



## **New Therapies and Technologies**

*Tissue engineering and regeneration*

**April 11-15, 2011**

Regenerative Medicine can be defined as the development and manipulation of laboratory-grown molecules, cells, tissues, or organs to repair, replace or support the function of defective or injured body parts. By working on the development of novel cell culture techniques and the design of bioactive functionalized materials, tissue Engineering strategies have recently emerged as one of the most advanced therapeutic options presently available in regenerative medicine. The combination of Tissue Engineering with drug and gene delivery strategies could provide in situ and in a temporal, spatial and targeted manner the physiological concentrations of signaling molecules required for tissue regeneration.

In this module the main components of this new therapeutic approach will be presented and a number of examples discussed.

Specific topics of the program include:

- An introduction to tissue engineering
- Fundamentals of biomaterials science and engineering
- Stem Cells in Regenerative Biology and Medicine
- Cell-material interactions at the molecular level
- Examples of application

### **Invited Speakers**

#### **Pedro Baptista**

*Wake Forest Institute for Regenerative Medicine, Winston-Salem, North Carolina, USA*

“How to make a liver for dummies”

#### **Mário Barbosa**

*INEB, NEWTherapies Group, Universidade do Porto, Portugal*

“Cell-Biomaterial Interactions in Repair and Regeneration”

#### **João Pedro Conde**

*Department of Bioengineering, Instituto Superior Técnico, Lisboa, Portugal*

“Lab-on-a-chip systems for biosensing and cell studies”

#### **Pedro Granja**

*INEB, NEWTherapies Group, Universidade do Porto, Portugal*

“Tissue engineering strategies for bone regeneration”

#### **Meriem Lamghari**

*INEB, NEWTherapies Group, Universidade do Porto, Portugal*

“The concept of neuro-osteogenesis and its relevance in bone biology”

**M<sup>a</sup> Cristina L Martins***INEB, NEWTherapies Group, Universidade do Porto, Portugal*

"How to engineer biomaterial surfaces to target specific biological responses"

**Perpétua do Ó***INEB, NEWTherapies Group, Universidade do Porto, Portugal*

"The INEB's Stem Cell Biology Team at the Heart"

**Ana Paula Pêgo***INEB, NEWTherapies Group, Universidade do Porto, Portugal*

"Nerve regeneration – Can we do it?"

**Maria José Schuller***Division of Endocrinology and Metabolism and the UAMS Center for Osteoporosis and Metabolic Bone Diseases, University of Arkansas for Medical Sciences, Arkansas, USA*

"Unraveling the role of FoxOs in bone - lessons from mouse models"

**Carlos Sá***Centro de Materiais da Universidade do Porto, Porto, Portugal*

Visit to CEMUP

**Manela Brás, Ricardo Vidal and Susana Carrilho***INEB, Divisão de Biomateriais, Universidade do Porto, Portugal*

Visit to INEB

**Program**

11 April	12 April	13 April	14 April	15 April
8:45-9:00 Welcome			9:00-10:00 <b>Ana Paula Pêgo</b> <i>Break</i>	
9:00-10:30 <b>Ana Paula Pêgo</b> <i>Break</i>	9:00-10:00 <b>M<sup>a</sup> José Schuller</b> <i>Break</i>			<b>PROJECT</b>
10:45 -11:45 <b>Perpétua Pinto do Ó</b> <i>Break</i>	10:15-11:15 <b>M<sup>a</sup> José Schuller</b> <i>Break</i>	10:15-11:15 <b>Pedro Granja</b> <i>Break</i>	10:15-11:15 <b>Ana Paula Pêgo</b> <i>Break</i>	
12:00-13:00 <b>Perpétua Pinto do Ó</b>	11:30-12:30 <b>Meriem Lamghari</b>	11:30-12:30 <b>Pedro Granja (Aud. B)</b>	11:30-12:30 <b>M<sup>a</sup> Cristina Martins</b>	
		14:30-15:30 <b>João Pedro Conde (Aud. C)</b> <i>Break</i>		
	14:30-15:30 <b>Meriem Lamghari</b> <i>Break</i>	15:45-16:45 <b>João Pedro Conde (Aud. C)</b> <i>Break</i>	15:00-16:30 <b>Visit to INEB</b> <i>Break</i>	<b>PROJECT PRESENTATION</b>
<b>PROJECT</b>	15:45-16:45 <b>Pedro Baptista</b> <i>Break</i>	17:00-18:00 <b>Mário Barbosa (Aud. C)</b> <i>Break</i>	17:00-18:30 <b>Visit to CEMUP</b>	
	17:00-18:00 <b>Pedro Baptista</b>	18:15-19:15 <b>Mário Barbosa (Aud. C)</b>		

Unless mentioned otherwise, lectures will take place in the Main Auditorium of IBMC-INEB.