Biomedical and Biopharmaceutical Research
Jornal de Investigação Biomédica e Biofarmacêutica

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# CBiOS Science Sessions - 2014 -

UNIVERSIDADE LUSÓFONA
RESEARCH CENTER IN BIOSCIENCES & HEALTH TECHNOLOGIES

## Laboratório de Análises Clínicas e Histopatologia - Presentation, services ans research projects

*Laboratório de Análises Clínicas e Histopatologia - Apresentação, serviços e investigação de projetos*

**Pedro Faísca**

CBiOS - Research center for Health Sciences & Technologies, U. Lusófona, Campo Grande 376,
1749-024 Lisboa, Portugal

**Abstract**

The "Laboratório de Análises Clínicas e Histopatologia (LACH)" provides diagnostic medical testing to assist veterinarians of the FMV-ULHT veterinary hospital in identifying and controlling disease conditions affecting animals. The LACH is situated in the ULHT Campus and provides the following diagnosis services: hematology, clinical biochemistry, urinalysis, microbiology, parasitology, immunology, molecular biology, citology and histopatology to fulfill our goals, we possess highly skilled professionals and high-tech equipment. The laboratory also provides collaborative research support and assists training of veterinary and other graduate students.

**Lecturer's resumé**

Veterinary Degree by the University of Trás os Montes e Alto-Douro in 2000.
D.E.A.Sc.V. Diplôme d'Etudes Approfondies en sciences vétérinaries, by the Veterinary Faculty of the University of Liège, Belgium in 2002
PhD- Docteur en Sciences Veterinaires, by the Veterinary Faculty of the University of Liège, Belgium in 2007
Lecturer of General and Special Pathology since 2005 at the Veterinary Faculty of ULHT
Researcher at the Centro de Investigação em Ciências Veterinárias (CICV)
Technical Director of the Histopathology and Clinical Laboratory (LACH) of the Veterinary Faculty of ULHT since 2010.
Head of the Histopathology Department of DNATech since 2006
Secretary of Portuguese Society of Animal Pathology between 2011-2013; 2013-2015
Member of the Ethical and Animal Welfare Committee (CEBEA) of FMV-ULHT since 2012

January | Janeiro 2014
Universidade Lusófona, Campo Grande 376, 1749-024 Lisboa, Portugal

## Topical and Implantable Drug Delivery Systems

*Sistemas de Veinculação de Fármacos (Tópicos e Implantáveis)*

**Joana Portugal Mota**

CBiOS - Research center for Health Sciences & Technologies, U. Lusófona, Campo Grande 376,
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**Abstract**

Alternatives to oral delivery systems are a major focus in pharmaceutical technology. Topical and implantable drug delivery systems are very interesting alternatives. Still, they present several challenges. Therefore, our work focuses on the effect of silicones on the drug permeation from semi-solid formulations. The storage stability of biocellulose films was also studied. In addition, drug and lipid type and implant size were evaluated regarding the drug release from lipid implants. Ongoing studies include implants loaded with proteins.

**Lecturer's resumé**

Lecturer in Galenic Pharmacy, Drug delivery Systems, Pharmaceutical Technology I and II at ECTS - ULHT, where she also develops her research projects as a member of CBIOS. Joana Portugal Mota is graduated in Pharmaceutical Sciences (Faculty of Pharmacy, Coimbra University). She has a PhD degree in Pharmaceutical Technology (Freie Universität Berlin, Germany). Her main research interest is developing advanced drug delivery systems, focusing on their physico-chemical characterization and underlying drug release mechanisms. She has published work on these subjects.

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# CBiOS Science Sessions - 2014 -

## Grounded theory: the construction of a medium-range theory in nursing

*Grounded theory: A construção de uma teoria de médio-alcance em enfermagem*

**Maria João Soareas Rodrigues de Sousa Fernandes**

CBiOS - Research centerfor Health Sciences & Technologies, U. Lusófona,
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**Abstract**

Currently, there is a major interest in the nanotechnology field for finding complementary approaches to obtain multifunctional and hybrid nanosystems that fulfill the main drawbacks related with poor drug bioavailability and safety. These drug delivery systems intend to become therapeutically more effective, acting as targeting medicines to specific cell pools and, consequently, reducing common side effects and improving patient compliance. In this work, we described three different approaches associated with different nanosystems' formulations, mainly through their physical and chemical characterization, which were developed in our research group. First, we developed polymeric nanoparticles for a sustained release of steroids and local retention at the skin surface for treatment of inflammatory diseases, such as atopic dermatitis. Further, we studied more complex hybrid polymeric-lipid (HPL) nanocapsules for delivery of anti-inflammatory and anti-cancer substances, for skin cancer treatment. Finally, aiming a deeper penetration into the biological barriers, we developed metallic-based multifunctional nanoparticles for their application in cancer photodynamic therapy. In conclusion, we demonstrated that a continuous achievement and conjugation of different biomaterials can lead to different pathways for improvement of the treatment's safety and efficiency. Future work should focus on conducting *in vitro* and *in vivo* studies to confirm the potential of these systems.

**Lecturer's resumé**

Professora Coordenadora na Escola Superior de Saúde Ribeiro Sanches (ERISA) – Grupo Lusófona (desde março de 2012): Membro do Conselho Técnico-Científico.
Doutorada em Enfermagem pela Universidade Católica Portuguesa (2011).
Mestre em Ciências da Enfermagem pela Universidade Católica Portuguesa (1996).
Especialista em Enfermagem de Saúde Pública pela Escola Superior de Enfermagem de Lisboa (1990).
Investigadora na Unidade de Investigação para o Desenvolvimento da Enfermagem (UI&DE) da Escola Superior de Enfermagem de Lisboa.
Investigadora no Gabinete da Qualidade e Estudos Sociais e Saúde - ERISA.
Investigadora no Centro de Investigação em Ciências e Tecnologias da Saúde (CBIOS) - Universidade Lusófona.

Área de investigação: enfermagem e envelhecimento.



## Enzyme Inhibition and Bioapplications

*Inibição de enzimas e Bioaplicações*

**Marisa Nicolai**

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**Abstract**

In order to decrease metabolic instability some compounds are used as enzyme inhibitors. These molecules bind to enzymes decreasing its activity by preventing them to catalyze their reactions. Some of these compounds can be used as drugs (antibiotics, sedatives and stimulants...).
Currently there is growing interest in finding new molecules which may be used in the treatment of certain diseases that involve metabolic enzymes, such as acetylcholinesterases, tyrosinases and cyclooxygenases (COX). These substances are suitable for use as pharmaceuticals for the treatment of symptoms of Parkinson's disease through the inhibition of acetylcholinesterase, as anti -inflammatory, through inhibition of COX, or for prevention or treatment of hyperpigmentation and melasmas, by inhibiting tyrosinase.
Thirty-six new molecules were synthesized, based on natural products, and tested their percent inhibition of acetylcholinesterase. For determination of IC50, substances which have demonstrated more than 50 % inhibition were selected. Of these fifteen, three molecules showed an IC50 below 15 □M. Docking results, handled in parallel, corroborate the laboratory results.
Screening of molecules that inhibit COX and tyrosinase enzymes activities are being process, soon new results will be presented simultaneously with the computer simulations.

**Lecturer's resumé**

Chemist, expert in Bio-inorganic Chemistry. Member of CBIOS, Universidade Lusófona, Research Center in Biosciences & Health Technologies. Lecturer at ECTS - ULHT. Has several communications and publications in International peer-reviewed journals and meetings.