

# PhD Program in Genetics, Molecular and Cellular Biology

## Course of Genome modifications - March 2023

### Aula Buzzati-Traverso

#### From synthetic biology to biotechnological applications

#### Organizers

Alma Balestrazzi, Mariangela Bonizzoni, Cinzia Calvio, Anca Macovei  
Department of Biology and Biotechnology, University of Pavia

#### Program

*The course is intended to provide examples of approaches and techniques applicable for the modifications of genomes. A range of organisms will be discussed, including prokaryotes, plants and animals.*

*Thursday March 9<sup>th</sup>*

14-16. **Giuseppe Saccone** (University of Napoli, Federico II)  
Evolutionary genetics of sex determination in Tephritidae with the application for biocontrol

16-18. **Guido Favia** (University of Camerino)  
Paratrangensis for insect control

*Friday March 10<sup>th</sup>*

14-16. **Federica Sandrelli** (University of Padova)  
Genetic manipulation of insects: from basic science to biotechnological applications

*Wednesday March 15<sup>th</sup>*

14-16. **Inez Slamet-Loedin** (International Rice Research Institute, Philippines)  
Genome editing for product development - a case study for climate-ready crops

16-18. **Martin Kater** (University of Milan)  
Genome editing for rice yield improvement and neo-domestication

*Thursday March 16<sup>th</sup>*

14-16. **Inez Slamet-Loedin** (International Rice Research Institute, Philippines)  
Regulatory hurdles and potential impact of genome editing for sustainable agriculture

*Friday, March 17<sup>th</sup>*

14-16. **Lorenzo Pasotti** (University of Pavia)  
Experimental and computational approaches for the (semi-)rational design of engineered bacteria  
(*Synthetic biology-guided engineered bacterial factories*)

16-18. **Marianna Paulis** (CNR-Institute of Genetic and Biomedical Research (IRGB)-and Humanitas Research Hospital, Milan)  
Genome manipulation of human pluripotent stem cells: a powerful tool for disease modelling and gene therapy approaches development.

*(Manipulation of human induced pluripotent stem cells (iPSCs) derived from adult human cells and their genetic manipulation as a tool for the generation of in vitro disease models or as a tool for the development of new approaches to gene therapy. In particular, besides an overview of the different genomic manipulation approaches (gene addition, gene inhibition, gene replacement) the seminar will be focused on chromosomal translocation developed by the speaker laboratory)*

*Monday, March 20<sup>th</sup>*

**14-16. John Morrissey** (University College Cork, Ireland)  
Engineering yeast cell factories for biotechnological applications  
*(Yeast genome manipulation)*