

# "Hands-on course on Glia Development and Pathology"





July 23 – July 27, 2012

## Graduate Program of Morphological Sciences,

### Institute of Biomedical Sciences, Federal University of Rio de Janeiro

Location:

23, 24, 27: Institute of Biomedical Sciences, UFRJ, Brazil

25, 26: RioCentro Convention Center, Rio de Janeiro, Brazil (10<sup>th</sup> International Congress on Cell Biology)

#### Organizers:

Adan Aguirre, PhD., Stony Brook University, New York, USA Flávia Alcantara Gomes, PhD., UFRJ, Brazil Cecilia Hedin Pereira, UFRJ, RJ, Brazil Ricardo A. de Melo Reis, UFRJ, RJ, Brazil Ana Paula Bérgamo Araujo, PhD, RJ, Brazil Clarissa Schitine, PhD., UFRJ, RJ, Brazil Joice Stipursky, PhD., UFRJ, RJ, Brazil Luciana Nogaroli, PhD., UFRJ, RJ, Brazil Marcelo Meloni, Msc., UFRJ, RJ, Brazil

This laboratory and lecture course is designed to provide students at all levels with a conceptual and practical understanding of several of the most advanced techniques to study glial cells in development and disease.

The course curriculum is divided into 2 sections: an extensive and up-to-date set of practical laboratory exercises and a daily lectures covering the theoretical and practical aspects of the various methods used in the laboratory to study glial cells. This course was designed to illustrate the ways in which the various experimental approaches have been used to advance specific areas of gliobiology in health and disease.

Laboratory practices will include topics such as:

- 1) Developing of the lysolecithin mouse model of focal demyelination and remyelination.
- 2) Use of retroviral particles to study neural progenitor cell migration and cell lineage analysis during demyelination and remyelination.
- 3) Isolation, culturing and maintenance of neural stem cells of the SVZ-niche during demyelination.



- 4) Development of a variety of immunohistochemistry and microscopic technologies to characterize glial cell populations during demeylination and remyelination.
- 5) Whole mount preparations of the SVZ-stem cell niche during normal and pathological brain conditions.
- 6) Comprehensive data analyses and interpretation, protocol troubleshooting, and suggestions for ways to improve or modify the existing technique will follow each laboratory section.

### Program:

# Monday, July 23<sup>rd</sup>

11:00h – 12:00h	Opening remarks on Gliobiology.
	Explanations about the course.
12:00h – 13:00h	PAN Conference Adan Aguirre: Animal models of brain injury: an
	approach to study endogenous neural stem cell properties and their
	potential role in brain repair.
13:00h – 14:00h	Lunch
14:00h – 17:00h	Theoretical background for practical activity
	<b>Practice 1 (PARTE I):</b> Whole mount preparations of the SVZ-stem cell niche during normal and pathological brain conditions.

## Tuesday, July 24<sup>th</sup>

9:00h – 12:00h	<b>Practice 1 (PARTE II):</b> Whole mount preparations of the SVZ-stem cell niche during normal and pathological brain conditions.
12:00h – 13:00h	Lunch
13:00h – 16:00h	Theoretical background for practical activity
	<b>Practice 2:</b> Developing of the lysolecithin mouse model of focal demyelination and remyelination.
16:00h – 18:00h	Confocal microscopy: Practice 1 and 2

# Wednesday, July 25<sup>th</sup>: Glia-related topics in the ICCB 2012 program

9:00h – 10:30h	<b>Course:</b> Neurobiology signaling and plasticity in glial cells. Flávia Gomes (Chair)
	Arturo Ortega (Cinvestav, Mexico) - Translational control of glia/neuronal coupling.

	Ricardo A Melo Reis (IBCCF-UFRJ, Brazil) Müller glia-neuronal
	interactions: transmitters and trophic factors.
10:30h – 10:45h	Break
10:45h – 12:15h	<b>Course:</b> Neurobiology signaling and plasticity in glial cells. Flávia Gomes (Chair)
	<b>Marcelo Felippe Santiago</b> (UFRJ, Brazil): Stem cell differentiation in central nervous system: role of calcium signaling.
	Adan Aguirre (SUNY at Stony Brook University, USA) NG2-expressing glia cells in the mature brain: potential role in brain homeostasis and psychiatric disorders.

# Thurday, July 26<sup>th</sup>: Glia-related topics in the ICCB 2012 program

8:30h – 10:00h	Symposium#11_Glia:
	Vivaldo Moura Neto (Federal University of Rio de Janeiro, Brazil)
	Bernardo Castellano (Universitat Autònoma de Barcelona, Spain)
	Arthur Morgan Butt (University of Portsmouth, United kingdom).
	Geoffrey Pilkington (University of Portsmouth, United kingdom).
	Tamara T. Lah (National Institute of Biology, Slovenia)
12:00h – 13:00h	Lunch
16:45h – 18:15h	<b>Symposium#17_Glia:</b> New signalling mechanism in synapse formation: implications for glial cells.
	Chair: Flávia Alcântara Gomes (Federal University of Rio de Janeiro, Brazil)
	<ul> <li>Frank Pfrieger (Institute of Cellular and Integrative Neurosciences (INCI), France)</li> <li>Arturo Ortega (Cinvestav, Mexico)</li> <li>Adan Aguirre (SUNY at Stony Brook University, USA)</li> </ul>

# Friday, July 27<sup>th</sup>

9:00h – 12:00h	Theoretical background for practical activity
	<b>Practice 3:</b> Characterization of the subventricular zone (SVZ) niche (SVZ- niche) and neural stem cells properties during demyelination: Neural stem cell culture
12:00h – 13:00h	Lunch

13:00h – 16:00h	<b>Discussion:</b> Use of retroviral particles to study neural progenitor cell migration and cell lineage during demyelination and remyelination: advantages and pitfalls.
16:00h – 17:00h	Discussion and Concluding Remarks.

#### REGISTRATION

Graduate students and postdocs are eligible. The applicant must provide the following documents:

- 1. Curriculum vitae;
- 2. Letter of intention expressing the relevance of the course to your research and career;
- 3. One letter of recommendation.

Selected students and postdocs will be supported to participate in the 10<sup>th</sup> International Congress on Cell Biology (ICCB) (25-28 July 2012).

Up to 3 Travel Awards will be provided to applicants (R\$1.000,00; approximately U\$500) from outside Rio de Janeiro city.

Applications Deadline: June 20, 2012.

Email: iglia.br@gmail.com

Nomination by June 30, 2012.