PRELIMINARY PROGRAM

Monday, October 25th

9:00 AM  Welcome to participants (J.Sierralta)

Module 1

INTRODUCTION TO THE USE OF INVERTEBRATE MODEL SYSTEMS AND EARLY NERVOUS SYSTEM DEVELOPMENT IN C. ELEGANS AND DROSOPHILA

9:15-10:00 AM. Why invertebrates? : Historical Perspective, Biological Facts and the impact in Biomedical Research (J.Sierralta)

10:00-10:45 AM Development of the Drosophila Nervous System (cellular and molecular aspects) (J.Ewer)

Coffee break


Lunch

Afternoon: Practical activities 1

14:00-18:30 PM. Place: F. of Medicine, Cell Biology Room


Introduction for practical activities 1 (J.Sierralta)

1. Manipulation, husbandry and maintenance (All)
2. Observation of general features, phenotypic markers, and behaviors. (All)

Welcome social

18:30-. Pizza and soft drinks. Garden

Tuesday, October 26th

Module 2

MOLECULAR AND GENETIC TOOLS IN DROSOPHILA AND C. ELEGANS AND GENETIC BASIS OF BEHAVIOR IN DROSOPHILA
9:00-9:45 AM. Molecular and Genetic Tools in *C. elegans*. RNAi “bondades y restricciones” (A. Calixto)

9:45-10:30 AM. Molecular and Genetic Tools in Drosophila (M.F.Ceriani)

**Coffee break**

11:00-11:40 AM. BEHAVIORS *C. elegans*. Applications in neuroscience (M. Alkema)

11:40-12:20 PM. BEHAVIORS Drosophila Applications in neuroscience (J. Ewer)

**Open Talk #2**

12:30-1:30 PM. Claire Benard. Maintenance of Nervous System Architecture

**Lunch**

**Afternoon: Practical activities 2**

14:30-18:30 PM. Place: F. of Medicine, Cell Biology Room

Students will sign for different activities (3 to 4 students groups; each student is expected to be involved in at least three activities).

1 RNAi *C. elegans* (A. Calixto) part. 1

2 *C. elegans* Taste and Olfaction (R. Aldunate)

3 FLY work TBA dissection and immunohistochemistry in larvae (part 1, J. Sierralta)

4 FLY work TBA dissection and immunohistochemistry of adult brain (part1, C. Oliva)

5 Recording of Electroretinograms in WT and visual fly mutants (Session 1, J. Bacigalupo)

6 Spontaneous and evoked currents in the neuromuscular junction of WT and synaptic mutants in *Drosophila* larvae. (Session 1, R. Delgado)

7 Fly locomotor assay (Y. Fuentes)

8 FLY work TBA embryo immunohistochemistry (part 1, J. Sierralta)

**Chalk talks**

18:30-19:30 PM. Students will present their work as 5 minutes chalk talks. This activity will facilitate the interaction between teachers and students in a
relax environment. Pizza and soft drinks. Seminar Room-Program of Physiology and Biophysics

**Wednesday, October 27**

**Module 3**

**AXON PATHFINDING, NEURONAL CIRCUITS AND SENSORY RECEPTORS**

9:00-9:45 AM. Synaptogenesis: Insights Provided by Simple Model Organisms (V. Budnik)

9:45-10:30 AM. Axon Guidance and Fine-tuning of connections in the Nervous System (C. Benard)

**Coffee Break**

11:00-11:45 AM. Sensory Receptors: Phototransduction, Mechanoreception, Taste and Olfaction (J. Bacigalupo)

**Open talk #2**

12:00-13:00 PM. María Fernanda Ceriani. Neurodegeneration

**Lunch**

**Afternoon: Practical activities 3**

2:30-5:30 PM.

1. *C. elegans* Mechanoreception (A. Calixto)
2. RNAi (parte 2)
3. FLY work TBA dissection and immunohistochemistry in larvae (part 2)
4. FLY work TBA dissection and immunohistochemistry of adult brain (part 2)
5. FLY work TBA embryo immunohistochemistry –fillets (part 2)
6. Recording of Electroretinograms in WT and visual mutants (Session 2)
7. Spontaneous and evoked currents in the neuro-muscular juntion of WT and synaptic mutants in *Drosophila* larvae. (Session 2)
8. Visualizing neural circuits in *Drosophila* and *C. elegans* nervous system using live transgenic animals labeled with GFP/RFP (session 1, Benard, Alkema)
Chalk Talks
5:30-7:00 PM. Social and discussion session: students will present their work as 5 minutes chalk talks. This activity will facilitate the interaction between teachers and students in a relax environment. Pizza and soft drinks.

Thursday, October 28th

Module 4
ELECTROPHYSIOLOGICAL TECHNIQUES TO ASSES NEURONAL FUNCTION
9:00 Electrophysiological techniques in Drosophila and C. elegans (JCampusano)

10:00-17:00 Practical activities 4
Teachers: All teaching team and graduate students of the participating labs in Chile.
  1. Spontaneous and evoked currents in the neuro-muscular junctioon of WT and synaptic mutants in Drosophila larvae. (session 3)
  2. Visualizing neural circuits in Drosophila nervous system using live transgenic animals labeled with GFP (session 2)
  3. Visualizing neural circuits in C. elegans nervous system using live transgenic animals labeled with GFP
  4. Basic behaviors in Drosophila (geotaxis, olfaction, heat shock) (Session 2)
  5. Aggression behavior comparison between WT and mutants strains.
  6. Courtship behavior comparison between WT and mutants strains.
  7. Memory in Drosophila. (olfactory memory)
  8. Axon degeneration (ante-lobe ablation) (see Freeman 2003 paper)
  9. Recording ecdysis behavior

Open talk #4
12:00-1:00 PM. Vivian Budnik. Synaptogenesis
Lunch

Practical activities (Cont.)
2:30-5:00 PM. Practical activities continuation

Discussion
5:00 – 7:00 PM Discussion of the results obtained: each group will present in 10 minutes. The students will have the chance to interchange opinions and ask methodological questions to teachers.

Evening Social

Friday, October 29th

Open talks #5-6
9:30- Andrea Calixto  Mechanisms of RNA interference in C.elegans
10:15 John Ewer. Neuropeptides in Drosophila

Coffee Break

Open talks #7-8
11:15 Marc Freeman: Unwrapping Drosophila Glial Biology
12:00 Steven Reppert: Navigational mechanisms of migrating monarch butterflies

Lunch
2:30 Scott Waddell, Learning and memory in Drosophila
3:15 Mark Alkema: C. elegans Genetics of Escape Behavior

Coffee
4:15 Raúl Godoy-Herrera

Free evening
Saturday October 30th

TRAVEL TO VALPARAISO

8:00 AM. Hotel Pick up

10:30 AM. Juan Bacigalupo: Role of TRP Channels in Sensory Receptors and Synapse

11:00 AM. Jimena Sierralta, Neuronal Morphogenesis in Drosophila

Closing Activity

ASADO “Barbeque”