

**FINAL REPORT**  
**International Course & Symposium**  
**“Neuron Glia Interactions in health and disease from basic Biology to translational Neuroscience”**

**Title of the course**

“Neuron Glia Interactions in health and disease from basic Biology to translational Neuroscience”

**Date and place**

October 18<sup>th</sup> – 25<sup>th</sup>, 2012 – Institut Pasteur de Montevideo, Instituto de Investigaciones Biológicas Clemente Estable, Facultad de Medicina, UdelaR - URUGUAY

**Organizers**

Dr. Luis Barbeito – Neurodegeneration Laboratory – Institut Pasteur de Montevideo  
Dr. Hugo Peluffo – Facultad de Medicina (UdelaR) & Institut Pasteur de Montevideo  
Dra. Natalia Lago – Facultad de Medicina (UdelaR) & Institut Pasteur de Montevideo  
Dra. Patricia Cassina – Facultad de Medicina (UdelaR)  
Dra. Silvia Olivera – Instituto de Investigaciones Biológicas Clemente Estable (IIBCE)

**Teaching Team**

Dra. Flavia Lima, Universidade Federal do Rio de Janeiro, Brasil  
Dra. Flavia CA Gomes, Universidade Federal do Rio de Janeiro, Brasil  
Dra. Vilma Martins, Instituto Ludwig-Sao Pablo, Brasil  
Dr. Alejandro Roth, Universidad de Chile, Chile  
Dra. Rommy von Bernhardi, Pontificia Universidad Católica de Chile, Chile  
Dr. Juan Carlos Saez, Pontificia Universidad Católica de Chile, Chile  
Dr. Fernando Pitossi, Fundación Instituto Leloir, Argentina  
Dra. Juana Pasquini, Universidad de Buenos Aires, Argentina  
Dra. Margarita Calvo, Kings College London, UK  
Dr. Alberto Ramos, Universidad de Buenos Aires, Argentina  
Dra. Carina Ferrari, Fundación Instituto Leloir, Argentina  
Dr. Luis Barbeito – Neurodegeneration Laboratory – Institut Pasteur de Montevideo  
Dr. Hugo Peluffo – Facultad de Medicina (UdelaR) & Institut Pasteur de Montevideo  
Dra. Natalia Lago – Facultad de Medicina (UdelaR) & Institut Pasteur de Montevideo  
Dra. Patricia Cassina – Facultad de Medicina (UdelaR)  
Dra. Silvia Olivera – Instituto de Investigaciones Biológicas Clemente Estable (IIBCE)

**Timetable**

**Thursday October, 18th**

- Module 1: Astrocyte neurobiology
- 9:00-9:45 Astrocytes overview. Silvia Olivera (UY)
- 9:45-10:30 Neuron-glia signaling: astrocyte differentiation and synapse formation. Flavia Gomes (BRA)
- 10:30-10:45 Coffee Break
- 10:45-11:30 Astrocyte reactivity in SNC damage. Patricia Cassina (UY)
- 11:30-12:15 Gliotransmission by hemichannels and their possible role in neurodegeneration. Juan Carlos Sáez (CHI)
- 12:30-14:00 Lunch
- 14:00-14:45 Astrocytes neuropathology, glioma. Flavia Lima (BRA)
- 14:45-16:00 Student presentations (x 4 15 min.)
- 16:00-16:15 Coffee Break
- 16:15-17:15 Student presentations ( x 4 15 min.)
- 17:15-18:00 Astrocytes and neurodegenerative diseases. Luis Barbeito (UY)

**Friday October, 19th**

- 9:00-9:40 The secretion of microvesicles by astrocytes as their neurotrophic properties. Vilma Martins (BRA)

**Module 2: Myelin forming cells**

- 9:45-10:30 Schwann cells overview. Natalia Lago (UY)
- 10:30-11:15 Oligodendrocytes overview. Alejandro Roth (CHI)
- 11:15-11:30 Coffee Break
- 11:30-12:15 Oligodendrocytes: Injury models and the role of iron. Juana Pasquini (ARG)
- 12:15-13:15 Conference: Hemichannels in the neurovascular unit and white matter under normal and inflamed conditions. Juan Carlos Sáez (CHI)
- 13:15-14:45 Lunch

### **Module 3: Microglia**

- 14:45-15:30 Overview to microglial cells. Hugo Peluffo (UY)
- 15:30-16:15 Microglial cell activation patterns: an additional dimension for a complex function. Rommy von Bernhardt (CHI)
- 16:15-16:30 Coffee Break
- 16:30-17:30 Conference: Neuroinflammation as a component of the neurogenic niche. Fernando Pitossi (ARG)
- 17:30-18:15 Conference: From bench to bedside. Margarita Calvo (UK-CHI)
- 19:30 -21:30 Asado

### **Saturday October, 20th - Symposium**

- 9:00-9:30 The pattern recognition receptor RAGE is involved in the neuron-glia crosstalk after brain injury. Alberto Javier Ramos (ARG)
- 9:30-10:00 Effects of neuroinflammation on neurodegeneration: Parkinson's disease. Fernando Pitossi (ARG)
- 10:00-10:30 Astrocytes as inductors of neurogenesis. Flavia Gomes (BRA)
- 11:00-11:15 Coffee Break
- 11:15-11:45 Aba cells a new paradigm. Pablo Díaz (UY)
- 11:45-12:15 Molecular Profile of Gliomas. Rafael De Armas (UY)
- 12:15-12:45 Metabolic modulation in astrocyte neurotoxicity. Patricia Cassina (UY)
- 12:45-14:00 Lunch
- 14:00-14:30 Peripheral inflammatory stimulus exacerbates the ongoing central lesions in neurodegenerative diseases. Carina Ferrari (ARG)
- 14:30-15:00 Microglia and pain. Margarita Calvo (UK-CHI)
- 15:00-15:30 Age-dependency of cytotoxic activation of microglia and their relevance for Neurodegenerative Disease. Rommy von Bernhardt (CHI)
- 15:30-16:00 The role of the immunoreceptor CD300f in neuron-glia interactions and neurotrauma. Hugo Peluffo (UY)
- 16:00-16:30 Microglia-glioblastoma interaction: the role of Stress Inducible Protein 1. Flavia Lima (BRA)
- 16:30-16:45 Coffee Break

- 16:45-17:15 In vitro studies of myelination. Alejandro Roth (CHI)
- 17:15-17:45 Oligodendrocytes and iron. Juana Pasquini (ARG)
- 17:45-18:10 Study of an early demyelination model and its possible correlation with schizophrenia. Victoria Rosato Siri (ARG)
- 18:10 -18:40 Oligodendrocytes in neurometabolic diseases. Silvia Olivera (UY)
- 18:40 Concluding remarks: Luis Barbeito (UY)
- 19:30 Cocktail

**October 22th - to 25th - Hands on experimental work**

7 hour/day

**Monday 22 - Tuesday 23 – Wednesday 24**

- 9:00-12:00 Experimental work
- 12:00-13:00 Lunch at Inst. Pasteur
- 13:00-13:45 Student presentations (x3 15 min.)
- 14:00-18:00 Experimental work

**Thursday 25**

- 9:00- 12:00 Experimental work
- 12:00 -13:00 Lunch
- 15:00 Final presentation of student experimental work.

**Groups:**

- A. Institut Pasteur de Montevideo- Facultad de Medicina- Astrocyte mediated neurotoxicity
- B. Institut Pasteur de Montevideo- Facultad de Medicina- In vivo glial phenotypes after Traumatic Brain Injury and Periferal Nerve lesions
- C. IIBCE- Culturing & recognising Glial cells.

**Total time:** 52 hs

## Students

Name	Surname	Institution	Country	E-mail
Maria Florencia	Angelo	Institute of Cell Biology and Neuroscience Prof. E. De Robertis(CONICET)	Argentina	florencia.angelo@gmail.com
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## Activity Report

### 1. General Summary

Glial basic biology to clinical relevance was stressed throughout the course, focusing on the different glial roles during development and normal nervous system biology as well as in disorders and strategies for glial targeted therapeutics. Direct experimental works were accomplished by the students and they presented results to the professors facilitating scientific interactions.

## 2. Scientific highlights

- a) Invited speakers included regional leaders in most of the topics that presented new findings at the symposium.
- b) National and regional students performed direct experimental work for that included glial isolation techniques as well as strategies to study cell to cell interactions
- c) Lunch, dinners and breaks generated opportunities that facilitated teacher-students interaction.

## 3. Organization

### a) Academic organization

The organizers defined the topics that would be included, formed the teaching team, contacted the speakers and outlined the timetable. They also selected the students to each practical activity taking into account the student profile, background and scientific interests. The committee also included several activities in which teachers and students share scientific questions and social activities.

### b) Administrative organization

The Unidad de Gestión Científica (UGC) of the IP Montevideo took care of every non-academic detail, from scheduling flight arrivals and departures to dealing with food, housing and related activities. Natalia Lopez from the UGC executed all the tasks with high professionalism.

## 4. Looking forward

We expect to locate this course and symposium as a bi-annual activity recognized in the agenda of regional courses in Neuroscience, with the further purpose of creating a Regional Advanced School devoted to the study of glial cells. We also would like to encourage the participation of clinicians in both the course and the symposium.

### Photos about the Course & Symposium





### Expenditures

Description	Amount USD
Reagents	508
Feeding	3548
Teaching	
Students Per Diem	
Stationery (CD, etc.)	
Tickets	358
Accommodation	
Urban Transportation	1554
Other (bank fee – no receipt)	
<b>TOTAL</b>	<b>5968</b>

Original documents kept at the Institut Pasteur de Montevideo.

The material was given in a USB memory and contained all the lectures and protocols of the course and seminar.