

ESCOLA DE ALTOS ESTUDOS



Programa Binacional de Terapia Celular
PROBITEC

Ministerio de
Ciencia, Tecnología
e Innovación Productiva
Presidencia de la Nación



Course on Induced Pluripotent Stem Cells *Generation, Manipulation and Applications*

Course Program

Date: September 23 to 28, 2011

Venue: Centro de Biotecnologia e Terapia Celular, Hospital São Rafael, Brazil

Organizers: Milena B. P. Soares (CBTC/HSR)
Turan P. Ürmenyi (IBCCF/UFRJ)

Invited Speakers:

Alysson R. Muotri – UC San Diego (EUA)

Gianvito Martino - San Raffaele Hospital (Italia)

Juan Cruz Casabona - Leloir Institute (Argentina)

Martin Bonamino - INCA (Brasil)

Poh Tan – StemCell Technologies (Canada)

Santiago Miriuka - Fleni (Argentina)

Turan Peter Urmenyi - UFRJ (Brasil)

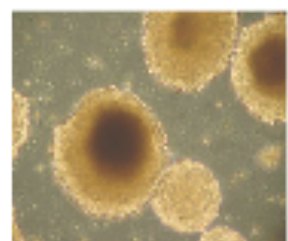
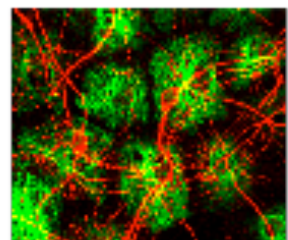
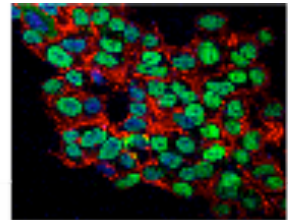
Practical Work:

Bruno Solano de Freitas Souza – CBTC/HSR

Carla Martins Kaneto – CBTC/HSR

Deivid de Carvalho Rodrigues - IBCCF/UFRJ

Ricardo Luiz de Azevedo Pereira - IBCCF/UFRJ



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Program:

Day 1 - Friday 23/09

9:00 - Course opening (Turan/Milena)

- Presentation of teachers / instructors, students' presentation, distribution of educational material, etc

10:00 - Lecture #1

- Turan P. Urmenyi: iPSCs: generation, efficiency and potential as a disease model.

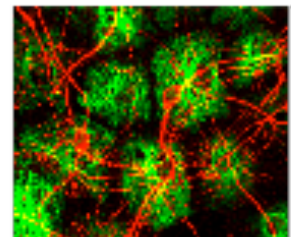
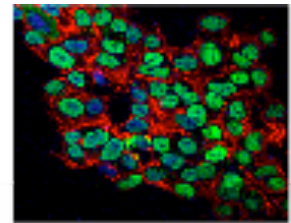
Lunch

13:30 - Laboratory set-up

- presentation of the division of working groups, distribution of articles for seminars, etc.

14:00 - Lecture #2

- Martin Bonamino: genetic manipulation methods and nuclear reprogramming



Day 2 - Saturday 24/09

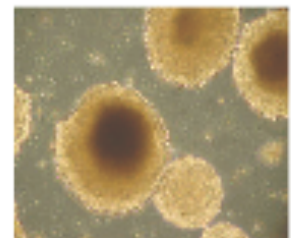
9:00 - Experiment #1

- MEFs preparation for nuclear reprogramming and iPS maintenance

Lunch

13:30 - Experiment #2

- Maintenance of mouse iPS cells: passage methods, cryopreservation and differentiation protocols, etc.



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16:30 - Lecture #3

- Juan Cruz Casabona (Leloir Institute): The use of adenoviral vectors to modulate gene expression in iPS and Embryonic Stem Cells.

Day 3 - Monday 26/09

9:00 - Lecture #4

- Santiago Miriuka (FLENI): cell reprogramming for cardiovascular diseases

10:30 - Experiment #3

- Maintenance of human iPS cells: culture cleaning, passage methods, cryopreservation and differentiation protocols, embryoid body generation, etc.

Lunch

13:30 - Experiment #4

- Phenotypic and molecular characterization of iPSCs: total RNA extraction, cDNA synthesis, immunocytochemistry

16:00 – Lecture #5

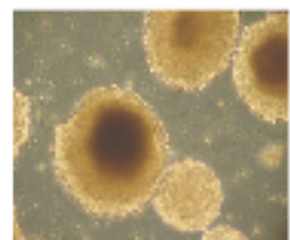
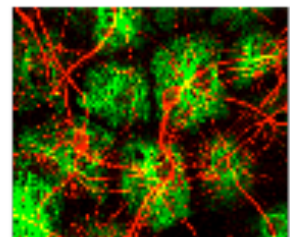
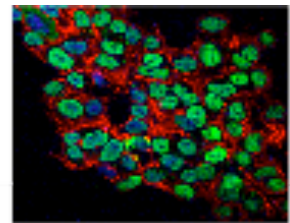
- Turan P. Urmenyi: Gene regulation in iPSCs generation and maintenance of the pluripotency state

Day 4 - Tuesday 27/09

9:00 - Experiment #4 (cont.)

- Phenotypic and molecular characterization of iPSCs: immunocytochemistry continuation, RT-PCR, alkaline phosphatase assay.

Lunch



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13:30 - Lecture #6

- Gianvito Martino: The neuroprotective role of iPSC-derived neural precursors in experimental multiple sclerosis

15:30 - Experiment #4 (cont.)

- Electrophoresis of RT-PCR products, microscopy.

Day 5 - Wednesday 28/09

9:00 - Lecture #6

- Alysson R. Muotri UC San Diego (USA): Modeling neurological diseases with iPSCs

10:30 -Students' seminary

- 45 minute presentation of the first two working groups

Lunch

13:30 - Lecture #7

- Poh Tan – StemCell Technologies (Canada): Human Embryonic Stem Cell and Induced Pluripotent Stem Cells – How to Culture and Differentiate them

15:00 - Students' seminary

- Presentation of the two remaining groups

16:00 - Course closing and general evaluation

