. M., Broom B., Coombes K., Chang A., Vogel L. H. and Almeida J. S. (2008). "*A Semantic Web Management Model for Integrative Biomedical Informatics.*" PLoS ONE **3**(8): e2946.

44. Di Paolo R. E., Gigante B., Esteves M. A., Pires N., Santos *C., Lameiro M. H., de Melo J. S., Burrows H. D. and Macanita A. L. (2008). "Picosecond Structural Relaxation of Abietic Acid Based Amine End Capped Para-Phenylenevinylene Trimers in Solution.*" Chemphyschem **9**(15): 2214-2220.

45. Duarte A. R. C., Simplicio A. L., Vega-Gonzalez A., Subra-Paternault P., Coimbra P., Gil M. H., de Sousa H. C. and Duarte C. M. M. (2008). "*Impregnation of an Intraocular Lens for Ophthalmic Drug Delivery.*" Current Drug Delivery **5**: 102-107.

46. Durão P., Chen Z., Fernandes A. T., Hildebrandt P., Murgida D. H., Todorovic S., Pereira M. M., Melo E. P. and Martins L. O. (2008). "*Copper incorporation into recombinant CotA laccase from Bacillus subtilis: characterization of fully copper loaded enzymes.*" Journal of Biological Inorganic Chemistry **13**(2): 183-193.

47. Durão P., Chen Z. J., Silva C. S., Soares C. M., Pereira M. M., Todorovic S., Hildebrandt P., Bento I., Lindley P. F. and Martins L. O. (2008). "*Proximal mutations at the type 1 copper site of CotA laccase: spectroscopic, redox, kinetic and structural characterization of I494A and L386A mutants.*" Biochemical Journal **412**: 339-346.

48. Eberini I., Rocco A. G., Ientile A. R., Baptista A. M., Gianazza E., Tomaselli S., Molinari H. and Ragona L. (2008). "*Conformational and dynamics changes induced by bile acids binding to chicken liver bile acid binding protein.*" Proteins-Structure Function and Bioinformatics **71**(4): 1889-1898.

49. Escrevente C., Morais V. A., Keller S., Soares C. M., Altevogt P. and Costa J. (2008). "*Functional role of N-glycosylation from ADAM10 in processing, localization and activity of the enzyme.*" Biochimica Et Biophysica Acta-General Subjects **1780**(6): 905-913.

50. Esperança J., Guedes H. J. R., Lopes J. N. C. and Rebelo L. P. N. (2008). "*Pressure-density-temperature(p-rho-T) surface of [C(6)mim][NTf2].*" Journal of Chemical and Engineering Data **53**(3): 867-870.

51. Faisca P. F. N. and Gomes C. M. (2008). "*On the relation between native geometry and conformational plasticity.*" Biophysical Chemistry **138**(3): 99-106.

52. Faria N. A., Carriço J. A., Oliveira D. C., Ramirez M. and de Lencastre H. (2008). "*Analysis of typing methods for epidemiological surveillance of both methicillin-resistant and methicillin-susceptible Staphylococcus aureus strains.*" Journal of Clinical Microbiology **46**(1): 136-144.

53. Faria T. Q., Mingote A., Siopa F., Ventura R., Maycock C. and Santos H. (2008). "*Design of new enzyme stabilizers inspired by glycosides of hyperthermophilic microorganisms.*" Carbohydrate Research **343**(18): 3025-3033.

54. Feher K., Groves P., Batta G., Jimenez-Barbero J., Muhle-Goll C. and Kover K. E. (2008). "*Competition Saturation Transfer Difference Experiments Improved with Isotope Editing and Filtering Schemes in NMR-Based Screening.*" Journal of the American Chemical Society **130**(50): 17148-17153.

55. Fernandes L., Rocheta M., Cordeiro J., Pereira S., Gerber S., Oliveira M. M. and Ribeiro M. M. (2008). "*Genetic variation, mating patterns and gene flow in a Pinus pinaster Aiton clonal seed orchard.*" Annals of Forest Science **65**(7): 10.

56. Fernandes A. C., Fernandes J. A., Paz F. A. A. and Romão C. C. (2008). "*Activation of B-H bonds by an oxo-rhenium complex.*" Dalton Transactions(47): 6686-6688.

Publications

57. Ferreira R., Blesic M., Trindade J., Marrucho I., Lopes J. N. C. and Rebelo L. P. N. (2008). "*Solubility of fluorinated compounds in a range of ionic liquids. Cloud-point temperature dependence on composition and pressure.*" Green Chemistry **10**(9): 918-928.

58. Ferreira R., Pedrosa N., Marrucho I. M. and Rebelo L. P. N. (2008). "*Biodegradable polymer-phase behavior: Liquid-liquid equilibrium of ethyl lactate and poly(lactic acid).*" Journal of Chemical and Engineering Data **53**(2): 588-590.

59. Fonseca C., Neves A. R., Antunes A. M. M., Noronha J. P., Hahn-Hagerdal B., Santos H. and Spencer-Martins I. (2008). "*Use of in vivo C-13 nuclear magnetic resonance Spectroscopy to elucidate L-arabinose metabolism in Yeasts.*" Applied and Environmental Microbiology **74**(6): 1845-1855.

60. Frazão C., Aragão D., Coelho R., Leal S. S., Gomes C. M., Teixeira M. and Carrondo M. A. (2008). "*Crystallographic analysis of the intact metal centres [3Fe-4S](1+/0) and [4Fe-4S](2+/1+) in a Zn2+-containing ferredoxin.*" Febs Letters **582**(5): 763-767.

61. Freire P., Vilela M., Deus H., Kim Y.-W., Koul D., Colman H., Aldape K. D., Bogler O., Yung W. K. A., Coombes K., Mills G. B., Vasconcelos A. T. and Almeida J. S. (2008). "*Exploratory Analysis of the Copy Number Alterations in Glioblastoma Multiforme.*" PLoS ONE **3**(12): e4076.

62. Freixo M. D., Karmali A., Frazão C. and Arteiro J. M. (2008). "*Production of laccase and xylanase from Coriolus versicolor grown on tomato pomace and their chromatographic behaviour on immobilized metal chelates.*" Process Biochemistry **43**(11): 1265-1274.

63. Gamelas C. A., Lourenço T., da Costa A. P., Simplicio A. L., Royo B. and Romao C. C. (2008). "*Selective and mild oxidation of sulfides to sulfoxides or sulfones using H2O2 and Cp ' Mo(CO)(3)Cl as catalysts.*" Tetrahedron Letters **49**(32): 4708-4712.

64. Gardete S., Aires-De-Sousa M., Faustino A., Ludovice A. M. and de Lencastre H. (2008). "*Identification of the first vancomycin intermediate-resistant Staphylococcus aureus (VISA) isolate from a hospital in Portugal.*" Microbial Drug Resistance-Mechanisms Epidemiology and Disease **14**(1): 1-6.

65. Geraldo N. and Abranches R. (2008). "I*mmunolocalization of Histone Modifications as a Tool to Visualize Chromatin Dynamics in Plants.*" Microscopy and Microanalysis **14**(Supplement 3): 130-133.

66. Gomes C., Palma A. S., Almeida R., Regalla M., McCluskey L. F., Trojanowski J. Q. and Costa J. (2008). "*Establishment of a cell model of ALS disease: Golgi apparatus disruption occurs independently from apoptosis.*" Biotechnology Letters **30**(4): 603-610.

67. Gomes R. A., Miranda H. V., Silva M. S., Graca G., Coelho A. V., Ferreira A. E. D., Cordeiro C. and Freire A. P. (2008). "*Protein glycation and methylglyoxal metabolism in yeast: finding peptide needles in protein haystacks.*" Fems Yeast Research **8**(1): 174-181.

68. Gomes R. A., Oliveira L. M. A., Silva M., Ascenso C., Quintas A., Costa G., Coelho A. V., Silva M. S., Ferreira A. E. N., Freire A. P. and Cordeiro C. (2008). "*Protein glycation in vivo: functional and structural effects on yeast enolase.*" Biochemical Journal **416**: 317-326.

69. Gonçalves A. M. D., Rego A. T., Thomaz M., Enguita F. J. and Carrondo M. A. (2008). "*Expression, purification, crystallization and preliminary X-ray characterization of two crystal forms of stationary-phase survival E protein from Campylobacter jejuni.*" Acta Crystallographica Section F-Structural Biology and Crystallization Communications **64**: 213-216.

70. Gonçalves L. G., Lamosa P., Huber R. and Santos H. (2008). "*Di-myo-inositol phosphate and novel UDP-sugars accumulate in the extreme hyperthermophile Pyrolobus fumarii.*" Extremophiles **12**(3): 383-389.

71. Gorynia S., Matias P. M., Bandeiras T. M., Donner P. and Carrondo M. A. (2008). "*Cloning, expression, purification, crystallization and preliminary X-ray analysis of the human RuvBL1-RuvBL2 complex.*" Acta Crystallographica Section F-Structural Biology and Crystallization Communications **64**: 840-846.

72. Gouveia R. M., Gomes C. M., Sousa M., Alves P. M. and Costa J. (2008). "*Kinetic analysis of L1 homophilic interaction - Role of the first four immunoglobulin domains and implications on binding mechanism.*" Journal of Biological Chemistry **283**(42): 28038-28047.

73. Guerra K. P. and Delgado R. (2008). "*Homo-and heterodinuclear complexes of the tris(catecholamide) derivative of a tetraazamacrocycle with Fe3+, Cu2+ and Zn2+ metal ions.*" Dalton Transactions(4): 539-550.

74. Guerra K. P. and Delgado R. (2008). "Iron(III) complexes of the tris-(3-aminopropyl) derivative of a 14-membered tetraazamacrocycle: Potentiometric, spectroscopic and electrochemical studies." Polyhedron **27**(11): 2265-2270.

75. Guzzon A., Bohn A., Diociaiuti M. and Albertano P. (2008). "*Cultured phototrophic biofilms for phosphorus removal in wastewater treatment.*" Water Research **42**(16): 4357-4367.

76. Inácio J. M., Correia I. L. and de Sa-Nogueira I. (2008). "T*wo distinct arabinofuranosidases contribute to arabino-oligosaccharide degradation in Bacillus subtilis.*" Microbiology-Sgm **154**: 2719-2729.

77. Inácio J. M. and de Sa-Nogueira I. (2008). "*Characterization of abn2 (yxiA), encoding a bacillus subtilis GH43 arabinanase, Abn2, an its role in arabino-polysaccharide degradation.*" Journal of Bacteriology **190**(12): 4272-4280.

78. Isticato R., Pelosi A., Zilhao R., Baccigalupi L., Henriques A. O., De Felice M. and Ricca E. (2008). "*CotC-CotU heterodimerization during assembly of the Bacillus subtilis spore coat.*" Journal of Bacteriology **190**(4): 1267-1275.

79. Istrate C., Hinkula J., Charpilienne A., Poncet D., Cohen J., Svensson L. and Johansen K. (2008). "*Parenteral administration of RF 8-2/6/7 rotavirus-like particles in a one-dose regimen induce protective immunity in mice.*" Vaccine **26**(35): 4594-4601.

80. Istrate C., Hinkula J., Hammarstrom L. and Svensson L. (2008). "*Individuals with selective IgA deficiency resolve rotavirus disease and develop higher antibody titers (IgG, IgG1) than IgA competent individuals.*" Journal of Medical Virology **80**(3): 531-535.

81. Jorge C. D., Fonseca L. L., Boos W. and Santos H. (2008). "*Role of periplasmic trehalase in uptake of trehalose by the thermophilic bacterium Rhodothermus marinus.*" Journal of Bacteriology **190**(6): 1871-1878.

82. Kodad O., Alonso J. M., Sanchez A. and Oliveira M. M. (2008). "*Evaluation of genetic diversity of S-alleles in an almond germplasm collection.*" Journal of Horticultural Science & Biotechnology **83**(5): 603-608.

83. Kodad O., Sanchez A., Saibo N., Oliveira M. and Company R. S. I. (2008). "*Identification and characterization of new S-alleles associated with self-incompatibility in almond.*" Plant Breeding **127**(6): 632-638.

84. Lamy E., da Costa G., Silva F. C. E., Potes J., Coelho A. V. and Baptista E. S. (2008). "*Comparison of electrophoretic protein profiles from sheep and goat parotid saliva.*" Journal of Chemical Ecology **34**(3): 388-397.

85. Leal S. S. and Gomes C. M. (2008). "*On the relative contribution of ionic interactions over iron-sulfur clusters to ferredoxin stability.*" Biochimica Et Biophysica Acta-Proteins and Proteomics **1784**(11): 1596-1600.

86. Leandro P. and Gomes C. M. (2008). "Protein misfolding in conformational disorders: Rescue of folding defects and chemical chaperoning." Mini-Reviews in Medicinal Chemistry **8**(9): 901-911.

87. Lima L. M. P., Delgado R., Drew M. G. B., Brandao P. and Felix V. (2008). "Cyclam derivatives containing three acetate pendant arms: synthesis, acid-base, metal complexation and structural studies." Dalton Transactions(46): 6593-6608.

88. Lobo S. A. L., Almeida C. C., Carita J. N., Teixeira M. and Saraiva L. M. (2008). "The haem-copper oxygen reductase of Desulfovibrio vulgaris contains a di-haem cytochrome c in subunit II." Biochimica Et Biophysica Acta-Bioenergetics **1777**(12): 1528-1534.

89. Lobo S. A. L., Brindley A. A., Romao C. V., Leech H. K., Warren M. J. and Saraiva L. M. (2008). "Two distinct roles for two functional cobaltochelatases (CbiK) in Desulfovibrio vulgaris Hildenborough." Biochemistry **47**(21): 5851-5857.

90. Lopes A., Edwards K. and Feitosa E. (2008). "Extruded vesicles of dioctadecyldimethylammonium bromide and chloride investigated by light scattering and cryogenic transmission electron microscopy." Journal of Colloid and Interface Science **322**(2): 582-588.

91. Lopes J. N. C., Padua A. A. H. and Shimizu K. (2008). "Molecular force field for ionic liquids IV: Trialkylimidazolium and alkoxycarbonyl-imidazolium cations; alkylsulfonate and alkylsulfate anions." Journal of Physical Chemistry B **112**(16): 5039-5046.

92. Lopes J. N. C., Shimizu K., Padua A. A. H., Umebayashi Y., Fukuda S., Fujii K. and Ishiguro S. I. (2008). "Potential energy landscape of bis(fluorosulfonyl)amide." Journal of Physical Chemistry B **112**(31): 9449-9455.

93. Lopes J. N. C., Shimnizu K., Padua A. A. H., Umebayashi Y., Fukuda S., Fujii K. and Ishiguro S. I. (2008). "A tale of two ions: The conformational landscapes of bis(trifluoromethanesulfonyl)amide and N,N-dialkylpyrrolidinium." Journal of Physical Chemistry B **112**(5): 1465-1472.

94. Lou J. D., Li L., Vatanian N., Lu X. L. and Yu X. P. (2008). "Jones reagent supported on aluminum silicate: A new reagent for oxidation of alcohols." Synthesis and Reactivity in Inorganic Metal-Organic and Nano-Metal Chemistry **38**(4): 370-372.

95. Lou J. D., Li L., Vatanian N., Lu X. L. and Yu X. P. (2008). "Selective oxidation of alpha-hydroxy ketones to alpha-diketones with chromium trioxide supported on kieselghur reagent." Synthesis and Reactivity in Inorganic Metal-Organic and Nano-Metal Chemistry **38**(4): 373-375.

Publications

96. Lubal P., Albrecht-Gary A. M., Blanc S., Costa J. and Delgado R. (2008). "*Kinetic study of dissociation of a copper(II) complex of a 14-membered tetraaza-macrocyclic ligand containing pyridine and pendant N-carboxymethyl arms.*" Collection of Czechoslovak Chemical Communications **73**(2): 258-274.

97. Machuqueiro M. and Baptista A. M. (2008). "*Acidic range titration of HEWL using a constant-pH molecular dynamics method.*" Proteins-Structure Function and Bioinformatics **72**(1): 289-298.

98. Madeira P. J. A., Costa P. J., Fernandez M. T., Simões J. A. M. and Leal J. P. (2008). "*Determination of Gas-Phase Acidities of Dimethylphenols: Combined Experimental and Theoretical Study.*" Journal of the American Society for Mass Spectrometry **19**(11): 1590-1599.

99. Marques A. P., Leitao M. C. and Romao M. V. S. (2008). "*Biogenic amines in wines: Influence of oenological factors.*" Food Chemistry **107**(2): 853-860.

100. Meisner J., Wang X., Serrano M., Henriques A. O. and Moran C. P. (2008). "*A channel connecting the mother cell and forespore during bacterial endospore formation.*" Proceedings of the National Academy of Sciences of the United States of America **105**(39): 15100-15105.

101. Mellado M. C. M., Franco C., Coelho A., Alves P. M. and Simplicio A. L. (2008). "*Sodium dodecyl sulfate-capillary gel electrophoresis analysis of rotavirus-like particles.*" Journal of Chromatography A **1192**(1): 166-172.

102. Mellado M. C. M., Peixoto C., Cruz P. E., Carrondo M. J. T. and Alves P. M. (2008). "*Purification of recombinant rotavirus VP7 glycoprotein for the study of in vitro rotavirus-like particles assembly.*" Journal of Chromatography B-Analytical Technologies in the Biomedical and Life Sciences **874**(1-2): 89-94.

103. Memmi G., Filipe S. R., Pinho M. G., Fu Z. B. and Cheung A. (2008). "*Staphylococcus aureus PBP4 Is Essential for beta-Lactam Resistance in Community-Acquired Methicillin-Resistant Strains.*" Antimicrobial Agents and Chemotherapy **52**(11): 3955-3966.

104. Menezes R. A., Amaral C., Batista-Nascimento L., Santos C., Ferreira R. B., Devaux F., Eleutherio E. C. A. and Rodrigues-Pousada C. (2008). "*Contribution of Yap1 towards Saccharomyces cerevisiae adaptation to arsenic-mediated oxidative stress.*" Biochemical Journal **414**: 301-311.

105. Micaelo N. M. and Soares C. M. (2008). "*Protein structure and dynamics in ionic liquids. Insights from molecular dynamics simulation studies.*" Journal of Physical Chemistry B **112**(9): 2566-2572.

106. Micaelo N. M., Victor B. L. and Soares C. M. (2008). "*Protein thermal stabilization by charged compatible solutes: Computational studies in rubredoxin from Desulfovibrio gigas.*" Proteins-Structure Function and Bioinformatics **72**(2): 580-588.

107. Miguel C., Simões M., Oliveira M. M. and Rocheta M. (2008). "*Envelope-Like Retrotransposons in the Plant Kingdom: Evidence of Their Presence in Gymnosperms (Pinus pinaster).*" Journal of Molecular Evolution **67**(5): 517-525.

108. Miragaia M., Carriço J. A., Thomas J. C., Couto I., Enright M. C. and de Lencastre H. (2008). "*Comparison of molecular typing methods for characterization of Staphylococcus epidermidis: Proposal for clone definition.*" Journal of Clinical Microbiology **46**(1): 118-129.

109. Morais V. A., Leight S., Pijak D. S., Lee V. M. Y. and Costa J. (2008). "*Cellular localization of Nicastrin affects amyloid beta species production.*" Febs Letters **582**(3): 427-433.

110. Moreira P., Pego S. E., Vaz Patto M. C. and Hallauer A. R. (2008). "*Comparison of selection methods on 'Pigarro', a Portuguese improved maize population with fasciation expression.*" Euphytica **163**(3): 481-499.

111. Mota S., Mendes M., Penque D., Coelho A. V. and Cunha C. (2008). "*Changes in the proteome of Huh7 cells induced by transient expression of hepatitis D virus RNA and antigens.*" Journal of Proteomics **71**(1): 71-79.

112. Najmudin S., Gonzalez P. J., Trincao J., Coelho C., Mukhopadhyay A., Cerqueira N., Romao C. C., Moura I., Moura J. J. G., Brondino C. D. and Romao M. J. (2008). "*Periplasmic nitrate reductase revisited: a sulfur atom completes the sixth coordination of the catalytic molybdenum.*" Journal of Biological Inorganic Chemistry **13**(5): 737-753.

113. Nascimento E., Nogueira N., Silva T., Braschler T., Demierre N., Renaud P. and Oliva A. G. (2008). "*Dielectrophoretic sorting on a microfabricated flow cytometer: label free separation ofBabesia bovisinfected erythrocytes.*" Bioelectrochemistry **73**(2):123-128

114. Negrao S., Oliveira M. M., Jena K. K. and Mackill D. (2008). "*Integration of genomic tools to assist breeding in the japonica subspecies of rice.*" Molecular Breeding **22**(2): 159-168.

115. Nichifor M., Bastos M., Lopes S. and Lopes A. (2008). "*Characterization of Aggregates formed by Hydrophobically Modified Cationic Dextran and Sodium Alkyl Sulfates in Salt-Free Aqueous Solutions.*" Journal of Physical Chemistry B **112**(49): 15554-15561.

116. Nobre L. S., Gonçalves V. L. and Saraiva L. M. (2008) "*Flavohemoglobin of Staphylococcus aureus.*" in Globins and Other Nitric Oxide-Reactive Proteins, Pt A *Methods in Enzymology* **436**: 203-216.

117. Nunes C., Araujo S. D., da Silva J. M., Fevereiro M. P. S. and da Silva A. B. (2008). "*Physiological responses of the legume model Medicago truncatula cv. Jemalong to water deficit.*" Environmental and Experimental Botany **63**(1-3): 289-296.

118. Nunes S., Sá-Leão R. and de Lencastre H. (2008). "*Optochin resistance among Streptococcus pneumoniae strains colonizing healthy children in Portugal.*" Journal of Clinical Microbiology **46**(1): 321-324.

119. Nunes S., Sá-Leão R., Pereira L. C. and de Lencastre H. (2008). "*Emergence of a serotype 1 Streptococcus pneumoniae lineage colonising healthy children in Portugal in the seven-valent conjugate vaccination era.*" Clinical Microbiology and Infection **14**(1): 82-84.

120. Oliveira D. C., Santos M., Milheiriço C., Carriço J. A., Vinga S., Oliveira A. L. and de Lencastre H. (2008). "*ccrB typing tool: an online resource for staphylococci ccrB sequence typing.*" Journal of Antimicrobial Chemotherapy **61**(4): 959-960.

121. Oliveira T. F., Vonrhein C., Matias P. M., Venceslau S. S., Pereira I. A. C. and Archer M. (2008). "*Purification, crystallization and preliminary crystallographic analysis of a dissimilatory DsrAB sulfite reductase in complex with DsrC.*" Journal of Structural Biology **164**(2): 236-239.

122. Oliveira T. F., Vonrhein C., Matias P. M., Venceslau S. S., Pereira I. A. C. and Archer M. (2008). "*The Crystal Structure of Desulfovibrio vulgaris Dissimilatory Sulfite Reductase Bound to DsrC Provides Novel Insights into the Mechanism of Sulfate Respiration.*" Journal of Biological Chemistry **283**(49): 34141-34149.

123. Overton T. W., Justino M. C., Li Y., Baptista J. M., Melo A. M. P., Cole J. A. and Saraiva L. M. (2008). "*Widespread distribution in pathogenic bacteria of di-iron proteins that repair oxidative and nitrosative damage to iron-sulfur centers.*" Journal of Bacteriology **190**(6): 2004-2013.

124. Paiva J. A. P., Garces M., Alves A., Garnier-Gere P., Rodrigues J. C., Lalanne C., Porcon S., Le Provost G., Perez D. D., Brach J., Frigerio J. M., Claverol S., Barre A., Fevereiro P. and Plomion C. (2008). "*Molecular and phenotypic profiling from the base to the crown in maritime pine wood-forming tissue.*" New Phytologist **178**(2): 283-301.

125. Paiva J. A. P., Garnier-Gere P. H., Rodrigues J. C., Alves A., Santos S., Graca J., Le Provost G., Chaumeil P., Da Silva-Perez D., Bosc A., Fevereiro P. and Plomion C. (2008). "*Plasticity of maritime pine (Pinus pinaster) wood-forming tissues during a growing season.*" New Phytologist **179**(4): 1080-1094.

126. Paixao V. B., Salgueiro C. A., Brennan L., Reid G. A., Chapman S. K. and Turner D. L. (2008). "*The Solution Structure of a Tetraheme Cytochrome from Shewanella frigidimarina Reveals a Novel Family Structural Motif.*" Biochemistry **47**(46): 11973-11980.

127. Palma A. S., De Carvalho M., Grammel N., Pinto S., Barata N., Conradt H. S. and Costa J. (2008). "*Proteomic analysis of plasma from Portuguese patients with familial amyotrophic lateral sclerosis.*" Amyotrophic Lateral Sclerosis **9**(6): 339 - 349

128. Peixoto C., Ferreira T. B., Sousa M. F. Q., Carrondo M. J. T. and Alves P. M. (2008). "*Towards purification of adenoviral vectors based on membrane technology.*" Biotechnology Progress **24**(6): 1290-1296.

129. Pereira C. S., McAuley J. R., Taga M. E., Xavier K. B. and Miller S. T. (2008). "*Sinorhizobium meliloti, a bacterium lacking the autoinducer-2 (AI-2) synthase, responds to AI-2 supplied by other bacteria.*" Molecular Microbiology **70**(5): 1223-1235.

130. Pereira M. M., Sousa F. L., Verissimo A. F. and Teixeira M. (2008). "*Looking for the minimum common denominator in haem-copper oxygen reductases: Towards a unified catalytic mechanism.*" Biochimica Et Biophysica Acta-Bioenergetics **1777**(7-8): 929-934.

131. Pereira P. M., He Q., Valente F. M. A., Xavier A. V., Zhou J. Z., Pereira I. A. C. and Louro R. O. (2008). "*Energy metabolism in Desulfovibrio vulgaris Hildenborough: insights from transcriptome analysis.*" Antonie Van Leeuwenhoek International Journal of General and Molecular Microbiology **93**(4): 347-362.

132. Pereira P. M., He Q., Xavier A. V., Zhou J. Z., Pereira I. A. C. and Louro R. O. (2008). "*Transcriptional response of Desulfovibrio vulgaris Hildenborough to oxidative stress mimicking environmental conditions.*" Archives of Microbiology **189**(5): 451-461.

133. Petoukhov M. V., Vicente J. B., Crowley P. B., Carrondo M. A., Teixeira M. and Svergun D. I. (2008). "*Quaternary structure of flavorubredoxin as revealed by synchrotron radiation small-angle X-ray scattering.*" Structure **16**(9): 1428-1436.

Publications

134 Petrovski Z., de Matos M., Braga S. S., Pereira C. C. L., Matos M. L., Goncalves I. S., Pillinger M., Alves P. M. and Romao C. C. (2008). "*Synthesis, characterization and antitumor activity of 1,2-disubstituted ferrocenes and cyclodextrin inclusion complexes.*" Journal of Organometallic Chemistry **693**(4): 675-684.

135. Petrovski Z., Romão C. C. and Afonso C. A. M. (2008). "*Synthesis of Tris(N,N-dimethylthiocarbamoyl)-1,1,1-tris-(methylaminomethyl)ethane and its application as ligand for Pauson-Khand reaction.*" Synthetic Communications **38**(16): 2761-2767.

136. Pinheiro C., de Carvalho M. H. C., Bartels D., Ricardo A. P. and Chaves M. M. (2008). "*Dehydrins in Lupinus albus: pattern of protein accumulation in response to drought.*" Functional Plant Biology **35**(1): 85-91.

137. Pires A. S., Cabral M. G., Fevereiro M. P. S., Stoger E. and Abranches R. (2008). "*High levels of stable phytase accumulate in the culture medium of transgenic Medicago truncatula cell suspension cultures.*" Biotechnology Journal **3**(7): 916-923.

138. Pison L., Lopes J. N. C., Rebelo L. P. N., Padua A. A. H. and Gomes M. F. C. (2008). "*Interactions of fluorinated gases with ionic liquids: Solubility of CF4, C2F6, and C3F8 in trihexyltetradecylphosphonium bis(trifluoromethylsulfonyl) amide.*" Journal of Physical Chemistry B **112**(39): 12394-12400.

139. Placido D., Fernandes C. G., Isidro A., Carrondo M. A., Henriques A. O. and Archer M. (2008). "*Auto-induction and purification of a Bacillus subtilis transglutaminase (Tgl) and its preliminary crystallographic characterization.*" Protein Expression and Purification **59**(1): 1-8.

140. Plechkova N. V. and Seddon K. R. (2008). "*Applications of ionic liquids in the chemical industry.*" Chemical Society Reviews **37**(1): 123-150.

141. Pokkuluri P. R., Pessanha M., Londer Y. Y., Wood S. J., Duke N. E. C., Wilton R., Catarino T., Salgueiro C. A. and Schiffer M. (2008). "*Structures and solution properties of two novel periplasmic sensor domains with c-type heme from chemotaxis proteins of Geobacter sulfurreducens: Implications for signal transduction.*" Journal of Molecular Biology **377**(5): 1498-1517.

142. Raquel H., Lourenço T., Moita C. and Oliveira M. M. (2008). "*Expression of prune dwarf Ilarvirus coat protein sequences in Nicotiana benthamiana plants interferes with PDV systemic proliferation.*" Plant Biotechnology Reports **2**(1): 75-85.

143. Real G., Fay A., Eldar A., Pinto S. M., Henriques A. O. and Dworkin J. (2008). "*Determinants for the subcellular localization and function of a nonessential SEDS protein.*" Journal of Bacteriology **190**(1): 363-376.

144. Reis P. M., Costa P. J., Romão C. C., Fernandes J. A., Calhorda M. J. and Royo B. (2008). "*Hydrogen activation by high-valent oxo-molybdenum(VI) and -rhenium(VII) and -(V) compounds.*" Dalton Transactions(13): 1727-1733.

145. Ribeiro T. C., Pinto V., Gaspar F. and Lopes M. F. S. (2008). "*Enterococcus hiare causing wound infections in a Hospital.*" Journal of Chinese Clinical Medicine **3**(3): 150-152.

146. Rocco A. G., Mollica L., Ricchiuto P., Baptista A. M., Gianazza E. and Eberini I. (2008). "*Characterization of the protein unfolding processes induced by urea and temperature.*" Biophysical Journal **94**(6): 2241-2251.

147. Rodrigues J. V., Victor B. L., Huber H., Saraiva L. M., Soares C. M., Cabelli D. E. and Teixeira M. (2008). "*Superoxide reduction by Nanoarchaeum equitans neelaredoxin, an enzyme lacking the highly conserved glutamate iron ligand.*" Journal of Biological Inorganic Chemistry **13**(2): 219-228.

148. Rodrigues M. L., Santos T. P., Rodrigues A. P., de Souza C. R., Lopes C. M., Maroco J. P., Pereira J. S. and Chaves M. M. (2008). "*Hydraulic and chemical signalling in the regulation of stomatal conductance and plant water use in field grapevines growing under deficit irrigation.*" Functional Plant Biology **35**(7): 565-579.

149. Rodrigues M. L., Scott K. A., Sansom M. S. P., Pereira I. A. C. and Archer M. (2008). "*Quinol oxidation by c-type cytochromes: Structural characterization of the menaquinol binding site of NrfHA.*" Journal of Molecular Biology **381**(2): 341-350.

150. Rodrigues T., Alves A., Lopes A., Carrondo M. J. T., Alves P. M. and Cruz P. E. (2008). "*Removal of envelope protein-free retroviral vectors by anion-exchange chromatography to improve product quality.*" Journal of Separation Science **31**(20): 3509-3518.

151. Roldao A., Carrondo M. J. T., Alves P. M. and Oliveira R. (2008). "*Stochastic simulation of protein expression in the baculovirus/insect cells system.*" Computers & Chemical Engineering **32**(1-2): 68-77.

152. Ruivo R., Couto R. and Simões P. C. (2008). "*Supercritical carbon dioxide fractionation of the model mixture squalene/oleic acid in a membrane contactor.*" Separation and Purification Technology **59**(3): 231-237.

153. Ruiz-Rodriguez A., Bronze M. R. and da Ponte M. N. (2008). "S*upercritical fluid extraction of tobacco leaves: A preliminary study on the extraction of solanesol*." Journal of Supercritical Fluids 45(2): 171-176.

154. Sá-Leão R., Nunes S., Brito-Avô A., Alves C. R., Carriço J. A., Saldanha J., Almeida J. S., Santos-Sanches I. and de Lencastre H. (2008). "*High rates of transmission and colonization by Streptococcus pneumoniae and Haemophilus influenzae within a day care center revealed in a longitudinal study.*" Journal of Clinical Microbiology 46(1): 225-234.

155. Sanchez C., Neves A. R., Cavalheiro J., dos Santos M. M., Garcia-Quintans N., Lopez P. and Santos H. (2008). "*Contribution of citrate metabolism to the growth of Lactococcus lactis CRL264 at low pH.*" Applied and Environmental Microbiology 74(4): 1136-1144.

156. Santos R. and Flammang P. (2008). "*Estimation of the attachment strength of the shingle sea urchin, Colobocentrotus atratus, and comparison with three sympatric echinoids.*" Marine Biology 154(1): 37-49.

157. Seitzer U., Liu Z. J., Yin H., Beyer D., Kullmann B., Miranda J. and Ahmed J. S. (2008). "*Immune Response of Theileria sp.-infected Sheep to Recombinant Theileria Proteins.*" Annals of the New Yourk Academy of Science 1149 (Animal Biodiversity and Emerging Diseases Prediction and Prevention): 186-190.

158. Serra A. T., Matias A. A., Nunes A. V. M., Leitao M. C., Brito D., Bronze R., Silva S., Pires A., Crespo M. T., Romao M. V. S. and Duarte C. M. (2008). "*In vitro evaluation of olive- and grape-based natural extracts as potential preservatives for food.*" Innovative Food Science & Emerging Technologies 9(3): 311-319.

159. Serra H., Mendes T., Bronze M. R. and Simplicio A. L. (2008). "*Prediction of intestinal absorption and metabolism of pharmacologically active flavones and flavanones.*" Bioorganic & Medicinal Chemistry 16(7): 4009-4018.

160. Serrano M., Vieira F., Moran C. P. and Henriques A. O. (2008). "*Processing of a Membrane Protein Required for Cell-to-Cell Signaling during Endospore Formation in Bacillus subtilis.*" Journal of Bacteriology 190(23): 7786-7796.

161. Shvaleva A., Silva F. C. E., Scotti P., Ufir M. O., Hausman J. F., Cedric G., Ramos P., Almeida M. H., Rodrigues M. L., Pereira J. S. and Chaves M. M. (2008). "*Physiological and biochemical responses to low non-freezing temperature of two Eucalyptus globulus clones differing in drought resistance.*" Annals of Forest Science 65(2): 10.

162. Silva A. C., Delgado I., Sousa M. F. Q., Carrondo M. J. T. and Alves P. M. (2008). "*Scalable culture systems using different cell lines for the production of Peste des Petits ruminants vaccine*." Vaccine 26(26): 3305-3311.

163. Silva J. N., Silva A. M. G., Tome J. P., Ribeiro A. O., Domingues M. R. M., Cavaleiro J. A. S., Silva A. M. S., Graca M., Neves M., Tome A. C., Serra O. A., Bosca F., Filipe P., Santuse R. and Morliere P. (2008). "*Photophysical properties of a photocytotoxic fluorinated chlorin conjugated to four beta-cyclodextrins.*" Photochemical & Photobiological Sciences 7(7): 834-843.

164. Silva M. G., Helali S., Esseghaier C., Suarez C. E., Oliva A. and Abdelghani A. (2008). "*An impedance spectroscopy method for the detection and evaluation of Babesia bovis antibodies in cattle.*" Sensors and Actuators B-Chemical 135(1): 206-213.

165. Silva S. M. d., Venceslau S. S., Fernandes C. L. V., Valente F. M. A. and Pereira I. A. C. (2008). "*Hydrogen as an energy source for the human pathogen Bilophila wadsworthia.*" Antonie Van Leeuwenhoek International Journal of General and Molecular Microbiology 93(4): 381-390.

166. Simplicio A. L., Clancy J. M. and Gilmer J. F. (2008). "*Prodrugs for Amines.*" Molecules 13(3): 519-547.

167. Sousa F. L., Verissimo A. F., Baptista A. M., Soulimane T., Teixeira M. and Pereira M. M. (2008). "*Redox properties of Thermus thermophilus ba3: Different electron-proton coupling in oxygen reductases?*" Biophysical Journal 94(6): 2434-2441.

168. Stanislaus R., Carey M., Deus H. F., Coombes K., Hennessy B. T., Mills G. B. and Almeida J. S. (2008). "*RPPAML/RIMS: A meta data format and an information management system for Reverse Phase Protein Arrays.*" Bmc Bioinformatics 9: 555.

169. Stelter M., Melo A. M. P., Pereira M. M., Gomes C. M., Hreggvidsson G. O., Hjorleifsdottir S., Saraiva L. M., Teixeira M. and Archer M. (2008). "*A Novel Type of Monoheme Cytochrome c: Biochemical and Structural Characterization at 1.23 angstrom Resolution of Rhodothermus marinus Cytochrome c.*" Biochemistry 47(46): 11953-11963.

170. Szittya G., Moxon S., Santos D. M., Jing R., Fevereiro P., Moulton V. and Dalmay T. (2008). "*High-throughput sequencing of Medicago truncatula short RNAs identifies eight new miRNA families.*" BMC Genomics 9: 593.

Publications

171. Teixeira A. P., Santos S. S., Carinhas N., Oliveira R. and Alves P. M. (2008). "*Combining metabolic flux analysis tools and C-13 NMR to estimate intracellular fluxes of cultured astrocytes.*" Neurochemistry International **52**(3): 478-486.

172. Teixeira V. H., Soares C. M. and Baptista A. M. (2008). "*Proton pathways in a [NiFe]-hydrogenase: A theoretical study.*" Proteins-Structure Function and Bioinformatics **70**(3): 1010-1022.

173. Tereso S., Miguel C. M., Mascarenhas M., Roque A., Trindade H., Maroco J. and Oliveira M. M. (2008). "*Improved in vitro rooting of Prunus dulcis Mill. cultivars.*" Biologia Plantarum **52**(3): 437-444.

174. Todorovic S., Justino M. C., Wellenreuther G., Hildebrandt P., Murgida D. H., Meyer-Klaucke W. and Saraiva L. M. (2008). "*Iron-sulfur repair YtfE protein from Escherichia coli: structural characterization of the di-iron center.*" Journal of Biological Inorganic Chemistry **13**(5): 765-770.

175. Todorovic S., Verissimo A., Wisitruangsakul N., Zebger I., Hildebrandt P., Pereira M. M., Teixeira M. and Murgida D. H. (2008). "*SERR-Spectroelectrochemical Study of a cbb3 Oxygen Reductase in a Biomimetic Construct.*" The Journal of Physical Chemistry B **112**(51): 16952-16959.

176. Vaz Patto M. C., Diaz-Ruiz R., Satovic Z., Roman B., Pujadas-Salva A. J. and Rubiales D. (2008). "*Genetic diversity of Moroccan populations of Orobanche foetida: evolving from parasitising wild hosts to crop plants.*" Weed Research **48**(2): 179-186.

177. Vaz Patto M. C., Moreira P. M., Almeida N., Satovic Z. and Pego S. (2008). "*Genetic diversity evolution through participatory maize breeding in Portugal.*" Euphytica **161**(1-2): 283-291.

178. Verissimo A. F., Sousa F. L., Baptista A. M., Teixeira M. and Pereira M. M. (2008). "*Thermodynamic Redox Behavior of the Heme Centers in A-Type Heme-Copper Oxygen Reductases: Comparison between the Two Subfamilies.*" Biophysical Journal **95**(9): 4448-4455.

179. Vicente J. B., Carrondo M. A., Teixeira M. and Frazão C. (2008) "*Structural studies on flavodiiron proteins.*" in Globins and Other Nitric Oxide-Reactive Proteins, Part B *Methods in Enzymology* **437**: 3-19.

180. Vicente J. B., Justino M. C., Gonçalves V. L., Saraiva L. M. and Teixeira M. (2008) "*Biochemical, spectroscopic, and thermodynamic properties of flavodiiron proteins.*" in Globins and Other Nitric Oxide-Reactive Proteins, Part B *Methods in Enzymology* **437**: 21-45.

181. Vicente J. B., Scandurra F. M., Forte E., Brunori M., Sarti P., Teixeira M. and Giuffre A. (2008) "*Kinetic characterization of the Escherichia coli nitric oxide reductase flavorubredoxin.*" in Globins and Other Nitric Oxide-Reactive Proteins, Part B *Methods in Enzymology* **437**: 47-62.

182. Vicente T., Sousa M. F. Q., Peixoto C., Mota J. P. B., Alves P. M. and Carrondo M. J. T. (2008). "*Anion-exchange membrane chromatography for purification of rotavirus-like particles.*" Journal of Membrane Science **311**(1-2): 270-283.

183. Viegas S. C. and Arraiano C. M. (2008). "*Regulating the regulators: how ribonucleases dictate the rules in the control of small non-coding RNAs.*" Rna Biology **5**(4): 230-243.

184. Vieira H. L. A., Queiroga C. S. F. and Alves P. M. (2008). "*Pre-conditioning induced by carbon monoxide provides neuronal protection against apoptosis.*" Journal of Neurochemistry **107**(2): 375-384.

185. Vilela M., Chou I. C., Vinga S., Vasconcelos A. T. R., Voit E. O. and Almeida J. S. (2008). "*Parameter optimization in S-system models.*" Bmc Systems Biology **2**: 13.

186. Wang L., Gilbert R. J. C., Atilano M. L., Filipe S. R., Gay N. J. and Ligoxygakis P. (2008). "*Peptidoglycan recognition protein-SD provides versatility of receptor formation in Drosophila immunity.*" Proceedings of the National Academy of Sciences of the United States of America **105**(33): 11881-11886.

187. Xu Y., Zhang L., Xie H., Zhang Y. Q., Oliveira M. M. and Ma R. C. (2008). "*Expression analysis and genetic mapping of three SEPALLATA-like genes from peach (Prunus persica (L.) Batsch).*" Tree Genetics & Genomes **4**(4): 693-703.

188. Zapun A., Vernet T. and Pinho M. G. (2008). "*The different shapes of cocci.*" Fems Microbiology Reviews **32**(2): 345-360.

Book chapters

Ferreira R. B., Monteiro S., Freitas R., Santos C. N., Chen Z. and Batista L. M. (2008) "*Plant/fungal interactions studied at the molecular level.*" in **Plant pathology concepts and laboratory exercises**. (R. N. Trigiano, M. T. Windham and A. S. Windham): Chapter 28; p. 309-322.

Gaspar P., Neves A. R., Santos H., Palencia P. F. d., Pelaez C. and Requena T. (2008) "*Engineering and re-routing of the metabolism of lactic acid bacteria.*" in **Molecular aspects of lactic acid bacteria for traditional and new applications**. (eds. B. Mayo, P. Lopez and G. Pérez-Martinez) Kerala, Research Signpost: 265-289.

Leonard G., Nurizzo D., Dieckmann-Mueller C., Mitchell E., McCarthy J., Flot D., Bento I. and Lindley P. F. (2008) "*Crystallographic Research Developments.*" in **Astrophysics and Condensed Matter – Horizons in World Physics**. (ed. Thomas G. Hardwell) 262: 11-69.

Monteiro S. and Ferreira R. B. (2008) "*Testing Blad: a potent antifungal protein.*" in **Plant pathology concepts and laboratory exercises**. (R. N. Trigiano, M. T. Windham and A. S. Windham): Chapter 29; p. 323-328.

Oliveira M. M., Miguel C. M. and Costa M. (2008) "*Almond.*" in **Compendium of Transgenic Crop Plants**. (C. R. Kole, R. Scorza and T. C. Hall eds.) 4. Transgenic temperate fruits and nuts: p. 259-284.

Pinho M. G. (2008) "*Mechanisms of β-lactam and glycopeptide resistance in staphylococcus aureus* " in **Staphylococcus: molecular genetics** (ed. Jodi Lindsay) Caister Academic Press: 207-226.

Rodrigues M. L., Pereira I. A. C. and Archer M. (2008) "*Membrane-bound cytochrome c quinol dehydrogenase NrfH.*" in **Handbook of Metalloproteins**. (ed. A. Messerschmidt): : 10.1002/0470028637.met221.

Royo, B. (2008) "*Homogeneous Catalysis: Oxidations*" in **Catalysis from Theory to Application, An Integrated Course** (eds. J.L. Figuereido, M.M. Pereira, J. Faria) Imprensa da Universidade de Coimbra.

Santos H., Lamosa P., Faria T. Q., Pais T. M., de La Paz M. L. and Serrano L. (2008) "*Compatible solutes of (Hyper)thermophiles and their role in protein stabilization.*" in **Thermophiles: Biology and Technology at High Temperatures**. F. Robb, G. Antranikian, D. Grogan and A. Driessen. London, CRC Press: Chapter 2: pp 9-24.

Vicente J. B., Carrondo M. A., Teixeira M. and Frazão C. (2008) "*Flavodiiron proteins: nitric oxide and/or oxygen reductases.*" in **Handbook of Metalloproteins**. (ed. A. Messerschmidt):

Weinberg H. S., Pereira V. J. and Ye Z. (2008) "*Drugs in drinking water: treatment options.*" in **Fate of pharmaceuticals in the environment and in water treatment systems**. (D. S. Aga): p. 391.

Books

Maquat L. M. and Arraiano C. M., Eds. (2008) **RNA turnover in bateria, archaea and organelles**. (Methods in Enzymology, 447) Academic Press.

Simões, J. A. Martinho and Minas Piedade, M. E. (2008) **Molecular Energetics: condensed-phase thermochemical techniques**. Oxford: Oxford University Press, 296 p.

Patents approved in 2008

L. S. Nobre, J. Seixas, C. C. Romão, and L. M. Saraiva. "*Treatment of infections by carbon monoxide"*. International Application Number: PCT/PT2008/000017; WO 2008/130261 A1.

C. Silva Pereira, L.P.N. Rebelo, and K. R. Seddon. "*Processo de biocatálise fúngica num meio de cultura contendo líquidos iónicos solúveis em água"*. Portuguese Patent # 103752 , Ref. PAT 36833/07, approved 2008. Registered by IBET – Instituto de Biologia Experimental e Tecnológica.

P. Donner, U. Egner, M. A. Carrondo, and P.M. Matias. "*Crystal*" World Intellectual Property Organization, International Publication Number WO 01/66599 A1, publication date 13/09/2001; approved in 2008. Registered by Schering AG Berlin

Ongoing Projects

Projects funded by FCT:

Project title	Project number	Project Leader	Funding €	Duration
The role of RNase and its homologues in the control of gene expression: structural and functional studies	POCI/BIA-MIC/55106/2004	Cecília Arraiano	90.000	2005-2009
Role of the interaction between AgfA and AgfB proteins from Salmonella enterica serovar Typhimurium in the surface polimerization of the amyloid-like thin aggregative fimbriae	POCI/SAU-IMI/55520/2004	Francisco Enguita	71.872	2006-2008
Rhenium, molybdenum and tungsten oxo complexes: new class of catalysts for reduction reactions	POCI/QUI/55586/2004	Beatriz Royo	55.500	2005-2008
Structural characterization of membrane proteins of the respiratory chain of a thermoacidophilic organism	POCI/BIA-PRO/55621/2004	Margarida Archer	78.410	2005-2008
Role of defense-related genes during the establishment of root-nodule symbioses between higher plants and nitrogen-fixing bacteria	POCI/AGR/55651/2004	Ana Ribeiro	57.360	2005-2008
Characterisation of membrane bound cytochrome involved in the anaerobic respiration in sulphate reducing bacteria	POCI/QUI/55690/2004	Ricardo Louro	54.500	2005-2008
Structure function studies of murine Toll-like receptors: activation of the innate immune response	POCI/SAU-IMI/55729/2004	Maria Arménia Carrondo	50.420	2005-2008
Transgenic plants as models to study regulation of transgene expression and recombinant protein deposition	POCI/BIA-BCM/55762/2004	Rita Abranches	69.621	2005-2008
Transcription factors regulating abiotic stress response in rice (*Orysa sativa*): a transgenic approach to improve tolerance, and search for novel players	POCI/BIA-BCM/56063/2004	Nelson Saibo	50.000	2005-2008
Nitrosative Stress Responses of Human Pathogens	POCI/SAU-IMI/56088/2004	Lígia Saraiva Teixeira	99.648	2005-2008
Organizations of the staphylococcal cell wall synthetic machinery	POCI/BIA-BCM/56493/2004	Mariana Pinho	90.000	2005-2008
Role of bacterial cell wall on the host innate immune response	POCI/SAU-IMI/56501/2004	Sérgio Filipe	99.999	2005-2008
Molecular recognition of phthalate and phthalic acid esters pollutants by ditopic receptors by cascade dicopper systems	POCI/QUI/56569/2004	Rita Delgado	43.640	2005-2008
Molecular markers for Portuguese pine wood quality	POCI/AGR/56658/2004	Pedro Fevereiro	22.066	2005-2008
Improving tolerance to water stress in legumes using the model *Medicago truncatula*	POCI/BIO/56659/2004	Pedro Fevereiro	16.144	2005-2008

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The role of small non-coding RNAs and RNases on the pathogenicity de *Salmonella*	POCI/CVT/56811/2004	Cecília Arraiano	87.879	2005-2009
Nano-Engineering of bacterial laccases	POCI/BIO/57083/2004	Lígia Martins	90.459	2005-2008
Functional characterization of genes related to nitrogen metabolism in genetically modified maritime pine	POCI/AGR/57157/2004	Susana Tereso	77.700	2005-2008
Structural determinants of protein stabilization by compatible solutes from hyperthermophiles: in search of guidelines solute improvement	POCI/BIA-PRO/57263/2004	Helena Santos	63.102	2005-2008
Bioremediation of PCP by the co-metabolism of cork endogenous moulds	POCI/AMB/57374/2004	Cristina Silva Pereira	82.187	2005-2008
Staphylococcus aureus and *Staphylococcus epidermidis*: links between hospital and community	POCI/SAU-ESP/57841/2004	Hermínia de Lencastre	63.245	2005-2008
Maize "broa" quality attributes: Identifying genes that affect the technological ability for bread production.	POCI/AGR/57994/2004	Carlota Vaz Patto	37.060	2005-2008
Epidemiology of multidrug resistant enterococci in a Lisbon Hospital – Surveillance study in malignancy ward	POCI/SAU-ESP/58030/2004	Rosario Mato Labajos	63.951	2005-2008
Complexes I from the respiratory chains of the thermohalophilic bacterium *Rhodothermus marinus* and of the *Cyanobacterium Synechocystis* sp PCC6803, model systems of the mitochondrial and chloroplastidial complexes I	POCI/BIA-PRO/58374/2004	Manuela Pereira	51.600	2005-2008
Regulation of cell wall synthetic genes and enzymes in β-lactam resistant *Staphylococcus aureus*	POCI/BIA-MIC/58416/2004	Hermínia de Lencastre	80.000	2005-2008
Screening hyperthermophilic proteomes for hyperstable proteins	POCI/BIO/58465/2004	Cláudio Gomes	51.829	2005-2008
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Characterization of metal and sulphur respiratory chains in a marine organism targeted for bioremediation applications	POCI/BIO/58652/2004	Ricardo Louro	80.500	2005-2008
Characterization of CymA: a focal protein in anaerobic respiration by *Shewanella*	POCI/BIA-PRO/58722/2004	Ricardo Louro	39.600	2005-2008
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Understanding defence responses of grapevine to drought stress-metabolic regulation at the leaf and berry levels	POCI/AGR/59079/2004	Manuela Chaves	71.575	2005-2008
Strategies of life adaptation to hot environments: heat and osmotic stress responses in the extremely thermophilic bacterium *Rhodothermus marinus*	POCI/BIA-MIC/59310/2004	Nuno Borges	90.000	2005-2008

Studies on quinine-protein interaction in complexes of respiratory chains	POCI/QUI/59824/2004	Manuela Pereira	73.000	2005-2008
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Transcriptional control of the *mecA* gene, the central element of methicillin-resistance in staphylococci.	POCI/BIA-MIC/60320/2004	Duarte Oliveira	72.233	2005-2008
Interactions between proteins in adjacent sister cells that signal the activation of RNA polymerase in response to cellular morphogenesis	POCI/BIA-BCM/60855/2004	Adriano O. Henriques	84.000	2005-2008
Mechanisms of repression by AraR, a key regulator of carbohydrates utilization in *Bacillus subtillis*	POCI/BIA-MIC/61140/2004	Isabel Sá Nogueira	80.500	2005-2008
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Studies on the synthesis and applications of 2-Oxoaza [x.1.0] bicycles	POCI/QUI/62794/2004	Christopher Maycock	44.500	2005-2009
Constraints to carbon gain by tree age in *Eucalyptus globules* (Labill.) stands.	POCI/AGR/61980/2004	Manuela Chaves	22.194	2005-2008
Rationalization of cutinase enantioselectivity in nonaqueous media	POCI/BIO/57193/2004	Cláudio Soares/Isabel Sá Nogueira	35.088	2005-2008
Mechanism and kinetics of protein stabilization by osmolytes.	POCI/QUI/56585/2004	Helena Santos	7.560	2005-2008
Metabolism and characterization of mixed cultures in wastewater processes for simultaneous removal of nitrogen and phosphorus	POCI/AMB/56075/2004	Helena Santos	10.080	2005-2008
Synthesis, structure and reactivity of transition metal complexes with potential application in oxidative catalysis	POCI/QUI/55985/2004	Carlos Romão	3.600	2005-2008
Gene expression changes during hepatitis delta virus infection I. Analysis of the cellular proteome.	POCI/SAU-IMI/55112/2004	Ana Coelho	13.200	2005-2008
Optical fibre sensors for distributed monitoring of dissolved oxygen and temperature.	POCI/AMB/56132/2004	Abel Oliva	30.028	2006-2008
Thermodynamical and structural characterization of ionic liquids and other associated fluids.	POCI/QUI/57716/2004	Luís Paulo N. Rebelo	25.000	2005-2008
Nature's shields to environmental stress. Biosynthesis of compatible solutes in extremely radiation-resistant *Rubrobacter* spp.	POCI/BIA-MIC/56511/2004	Helena Santos	18.000	2005-2008
Proteomics of chronic lung diseases leading to biomarkers and therapeutic target discovery	POCI/SAU-MMO/56163/2004	Ana Varela Coelho	16.904	2005-2008

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Genomic research-assisted breeding for sustainable production of quality GRAPEs and WINE	ERA-PG/005/2006	Pedro Fevereiro	85.700	2007-2010
Genome-wide analysis of short RNAs as modulators in dehydration stress tolerance using tolerant and genetic model systems	ERA-PG/001/2006	Pedro Fevereiro	126.588	2007-2010
Tannin polymerase, a novel and previously unknown enzyme that is required by obligate pathogens to invade grapevine tissues	PTDC/AGR-AAM/65611/2006	Ricardo Boavida Ferreira	126.456	2007-2010
Two-dimensional micelles and emulsions in lipid bilayers resulting from caophylic/ caophobic amphiphilicity of some phospholipids. Biological consequences	PTDC/QUI/68242/2006	Eurico de Melo	93.238	2007-2010
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Novel stroke model for neuroprotective research: bioreaction of primary brain cell aggregates	PTDC/BIO/69407/2006	Paula Alves	169.000	2007-2010
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In search of ideal protein stabilisers: compound libraries inspired by solute from hyperthermophiles	PTDC/BIO/70806/2006	Pedro Lamosa	105.000	2007-2010
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Molecular Adaptation to Extreme Environments: Structural Studies of Proteins Involved in the Synthesis of Osmolytes in (hyper)thermophylic micro-organisms	PTDC/QUI/71142/2006	Pedro Matias	85.500	2008-2010
Contribution of the capsular polysaccharide to the inflammatory ability of the bacterial peptidoglycan	PTDC/SAU-MII/75696/2006	Sérgio Filipe	159.686	2007-2010
Impact of nonencapsulated strains on the ecology and pathogenesis of *Streptococcus pneumoniae*	PTDC/BIA-MIC/64010/2006	Raquel Sá Leão	110.000	2008-2010
Chromatin remodelling and abiotic stresses responses in rice	PTDC/BIA-BCM/64215/2006	Ana Paula Santos	52.000	2008-2011
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Structural, bioenergetic and dynamic aspects of respiratory chain complexes studied by vibrational and spectroelectrochemical methods	PTDC/QUI/64550/2006	Smilja Todorovic	44.800	2008-2010
Spatial and temporal organization of *Staphylococcus aureus* cell division	PTDC/BIA-BCM/66449/2006	Mariana Pinho	157.000	2008-2011
Investigating the energy transduction Q-cycle mechanism in complexes of respiratory chains	PTDC/BIA-PRO/66557/2006	Manuela Pereira	96.000	2008-2011
Searching for the functional/structural minimum common denominator in haem-copper oxygen reductases	PTDC/QUI/66559/2006	Manuela Pereira	70.700	2008-2010
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Iron Metabolism Study in *Deinococcus radiodurans*- Novel strategies	PTDC/BIA-PRO/67240/2006	Célia Romão	62.600	2008-2010
Microbial enzymes involved in superoxide and nitric oxide reduction	PTDC/BIA-PRO/67263/2006	Miguel Teixeira	116.000	2008-2010
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Analysis of the natural variability in Rice (*Oryza sativa* L.) through EcoTILLING in salt and cold tolerance genes	PTDC/AGR-GPL/70920/2006	Margarida Oliveira	212.284	2008-2010
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Regulatory networks on *Staphylococcus aureus* cell wall physiology	PTDC/BIA-MIC/71168/2006	Hermínia de Lencastre	136.979	2008-2010

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Activation of X-H (X = Si, B and P) Bonds. A New Research Area for High Valent Oxo-complexes	PTDC/QUI/71741/2006	Ana Cristina Fernandes	69.000	2008-2011
Multilevel modeling of physical and biochemical processes in phototrophic biofilms	PTDC/BIA-MIC/72512/2006	Andreas Bohn	94.000	2008-2010
Ionic Liquids - Fundamental Study of Properties	PTDC/CTM/73850/2006	José Esperança	44.350	2008-2010
Characterization of sea urchins temporary adhesives by mass spectrometry-based proteomics	PTDC/DG-MAR/80012/2006	Romana Santos	38.448	2008-2011
Chemical reactivity as a tool in drug design: modification of the beta-lactam scaffold to improve serine protease inhibition	PTDC/QUI/64056/2006	Margarida Archer	23.325	2007-2010
Molecular Evaluation and Characterization of Tolerance Mechanisms to Adverse Environmental Conditions in *Coffea* sp. - Central Role of the Oxidative Stress Control at Leaf Level	PTDC/AGR-AAM/64078/2006	Manuela Chaves	29.930	2007-2010
Vapour liquid equilibrium of pure ionic liquids and their mixtures with organic solvents	PTDC/EQU-FTT/65252/2006	Luís Paulo N. Rebelo	16.920	2007-2010
Quantitative Modeling of Passive Trancytotic Diffusion of Amphiphilic Molecules Across the Blood-Brain Barrier	PTDC/SAU-FCF/69072/2006	Eurico de Melo	15.000	2007-2010
DynaMo - Dynamical modeling, control and optimization of metabolic networks	PTDC/EEA-ACR/69530/2006	Helena Santos	81.621	2007.2010
Enzymatic degradation and synthesis of Azo and antraquionic dyes	PTDC/BIO/72108/2006	Ana Coelho	16.800	2007-2010
The wild relatives of Beta: genetic diversity assessment and biochemical studies	PTDC/AGR-AAM/73144/2006	Cândico Pinto Ricardo	46.740	2007-2010
BioMode - From data to modeling on biofilm phenotype	PTDC/BIO/73550/2006	Andreas Bohn	11.760	2007-2010
Gas Phase Reactions on Ionic Liquids	PTDC/QUI/66199/2006	Luís Paulo N. Rebelo	12.500	2008-2010
Synthesis and Characterization of New and not so-New Ionic Liquids	PTDC/QUI/66826/2006	Luís Paulo N. Rebelo	13.800	2008-2011
Polymer plasticization and compatibility using Green Technologies. Application of ionic liquids and supercritical fluids	PTDC/QUI/71398/2006	Luís Paulo N. Rebelo	37800	2008-2011
Molecular design of novel aza-bridged calixarene receptors for medicinal chemistry: encapsulation of lanthanide ions and chiral resolution of drugs	PTDC/QUI/68582/2006	Rita Delgado	16.620	2008-2010

High Pressure CO_2-Induced Melting of Salts: New Ionic Liquids	PTDC/QUI/70383/2006	Helena Santos	25.020	2008-2010
Protein glycation and transthyretin amyloidogenesis in yeast: A model system of neurodegenerative amyloid diseases	PTDC/QUI/70610/2006	Ana Coelho	48.050	2008-2010
Integrated Isolation, Bio- and Organic-Synthetic Transformations of Portuguese Natural Resources	PTDC/QUI/73061/2006	Cristina Silva Pereira	30.000	2008-2011
MIT – Bioengineering Systems		Cláudio Soares	446.672	2006-2009

Projects funded by the *Sociedade Portuguesa de Gastrenterologia*:

Pesquisa de probióticos em azeitona de mesa portuguesa, com potencial actividade anti-*Helicobacter pylori*	01/2006	Cidália Peres	14.850	2006-2008

Projects funded by the European Comission:

European macromolecular crystallography infrastructure network 2 (MAX-INF2)	RICA 505977	Maria Arménia Carrondo	36.700	2004-2009
From receptor to gene: structures of complexes from signalling pathways linking immunology, neurobiology and cancer (SPINE2-COMPLEXES)	LSHG-CT-2006-031220	Maria Arménia Carrondo	206.750	2006-2009
Genomics to combat resistance against antibiotics in community – acquired LRTI in Europe (GRACE)	LSHM-CT-2005-518226	Hermínia de Lencastre	129.216	2006-2011
White biotechnology for added value products from renewable plant polymers: design of tailor-made biocatalysts and new industrial bioprocesses (BIORENEW)	NMPT2-CT2-2006-026456	Ligia O. Martins/Cláudio Soares	417.000	2006-2010
Training for high volume, high value structural genomics methodologies (TEACH-SG)	LSSG-CT-2006-031220	Maria Arménia Carrondo	11.000	2007-2009
Sustainable water use Securing Food production in dry areas of the Mediterranean region (SWUP-MED)	FP7-2007-KBBE-212337	Manuela Chaves	310.880	2008-2012
Genotyping for the conservation and valorization of European Rice germplasm (EURIGEN)	049 AGRI GEN RES 870/2004	Margarida Oliveira		
Structural Biology of Membrane Proteins	PITN-GA-2008-211800	Margarida Archer	284.099	2008-2012

ngoing Projects

Project funded by the European Economic Area and Norway Grants:

Awake of Green Biotech in Portugal: waste elimination using genetically manipulated fungal species in an ionic liquid environment	FMO PT0015	Cristina Silva Pereira	1.241.143	2007-2011

Projects funded by the NIH through Rockefeller University (amounts USD):

Evolution and acquisition of drug resistance in MRS		Sérgio Filipe	230.641 $	2005-2009
Pathogen – specific drug targets for weaponized bacteria		Adriano O. Henriques	79.925 $	2005-2009

Subcontracting Parties – Georgia Institute of Technology (amounts USD):

Assessment of pathway design through multi-level modeling and experiments	NSF	Helena Santos	61.818 $	2006-2009

Projects funded by National Ataxia Foundation - USA (amounts USD)

Frataxin folding, chaperone role and interactions with iron-sulfur biosynthesis proteins: contributions to understand Friedreich's ataxia		Cláudio M. Gomes	29.000 $	2008-2009

Table legend: Projects coordinated by ITQB Researchers / Projects where ITQB researchers participate

Scientific Events

Scientific Meetings

Organized by ITQB Researchers

COST Action 858 Meeting on "**Biotic and abiotic stress in Viticulture - Grapevine defence mechanisms and grape development**"
Porto, May 2008
Manuela Chaves - Member of Organizing Committee.

Oxizymes in Helsinkis - **4nd European Meeting of OXIZYMES**
Helsinki, Finland, 16-18 June 2008.
Ligia Martins - Member of Organizing Committee.

Bioxhit Course "**S-SAD diffraction data phasing of macromolecule single crystals from home and Synchrotron X-ray sources**"
Oeiras, 19- 21 June 2008
Pedro Matias and Daniele de Sanctis - Members of Organizing Committee.

8th Young Scientist Forum FEBS-IUBMB
Cell Harmony, Lutraki-Heltas, Greece, June 26-28 2008
Claudina Pousada - FEBS/YSF Honorary chair of the Organization Committee.

1st Portuguese-Spanish-British Joint Biophysics Congress 2008
Lisbon, 10-13 July, 2008
Cláudio Soares - Main organizer

20th International Conference on Chemical Thermodynamics
Warsaw, Poland, 3-8 August 2008
Luís Paulo N. Rebelo - Member of Organizing Committee.

U5MWA
Cape Town, South Africa, 7-11 September 2008
Helena Santos - Member of the International Organizing Committee

VI International Symposium on Olive Growing
Évora, 9-13 September 2008
Pedro Fevereiro, Cidália Peres, Dulce Brito - Members of Organizing Committee.

V National Symposium on Olive Growing 2009
Santarém, September, Cidália Peres - Organizing Committee

Workshop "**Structure, dynamics, and function of proteins**"
Oeiras, 17-19 September, 2008
Miguel Teixeira, Peter Hildebrandt and Cláudio Soares - Organizing Committee

Biocrys Course "**Course on fundamentals of modern Methods of Biocrystallography**"
Oeiras, 4-11 October 2008
Maria Arménia Carrondo and Thomas Schneider – Organizers

Worshop "**Women Involved in the Science of the Future Seminars and Round Table Discussion: A scientific career in Portugal**"
Oeiras, 13 October, 2008
Claudina Pousada - Organizer

21st Annual and International meeting of the Japanese Society for Animal Cell Technology
Fukouka, Japan, November 2008
Paula Alves - Member of the Organizing Board

Session "**Thermodynamic Properties**" of the 5-day Symposium titled "**Ionic Liquids: From Knowledge to Application**" for the 236th American Chemical Society National Meeting
Philadelphia, USA, 17-21 August, 2008
Luís Paulo Rebelo - Organizer (Chair)

ITQB Researchers as Members of Scientific Committees

Hermínia De Lencastre
International Advisory Board of the "8th International Meeting on Microbial Epidemiological Markers" (IMMEM08) Zakopane, Poland. May 2008.

Lígia Martins
Scientific Committee of the "Oxizymes in Helsinkis 4th European Meeting of OXIZYMES" Helsinki, Finland. June 2008.

Hermínia De Lencastre
International Advisory Board of the "6th International Symposium on Pneumococci and Pneumococcal Diseases" (ISPPD-6). Reykjavik, Iceland. June 2008.

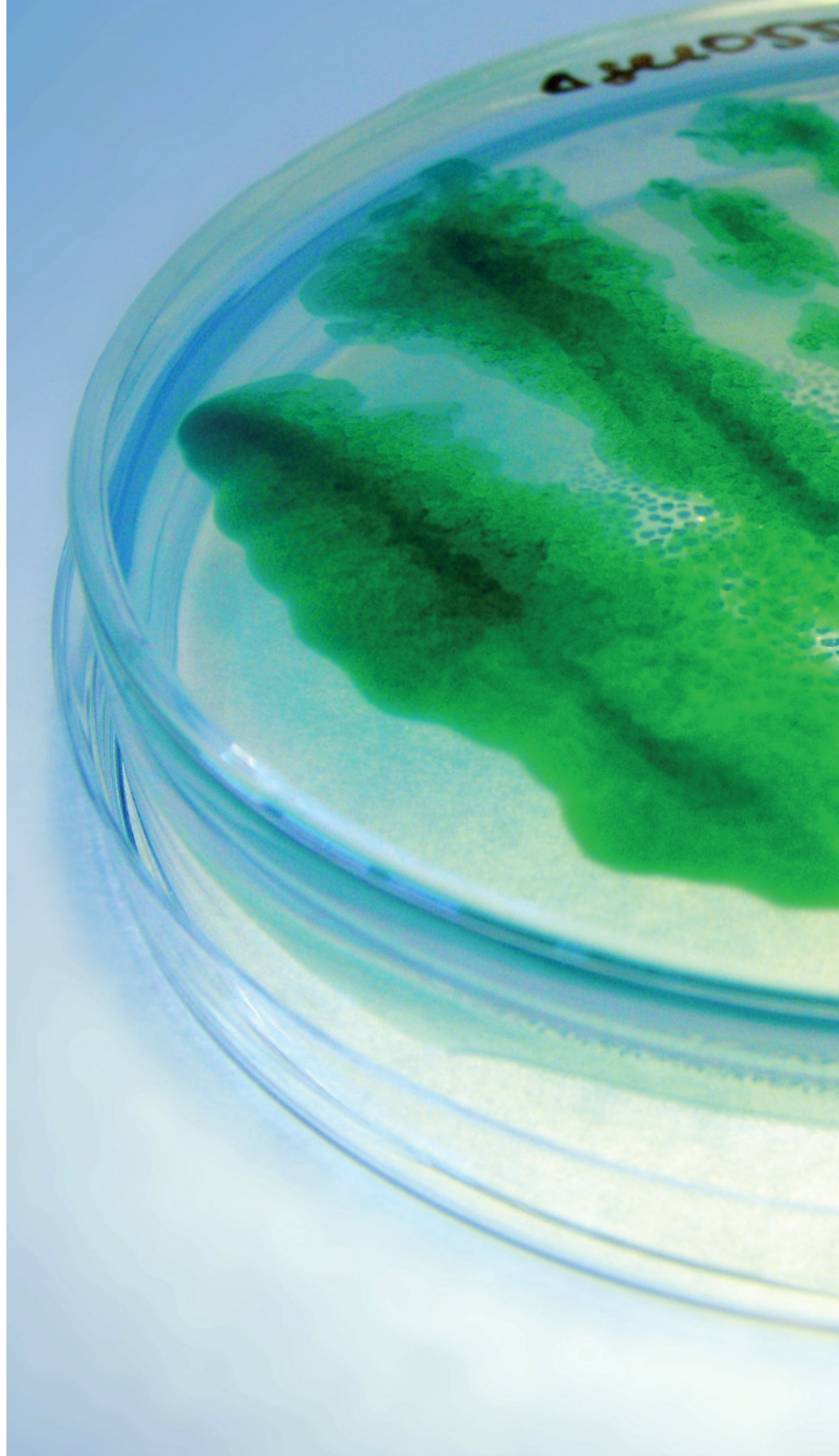
Phil A. Jackson
International Scientific Committee of the "The 8th International Peroxidase Symposium". Tampere, Finland. 20-24 August 2008

Duarte C. Oliveira
International Scientific Committee of the "13th International Symposium on Staphylococci and Staphylococcal Infections" (13th ISSSI). Cairns, Australia. September 2008.

Paula Alves
Scientific Committee of the "5th Recombinant protein production meeting: an integrated view of host physiology". Sardinia, Italy, September 2008.

Cidália Peres
Dulce Brito
Scientific Committee of the "VI International Symposium on Olive Growing". Évora, Portugal, September 2008.

Manuela Chaves
Scientific Committee of the "XVI National Congress of Biochemistry". Ponta Delgada. October 2008.



Seminars

Once a week at 12 o'clock, ITQB researchers give a seminar for the whole institute. These Science Conferences at Noon (or SCANs) are not listed here and can be found at *www.itqb.unl.pt/events*, together with other scientific events at ITQB.

A list of the main invited seminars that took place in 2008 at ITQB is listed below:

Therapeutic Proteins: Strategies in Synthetic Biology
Gonçalo Bernardes ETH Zürich, Switzerland

AVX: Health seen from the point of view of food
Francisco Xavier Malcata, UCP

Curbing CA-MRSA in Denmark - Search and Destroy Works
Henrik Westh, Hvidovre Hospital, University of Copenhagen

Protein Folding and Binding in the Cell - In Vitro Approaches
Pernilla Wittung-Stafshede Umeå University, Sweden

Eyeing Pathogen's Adaptive Evolution: Different "Stories" per Infected Organs
João Paulo Gomes, INSA, Lisbon

AVX: From molecules to systems: deciphering the molecular basis of neurodegeneration
Tiago Fleming Outeiro, IMM-UL

Re-aggregated brain cell culture as a sensitive in vitro model
Anna Price Institute of Health and Consumer Protection, European Commission Joint Research Centre, Ispra (VA), Italy

AVX: New challenges in electrochemical biosensors
Christopher M.A.Brett, FCT-UC

DeGois Curricula at ITQB
Leonel Duarte dos Santos, Universidade do Minho

Molecular chaperones in protein folding and signal transduction
Saskia van der Vies, VU University

Amsterdam Drought tolerance in maize, an important crop in agriculture
Montse Pagès, Instituto de Biología Molecular de Barcelona (IBMB-CSIC)

AVX: Translational Medicine
António Coutinho, IGC

The role of peptidoglycan in host-microbe interactions
Ivo Boneca , Institut Pasteur

A comprehensive study in optimal production of Active Pharmaceutical Ingredients with Pichia pastoris
Reiner Luttmann, Hamburg University of Applied Sciences

Bioprocess Optimization By Using Systems Biology
Manuel Cánovas, Faculty of Chemistry. University of Murcia

Interrogation of Reactions and Processes on the Nanoscale via Single Nanoparticle Spectroscopy
Alison M. Funston University of Melbourne, Australia

On the Rate Limiting Event in Protein Electron Transfer: Protein Dynamics vs. Electron Tunnelling
Daniel H. Murgida, INQUIMAE - Universidad de Buenos Aires

C. elegans as a model system for human disorders
Susana M. D. A. Garcia, Massachusetts General Hospital / Harvard Medical School, Boston, USA

The Navy, Biotechnology, and Energy
James R. Frank, U.S. Office of Naval Research Global

How does the anaerobic human parasite Giardia intestinalis cope with oxygen?
Alessandro Giuffrè University of Roma "La Sapienza", Italy

Uracil in DNA: error or signal?
Beata G. Vertessy Howard Hughes Scholar, Sci. Advisor Institute of Enzymology Hungarian Academy of Sciences

Going in Circles: Quorum sensing, small RNAs, and feedback loops
Kim Tu Princeton University,USA

High-Resolution 1H Solid-State NMR Spectroscopy to Study Materials: Techniques and Applications
Luís Mafra, CICECO / Aveiro University

Catalytic Mechanism and Evolutionary traits of zinc b-lactamases: Does it take two to tango?
Alejandro J. Vila, Instituto de Biologia Molecular y Celular de Rosario (IBR), Argentina

Small RNAs: Mediators of Gene Regulation, Catalysis and Silencing Dinshaw
J. Patel Abby Rockefeller Mauzé Chair in Experimental Therapeutics Member, Structural Biology Program Memorial Sloan-Kettering Cancer Center New York, USA

The Silver Anniversary of Clinical Protein Production from Recombinant CHO Cell Culture
Matthew Croughan, Keck Graduate Institute (KGI), CA

Use of redox metalloenzymes as bioelectrocatalysts for fuel cells development
Antonio de Lacey Instituto de Catalisis, CSIC, Madrid

Novel Approaches for Improved Crops - Applied Phenotyping and Metabolite Profiling
Andreas Renz, BASF Plant Science

The role of mass spectrometry in protein studies
Peter Roepstorff University of Southern Denmark at Odense, DK

The biodiversity of Penicillium and Aspergillus, two economical important fungal genera
Robert Samson CBS, The Netherlands

L1-CAM in human carcinomas: from cell biology towards immunotherapy and better diagnosis
Peter Altevogt, German Cancer Research Center

LIQST _liquid state
Anabela Costa, artist

Lanthanide(III) complexes of phosphorus-containing cyclen derivatives: structural aspects and their implications for design of MRI contrast agents and bone targeting ligands.
Petr Hermann, University Karlova (Charles University), Prague, Czech Republic

Listeria: Hijacking to invade
Didier Cabanes, IBMC

New Catalysts for the Synthesis of High Value Added Epoxides
Marta Abrantes, FEUP

The structural basis of interspecies bacterial communication
Stephan Miller, Swarthmore College, USA

From Gene to Phenotype: tracking evolution of staphyloccocal drug resistance
Alexander Tomasz, The Rockefeller University

The Proton Pump of Cytochrome Oxidase
Robert B. Gennis, University of Illinois, USA

Structure of a cyclic nucleotide-regulated
João Henrique Morais Cabral, Instituto de Biologia Molecular e Celular

Transcriptional Regulators for Sugar Transport and Metabolism
Winfried Boos, Department of Microbiology, Konstanz University, Germany

Designer lipid-like peptides stabilize membrane proteins
Shuguang Zhang, Center for Biomedical Engineering NE47-379, Center for Bits & Atoms Massachusetts Institute of Technology

Name is Bond. Chemical Bond
José Artur Martinho Simões, FCUL

Blood and Iron
Robert Crichton, Université Catholique de Louvain, Belgium

Prepared for global warming? Genetic diversity at a rice locus that triggers an escape or endurance strategy to overcome submergence stress
Julia Bailey-Serres, University of California, USA

Mechanisms of Food Allergic Reactions
Joyce Boye, Food Research and Development Centre Agriculture and Agri-Food, Canada

AVX: António V. Xavier Seminars

Education Output

PhD Theses
completed in 2008

Paula Cristina Trindade Lima Gaspar (Biochemistry)
"Metabolic engineering of *Lactococcus lactis* for mannitol production: the role of NADH-dependent dehydrogenases in directing carbon fluxes"
Supervisor: Helena Santos

Luís Pedro Gafeira Gonçalves (Biochemistry)
"Osmo- and thermo-adaptation in hyperthermophilic *Archaea*: identification of compatible solutes, accumulation profiles, and biosynthetic routes in *Archaeoglobus spp*"
Supervisor: Helena Santos

Rita Maria Cruz de Campos Batista (Biology)
"Avaliação do impacto da engenharia genética de plantas nas alergias e na alteração da expressão génica"
Supervisor: Maria Margarida Oliveira

Cristina Maria Mendes Branco Price (Biology)
"Gene expression in response to hypoxia stress in *Arabidopsis thaliana*: transcriptional, translational and post-translational regulation"
Supervisor: Ricardo B. Ferreira/Julia Bailey-Serres

Diana Sílvia Medeiros Plácido (Biochemistry)
"Crystallographic studies on the human protein ADAR1 and a transglutaminase from *Bacillus subtilis*"
Supervisor:Maria Arménia Carrondo/Margarida Archer/Adriano Henriques

Jaime Manuel Pinto Combadão (Biology)
"Models of natural selection in structured populations and in populations that fluctuate in size"
Supervisor: Isabel Gordo

Carla Alexandra Duarte Jorge (Biochemistry)
"Transport, metabolism and physiological roles of compatible solutes of thermophilic bacteria: *Petrotoga miotherma* and *Rhodothermus marinus*"
Supervisor: Helena Santos

Andreia Isabel Ferreira Veríssimo (Biochemistry)
"Thermodynamic redox behaviour of heme-copper oxygen reductases"
Supervisor: Miguel Teixeira/Manuela Pereira

Teresa Isabel Cocheno Rodrigues (Chemical Engineering)
"Purification of Retroviral Vectors for Gene Therapy: Process Development and Product Characterization"
Supervisor: M.Carrondo/Pedro Cruz

José Manuel Café Inácio (Biology)
"Molecular analysis of arabinan degradation in *Bacillus subtillis*"
Supervisor: Isabel Sá Nogueira

Gonçalo Martins Conde da Costa (Biochemistry)
"*Drosophila* kinetochore protein characterization and functional study of *Droshophila* Sgt1"
Supervisor: Ana Coelho/Álvaro Tavares

Ana Alexandra Figueiredo Matias (Chemical Engineering)
"Desenvolvimento De Óleos Alimentares Funcionais - Da Ciência à Aplicação"
Supervisor: Catarina Duarte

Marta Sofia Guedes de Campos Justino (Biochemistry)
"A study of microbial defence strategies against nitrosative stress"
Supervisor: Lígia Saraiva

Nelson Alexandre da Cruz Soares (Biochemistry)
"Wound-related changes in the apoplast proteome of *Medicago truncatula* and their association with early steps in ROS signal transduction pathway"
Supervisor: Philip Jackson

Tiago Filipe dos Santos Lourenço (Biology)
"Addressing abiotic stress tolerance in rice (*Oryza sativa* L.) through a transgenic approach"
Supervisor: Cândido Pinto Ricardo

Sónia Sandra Cabrita Negrão (Biology)
"Breeding for semidwarfism and blast resistance of traditional portuguese rice varieties by marker-assisted backcrossing"
Supervisor: M.Oliveira/D.Mackill

Lília de Fátima Gomes Perfeito-PGDB (Biology)
"Dynamics of adaptation in populations of *Escherichia coli*"
Supervisor: Isabel Antunes Gordo

José Eduardo Marques Andrade (Biology)
"The role of Exoribonucleases in growth phase control and their function in the degradation of RNA"
Supervisor: Cecília Arraiano

Catarina de Cértima Fernandes Homem (PGDBM) (Biology)
"Regulation of cadherin-based cell adhesion and its interaction with the cytoskeleton"
Supervisor: Moisés Mallo

Master Theses
completed in 2008

Ana Sofia Carvalho Paiva Fernandes Pires (Biology)
"Plant cell cultures as an alternative system for the production of glycoproteins: Expression and purification of native and recombinant proteins"
Supervisor: Pedro Fevereiro/Rita Abranches

Sílvia Maurício Correia (Biology)
"Viral modulation of interferon responses"
Supervisor: Michael Parkhouse

Ana Lúcia Gomes Almeida Pereira Mena (Biology)
"Regulation of the pró-apoptotic protein Bim EL during mitosis and mitotic slippage"
Supervisor: Sukalyan Chatterjee

David Vítor Marçal Pinto (Biochemistry)
"Structural studies on family III alcohol dehydrogenases from pathogenic bacteria"
Supervisor: M. Arménia Carrondo/Francisco Enguita

Sónia Cristina Alves Dickson Leal Solano (Biochemistry)
"Protein folding, metal ions and conformational states – the case of a di-cluster ferredoxin"
Supervisor: Cláudio Gomes

Sandro Filipe Fernandes Pereira (Biology)
"Penicillin-binding proteins in the cell cycle of *Staphylococcus aureus*"
Supervisor: Hermínia de Lencastre/Alexander Tomasz/Adriano O. Henriques

Marijana Blésic (Chemical Engineering)
"Phase Behaviour of Alternative Solvents"
Supervisor: Luís Paulo N. Rebelo

Jorge Augusto Machado Pereira (Biochemistry)
"Deciphering the role of Yap4 phosphorylation under stress conditions"
Supervisor: Claudina R.Pousada

Cristina Isabel Tavares Pereira (Biochemistry)
"Peptidolític System and Bioenergetics of Biogenic Amine Production in Lactic Acid Bacteria"
Supervisor: Teresa Crespo/Mª Vitória S. Romão

David Zeferino D'Azevedo Cristina (Biology / Genética Molecular)
"A Regulated Response to Mitochondrial Dysfunction Modulates Longevity and Rates of Living"
Supervisor: Cynthia Kenyon/Jorge Carneiro

Ana Catarina Heitor Martins Cardoso
"Efluxo de substâncias fluorescentes através da parede de *Escherichia coli*: correlação com a resistência fenotípica aos antibióticos em estirpes gram-negativas de origem clínica"
Supervisor: Miguel Viveiros

Ana Margarida Rodrigues de Matos
"O Papel de HFQ no Controlo Pós-Transcricional do Pequeno RNA Mica"
Supervisor: Cecília Arraiano

Joana Filipa da Silva Costa
"Infecção Nosocomial por *Legionella pneumophila* serogrupo 1: Estudo Epidemiológico"
Supervisor: Teresa Marques

Joana Patrícia Pereira Batista Braga
"Polimorfismos Genéticos Naturais da Região Codificante da Integrase do Vírus da Imunodeficiência Humana Tipo 1 (HIV-1) e Resistência a Agentes Anti-retrovirais"
Supervisor: João Piedade

Maria Margarida Horta Soares Lobão Serejo
"Detecção de *Legionella* spp. em amostras clínicas por reacção em cadeia da polimerase em tempo real"
Supervisor: Teresa Marques

Patrícia Cláudia Martinho Guimarães
"Caracterização de Estirpes de *Streptococcus agalactiae* de Colonização Vaginal e/ou Rectal da Grávida"
Supervisor: Ilda Sanches/Filomena Pereira

Sofia Andrea da Conceição Lucas
"Identificação específica das variedades de *Cryptococcus neoformans* e de *Cryptococcus gattii* por amplificação isotérmica do gene CAP59"
Supervisor: Maria da Luz Martins/ João José Inácio Silva(FCT/UNL)

Sofia Maria Mourão Marques dos Santos Costa
"Caracterização Fenotípica e Genotípica de uma Estirpe de *Staphylococcus aureus* Exposta a Brometo de Etídeo"
Supervisor: Isabel Couto

Vera Filipa Carreira de Oliveira
"Avaliação da resistência a fluoroquinolonas em isolados de *Streptococcus pyogenes* de colonização e infecção e relação genotípica dos isolados"
Supervisor: Ilda Sanches

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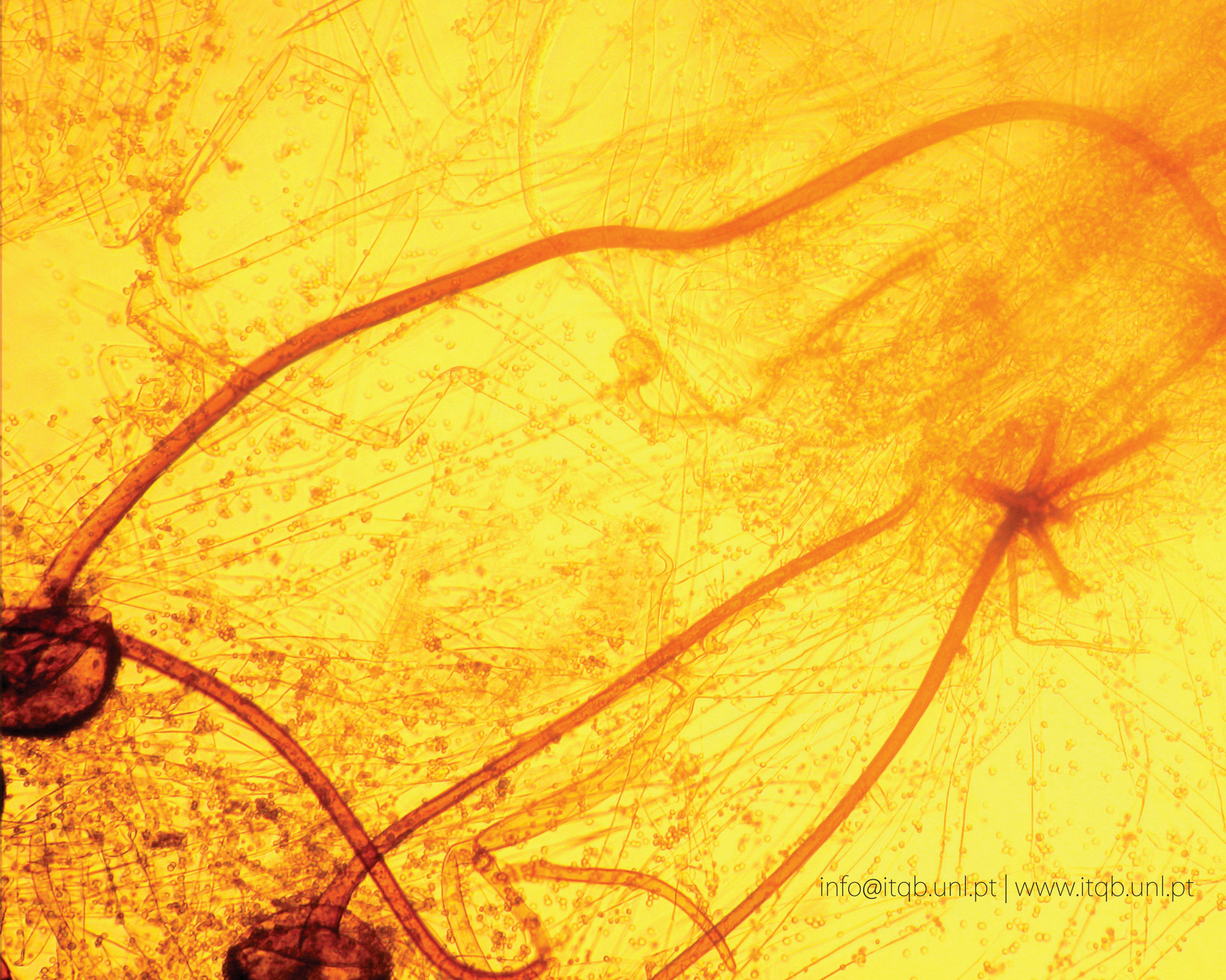

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