

# PORTUGAL 2003 post-graduated training programme

CB-UM Centro de Biologia da Universidade do Minho

## 2 to 14 June plasma membrane transporters - physiology, genetics and phylogeny

### organizing committee

Margarida Leal, Cláudia Laran  
CB-UM Centro de Biologia da Universidade do Minho

### scientific advisor

André Goffeau  
FIMA Unit of Biochimie Probiotique, Université Catholique de Louvain, Belgium

### lecturers

André Goffeau  
FIMA Unit of Biochimie Probiotique, Université Catholique de Louvain, Belgium  
Rudolf Wagner-Daube  
Institut National de la Santé et de la Recherche Médicale, Université Paris VI and VII, France  
Nana Sychova  
Dept. Microbial Transport, Inst. Physiology-Czechoslovak Academy of Sciences  
Cecília Lalla  
Faculdade de Ciências da Saúde, Univ. do Minho, Portugal  
Marta da Conceição Loureiro-Oliveira  
Dep. de Botânica e Engenharia Biológica, Instituto Superior de Agronomia, Portugal  
Isabel Tempos-Martins  
IETAH Instituto Técnico de Investigação, Fac. de Ciências e Tecnologia, Univ. Nova de Lisboa, Portugal  
Isabel Sá-Correia  
Unidade de Engenharia Biológica e Química, Instituto Superior Técnico, Portugal  
Teresa Moura  
Fac. de Ciências e Tecnologia, Univ. Nova de Lisboa, Portugal  
Margherita Comolli, Cláudia Laran, Mariana Clara-Rod, Fernando Chaves, Maria João Sousa, Ricardo Cordeiro, Fátima Bulhões, Sandra Palma, Cláudia Quintais, Isabel TTT Ruf Oliveira, Lúcia Neves  
Departamento de Biologia, Universidade do Minho, Portugal

### main topics

Mechanisms of membrane transport in yeasts. Phylogenetic classification of yeast transporter proteins. Cellular transport mechanisms, kinetics and energetics. Yeast sugar, amino, glycerol and ion permeases. In yeast transport mechanisms: characterization, gene expression and regulation. Transport of sugars in yeast cells. Potassium, water and glycerol channels and carriers in yeasts and animal cells. Biogenesis of transport proteins in yeasts: characteristics and mechanisms of quality control in the secretory pathway. Trafficking of plasma membrane proteins along the secretory pathway. The role of transporters in resistance to multiple drugs and stress. Purification strategies of expressed membrane proteins. Reconstitution of membrane proteins into liposomes. Applications of transporters (transporters) for generating bioenergy. Utilization of GFP as a marker for studying expression and turnover of transporters. Strategies for enhancement of membrane proteins in yeasts. „Cellulose and „Rice

## 18 to 21 June workshop on plant stress biology

### organizing committee

Rui M. Soares, Alberto C. Dias, Ana Cunha, Helder Góes, Teresa Lima-Ribeiro  
Departamento de Biologia do Universidade do Minho  
Associação Portuguesa de Biologia Molecular e Agro-Industrial (AMPBIA)

### lecturers

Christina Foyer  
MRC, Harpenden, UK  
Erich Kombernik  
Max-Planck Institut, Germany  
Fernando Teodoro  
Univ. de Coimbra, Portugal  
Marta Celeste Ambrósio  
Fac. de Ciências do Universidade de Lisboa, Portugal  
Mário Eduardo Pires  
Univ. Nova de Lisboa, Universidade de Lisboa, Portugal  
Marta da Cília Silva  
CICP, Portugal  
Marta Manuela Chaves  
Instituto Superior de Agronomia, Portugal  
Murray Grant  
Imperial College, UK

### workshop structure and topics

part I: 18 and 19 June  
Experimental work including analysis of reactive oxygen species, relative stress-scavenging enzymes, and secondary metabolism  
part II: 20 and 21 June  
Invited speakers will give plenary lectures and young scientists are invited to present short oral communications

## 30 June to 4 July molecular methods in the identification and typing of microorganisms

### organizing committee

Célia Paix, Paula Salgueiro, Alexandra Cordeiro  
CB-UM Centro de Biologia da Universidade do Minho

### lecturers

Célia Paix, Paula Salgueiro, Alexandra Cordeiro, David Schaller  
Departamento de Biologia, Universidade do Minho, Portugal  
Rugina Terenzi, Lúcia Chambal, Sandra Chaves  
Dep. Biologia Aplicada, Fac. de Ciências da Universidade de Lisboa, Portugal

### main topics

Molecular identification and typing: an overview. Basic concepts and applications of molecular approaches: RFLP, PCR, Sequencing, Microsatellite analysis, Sequence and fragment analysis, Numerical analysis of molecular variability.

## 21 to 25 July genetic improvement of yeast strains with industrial application

### organizing committee

Maria João Sousa, Maria Jofre Almeida  
CB-UM Centro de Biologia do Universidade do Minho  
Francisco Rendes Gil e José António Pinto  
Departamento de Biotecnologia, Instituto de Agronomia e Tecnologia de Alimentos, Évora, Espanha

### lecturers

Maria João Sousa, Maria Jofre Almeida  
Cecília Araújo, Andréia Pacheco  
Departamento de Biologia, Universidade do Minho, Portugal  
Francisco Rendes Gil e José António Pinto  
Departamento de Biotecnologia, Instituto de Agronomia e Tecnologia de Alimentos, Évora, Espanha

### main topics

Recombinant expression in baker's yeast. Molecular tools: plasmids and integrative fragments, dominant selective markers, homologous recombination markers, expression levels, promoters. Introduction of new traits in yeasts: extension of substrate range, heterologous enzyme production, overproduction of essential nutrients. Characteristics and improvement of yeast performance: sugar metabolism, osmotic tolerance and heat tolerance/resistance, glycerol tolerance. Strategies and targets for the improvement. Bio-„Cellulose“ production. Strain improvement by protoplast fusion.

## 8 to 12 September from protein to gene, from gene to protein

### organizing committee

Orlinda Aguiar, Cláudia Laran  
CB-UM Centro de Biologia da Universidade do Minho  
Eulália Pires, Carlos Fares, Paula Veríssimo  
Dep. de Biologia Molecular e Biotecnologia do CMC, Universidade de Coimbra

### lecturers

Eulália Pires, Carlos Fares, Paula Veríssimo, Inês Soares, Pedro Coimbra  
Dep. de Biologia Molecular e Biotecnologia do CMC, Universidade de Coimbra  
Orlinda Aguiar, Sílvia Silva  
Departamento de Biologia, Universidade do Minho, Braga, Portugal

### main topics

Recombinant proteins. Protein Engineering. Genetics „error“ Problems. Bioinformatics. Site directed mutagenesis and heterologous expression of GST fusion proteins. Expression, purification and characterization of recombinant proteins.

## 15 to 19 September methods for ecotoxicological assessment in terrestrial environments

### organizing committee

Fernanda Cidre, Cláudia Feresol  
CB-UM Centro de Biologia da Universidade do Minho

### lecturers

José Paulo Sousa  
Faculdade de Ciências e Tecnologia da Universidade de Coimbra  
Fernanda Cidre, Cláudia Feresol  
Departamento de Biologia, Universidade do Minho, Portugal

### main topics

Basic concepts on ecological risk assessment. Measurements at different biological levels of organization. Types of bioassays. Laboratory, field, assessment. The use of ecotoxicity tests in field approaches for risk assessment. Risk assessment of chemicals „contaminated“ soils (coping existing and developing new concepts). Data analysis in ecotoxicology

dep. biologia  
Universidade do Minho

### courses location

Department of Biology - Minho University  
4700-067 Guimarães - Braga - PORTUGAL

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