

**BD693 - Introduction to *Drosophila* for biomedical research  
Campinas, 16-23<sup>rd</sup> January 2023**

**Course objectives:** This training program is designed to prepare researchers to:

- (1) understand the capacity and limitations of *Drosophila melanogaster* for biomedical studies,
- (2) have the skills to establish a basic *Drosophila* research facility, and
- (3) plan and execute experiments using this system.

**Course structure:** The course will combine theoretical lectures, practical sessions, scientific talks, and workshops for literature discussion and mock project planning.

**Planned Schedule:**

**Monday 16<sup>th</sup> January**

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- 8:00-9:50      **Presentation (PVW). Introduction to *Drosophila* biology I**  
Brief historical perspective and scientific credentials – Life cycle and husbandry – Life history traits life history and ecological constraints – Development and external morphology – Internal anatomy – Basic physiology
- 10:00-10:50    **Introduction to *Drosophila* biology II**  
Basic genetics – Anatomical genetic markers – Lab culturing and requirements – Husbandry – Equipment and resources
- 11:00-11:50    **Scientific talk (fly immunity)**
- 12:00-13:00    **Lunch break**
- 13:00-16:00    **Practical session**  
Overview of a fly facility – Anaesthesia – Sexing and recognising morphological genetic markers – Sorting flies – Passaging cultures – Oral and systemic infection assay – Egg collection
- 16:00-17:00    **Social**

**Tuesday 17<sup>th</sup> January**

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- 8:00-9:50      **Introduction to *Drosophila* genetics and genomics I**  
Mutagenesis and genetic screens – Transgenesis – Misexpression systems – Transgenesis for functional genomics
- 10:00-10:50    **Introduction to *Drosophila* genetics and genomics II**  
Conditional genetic manipulation – Lineage tracing and mosaic analysis – Genome engineering with CRISPR/Cas9
- 11:00-11:50    **Scientific talk (adult stem cells)**
- 12:00-13:00    **Lunch break**
- 13:00-16:00    **Practical session**  
Staging larvae and pupae – Dissection of larvae and adults – Immunohistochemistry of embryos
- 16:00-17:00    **Social**

**Wednesday 18<sup>th</sup> January – Scientific Symposium (Brazilian speakers)**

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- 8:00-12:00     **Scientific talk**
- 13:00-17:00    **Scientific talk**

**Thursday 19<sup>th</sup> January**

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8:00-9:50 Literature discussion: disease modelling in *Drosophila*  
10:00-12:00 Guided work on a *Drosophila* project proposal (session I)  
12:00-13:00 Lunch break  
13:00-16:00 Guided work on a *Drosophila* project proposal (session II)  
16:00-17:00 Social

Friday 20th January

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8:00-12:00 Project pitches with discussion & feedback (with a break)  
12:00-13:00 Lunch break  
13:00-17:00 Project pitches with discussion & feedback (with a break)

Monday 20th January

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9:00-12:00 Project pitches with discussion & feedback (with a break)  
12:00-13:00 Lunch break  
13:00-15:00 Concluding remarks