

**A HANDS-ON APPROACH TO STEM CELLS AND TISSUE CULTURE**  
*from cell isolation, manipulation and characterization to advanced microscopy*

**PROGRAMME - WEEK 1**

**Monday - March 2nd 2015**

**Cell and Tissue Culture**

- 09:00-09:20 Registration  
**ICVS/ECS hall**
- 09:20-10:30 Presentation, Introduction and Objectives  
T1: Cell and Tissue Culture I: Purpose, Advantages and Applications  
**António Salgado | room G2.02**  
T2: Cell and Tissue Culture II: Lab Design, Equipment and Aseptic Technique  
**António Salgado | room G2.02**
- 11:00-11:45 T3: Defined Media and Supplements  
**António Salgado | room G2.02**
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- 13:30-17:30 P1: Working with Cell Lines - Starting Cultures.  
**Margarida Saraiva, Henrique Machado, Filipa Cardoso | lab I2.04**
- 18:00-19:30 *Study period*

**Tuesday - March 3rd 2015**

**Cell and Tissue Culture**

- 08:30-09:15 T4: An Introduction to Primary Cell Cultures  
**Margarida Saraiva | room G2.02**
- 09:15-10:00 T5: Organotypic Cultures  
**António Salgado | room G2.02**
- 10:00-12:00 P2: Primary Cultures of Bone Marrow-derived Macrophages  
**Margarida Saraiva, Henrique Machado, Filipa Cardoso | lab I2.04**
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- 13:30-17:30 P3: Primary Cultures of Cortical Neurons  
**António Salgado, Sofia Serra, Fábio Teixeira | lab I2.04**
- 13:30-17:30 P4: Organ Cultures – Dorsal root ganglia explants  
**Nuno Silva, Eduardo Gomes, Rita Silva | lab I2.04**
- 17:30-19:30 *Study period*

**Wednesday - March 4th 2015**

**Cell and Tissue Culture**

- 09:00-10:00 T6: Transfection Techniques  
**Margarida Saraiva | room G2.02**
- 10:30-12:00 T7: Introduction of siRNA Transfection in Cultured Cells  
**Margarida Saraiva | room G2.02**
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- 13:00-15:00 P5: Transfection Techniques  
**Margarida Saraiva, Henrique Machado, Filipa Cardoso | cell culture rooms**
- 15:00-17:30 P6: Characterization of Primary Cell Cultures: Cell Viability and Immunohistochemistry  
**Rita Silva, Sofia Serra | lab I2.04**

**Thursday - March 5th 2015**

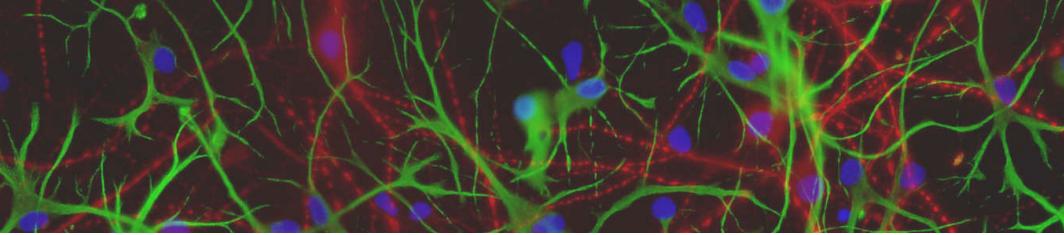
**Microscopy**

- 09:30-10:00 T9: Light Microscopy  
**Andreia Castro | room G2.02**
- 10:00-11:00 T10: Principles of Optical and fluorescence microscopy (part 1)  
**Andreia Castro | room G2.02**
- 11:30-12:30 T10: Principles of Optical and fluorescence microscopy (part 2)  
**Andreia Castro | room G2.02**
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- 14:00-16:00 P7: Exploration of light microscope anatomy, setup Köhler illumination, Brightfield, Phase contrast, DIC and Fluorescence  
**Goreti Pinto, Andreia Castro | microscopy labs**
- 16:30-18:30 T11: Optical section and Confocal microscopy  
**Andreia Castro | room G2.02**

**Friday - March 6th 2015**

**Microscopy**

- 09:30-10:30 T12: Applications of confocal microscopy  
**Igor Del Vecchio, Giovanni Giozzet | room G2.02**
- 11:00-12:00 T13: High resolution microscopy systems  
**Igor Del Vecchio, Giovanni Giozzet | room G2.02**
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- 13:30-15:30 T14: Live cell imaging and co-localization  
**Igor Del Vecchio, Giovanni Giozzet | room G2.02**
- 16:00-18:30 P8: Laser Scanning Confocal Microscope setup, image acquisition settings and co-localization  
**Igor Del Vecchio, Giovanni Giozzet, Andreia Castro, Goreti Pinto | microscopy labs**



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**PROGRAMME - WEEK 2**

**Monday - March 9th 2015**

**Stem Cells**

- 09:30-10:30 T15: Introduction to Stem Cell Biology  
**António Salgado | room G2.02**
- 11:00-12:00 T16: Mesenchymal Stem Cells: Tissue Sources and Characterization  
**Fábio Teixeira | room G2.02**

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- 14:00-15:00 T17: Neuronal cell fate in the adult brain  
- *Identification of neural stem cells and their anatomical locations*  
- *Differentiation potential in vitro and in vivo*  
**Luisa Pinto | room G2.02**

- 15:15-16:15 T18: The Stem Cell Niche in the adult brain  
- *The dominant nature of the niche and the control of stem cells homeostasis*  
- *The role of intrinsic and extrinsic factors*  
**Luisa Pinto | room G2.02**

**Tuesday - March 10th 2015**

**Stem Cells**

- 09:00-13:00 **Adult stem cells in the laboratory**  
P9: Isolation of adult neural stem cells  
P10: Preparation and observation of neurospheres cultures  
P11: Differentiation protocols and immunocytochemistry for the identification of neurons, astrocytes and oligodendrocytes  
**Luisa Pinto, Patrícia Patrício | lab I2.04**

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- 14:30-17:30 P12: Establishment of Primary Cultures of Rat Bone Marrow MSCs  
**António Salgado, Sofia Serra | lab I2.04**

**Wednesday - March 11th 2015**

**Stem Cells**

- 09:30-10:30 **Stem Cell and Biotechnology**  
T19: Mesenchymal Stem Cells Secretome: "Goodies" for CNS Regenerative Medicine  
**António Salgado | room G2.02**
- 11:00-11:45 T20: Bioreactors and Stem Cells: Expansion and Modulation  
**Fábio Teixeira | room G2.02**
- 11:45-12:30 T21: Neural progenitor cells modulation by inflammatory signals: in vs out  
**João Sousa | room G2.02**

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- 14:30-18:00 **Stem cells and *in vivo* animal models**  
T22: Transplantation Models  
**Fábio Teixeira, Nuno Silva | room G2.02**  
P13: In vivo Transplants - Practical Sessions  
**Luisa Pinto/Fábio Teixeira, ICVS**

**Thursday - March 12th 2015**

all day *Study period*

**Friday - March 13th 2015**

**Evaluation**

- 10:00-12:00 *Written Exam*  
**room A2.07**