

Electrophysiology Bootcamp for Women

Departamento de Biología, Facultad de Ciencias
Universidad de Chile

12-16 november 2018

Bootcamp Program

Monday 12

- 09:00-09:30 Welcome
Words from Organizers and University of Chile authorities
- 09:30-11:00 Electronic for Biologists
Fundamentals of electronics circuit design
Dr. Julio Alcayaga, Universidad de Chile
- 11:00-11:30 Coffee Break
- 11:30-13:00 Electrodiffusion I
Electrical potential, electrical current, conductance, etc..
Dr. Osvaldo Álvarez, Universidad de Chile
- 13:00-14:00 Lunch
- 14:00-15:30 Electrodiffusion II
Electrical potential, electrical current, conductance, etc..
Dr. Osvaldo Álvarez, Universidad de Chile
- 15:30-16:00 Coffee Break
- 16:00-17:30 Biophysical principles of nerve impulse propagation
Dr. Alexia Nunez-Parra, Universidad de Chile
- 17:30-18:30 Students Data Blitz
Students present a 5 minute 1-slide power point describing their current research

Tuesday 13

- 9:00-11:30 Electrophysiological recordings: the *in vitro* perspective
Description of the different modalities of electrophysiological recordings and how to use them
Dr. Christian Cea-Del Rio, Universidad de Santiago de Chile
- 11:30-12:00 Coffee Break
- 12:00-13:00 The *in vitro* Electrophysiology rig
Description of the rig components and functions
Dr. Cecilia Vergara, Universidad de Chile
- 13:00-14:00 Lunch

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- 14:00-18:30 Building an electrophysiology rig
Students will learn how to build an electrophysiology rig
Practical activity
- 18:30-20:00 Empowering women in Electrophysiology Dinner
Dinner will be paired with a round table where female scientists will share their experience in Academia and will talk about work/family balance
Dr. Alexia Nunez-Parra, Universidad de Chile
Dr. Claudia Carvallo, Universidad de Chile
Dr. Cecilia Vergara, Universidad de Chile
Dr. María Magdalena Sanhueza, Universidad de Chile

Wednesday 14

- 9:00-11:30 Making electrodes and preparing brain slices
Practical activity
- 11:30-12:00 Coffee Break
- 12:00-13:30 Extracellular recordings of the neuromuscular junction
Dr. Ricardo Delgado, Universidad de Chile
- 13:30-14:30 Lunch
- 14:30-19:00 How to patch clamp a neuron I
Students will learn how to perform a patch clamp in hippocampal brain slices
Practical activity

Thursday 15

- 9:00-10:30 Single cell *in vivo* electrophysiological recordings
Dr. Alexia Nunez-Parra, Universidad de Chile
- 10:30-11:30 New Techniques in Neuroscience: Basic principles of applied optogenetics
Dr. Fernando Ortiz, Universidad Autónoma de Chile
- 11:30-12:00 Coffee Break
- 12:00-13:00 How to patch clamp a neuron II
Students will learn how to patch clamp in hippocampal brain slices
Practical activity
- 13:00-14:00 Lunch

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- 14:00-17:00 How to patch clamp a neuron III
Students will learn how to patch clamp in hippocampal brain slices
Practical activity
- 17:00-19:00 Activating a neuron with light
Students will observe how hippocampal neurons expressing channelrhodopsin can be activated with a blue LED
Demonstrative activity

Friday 16

- 9:00-11:30 Data analysis
Students will learn how to analyze data. Examples of electrophysiological recordings will be given to them to perform the analysis
Practical activity
- 11:30-12:00 Coffee Break
- 12:00-13:30 How to understand the brain through electrophysiology
Dr. Chris McBain, National Institute of Health, United States
- 13:30-15:00 Mentor Mentee Lunch
Female Scientists will be paired with senior female mentors to accompany them in the journey of entering and succeeding in Academia
- 15:00-16:00 Concluding Remarks