



Dottorato in Genetica, Biologia Molecolare e Cellulare  
Scuola di Dottorato in Scienze della Vita "Camillo Golgi" - Università degli Studi di Pavia

Corso: MANIPOLAZIONE DEI GENOMI a.a. 2016 - 2017

### **"Novel molecular strategies for medical therapies and agricultural improvements"**

#### **Organizers:**

Prof. Alma Balestrazzi, Luca Ferretti, Anna R. Malacrida, Department of Biology and Biotechnology (DBB), University of Pavia.

Dr. Donata Orioli, Carla Tribioli, Institute of Molecular Genetics (IGM), CNR, Pavia.

The course will provide an overview of emerging exciting molecular technologies directed to manipulate the genome for gene and cell therapy purposes. Current limitations, challenges that still remain and future directions will be addressed.

The course covers:

- Engineered nanoparticles
- Genome editing
- Epigenome editing
- Molecular approaches to treat inherited mitochondrial diseases

This course is suitable for students who are interested in acquiring knowledge on novel experimental therapies for human diseases, genetic approaches for controlling insect vectors of disease and modern plant breeding methods.

The course will run over March 2017 – April 2017 on the following dates:

#### **1. Engineering gene drive for insect control.**

**Philippos Papathanos**, Imperial College London; Section of Genomics and Genetics, Department of Experimental Medicine, University of Perugia

**Monday March 6 (3:00 PM–5:00 PM) "A. Falaschi" room (IGM)**

#### **2. Sex, insect pests, genomics and CRISPR gene editing: a novel explosive mix for translational research in molecular entomology.**

**Giuseppe Saccone**, Department of Biology, University Federico II of Naples

**Tuesday March 7 (10: AM-12:00 PM) "A. Buzzati Traverso" room (DBB)**

**3. Nanomedicine and nanodrugs used to deliver genetic material to the target cells in mouse models of human disease.**

*Massimo Bottini*, Department of Experimental Medicine and Surgery, University of Rome Tor Vergata; Sanford Burnham Prebys Medical Discovery Institute, La Jolla, CA, USA

**Monday April 3 (9:30 AM–12:30 PM) A. Buzzati Traverso room (DBB)**

**4. mRNA and genome editing: basic principles and applications to gene therapy.**

*Angelo Lombardo*, San Raffaele Telethon Institute for Gene Therapy and Vita-Salute San Raffaele University, Milano

**4.1) Wednesday April 5 (11:00 AM–1:00 PM) A. Buzzati Traverso room (DBB)**

**4.2) Targeted epigenome editing in basic biology and gene therapy**

**Wednesday April 5 (2:00 PM–4:00 PM) A. Falaschi room (IGM)**

**5. Finding a therapeutic approach to cure primary ciliary dyskinesia.**

*Mauro Pistello*, Virology Unit, Pisa University Hospital; Virology Section and Retrovirus Centre, Department of Translational Research, University of Pisa

**Thursday April 6 (10:00 AM–12:00 PM) A. Buzzati Traverso room (DBB)**

**6. New treatments for mitochondrial diseases**

*Valerio Carelli*, IRCCS Institute of Neurological Sciences of Bologna, Bellaria Hospital, Bologna; Unit of Neurology, Department of Biomedical and Neuromotor Sciences (DIBINEM), University of Bologna

**Friday April 7 (2.30 PM- 4.30 PM) A. Falaschi room (IGM)**

**7. Applications of Genome Editing in Plants: Case-study of Targeted Gene Insertions.**

*Anca Macovei*, Department of Biology and Biotechnology “L. Spallanzani”, University of Pavia

**Monday April 10 (2: 30 PM–4:30 PM) A. Falaschi room (IGM)**

**8. Rice photoperiodic responses and their modification by genome editing.**

*Fabio Fornara*, Department of Biosciences, University of Milan

**Tuesday April 11 (2: 30 PM–4:30 PM) A. Falaschi room (IGM)**

**9. How to overcome biologic barriers for the therapy of Neuroblastoma: the tumor and the tumor-vascular targeted approaches**

*Mirco Ponzoni*, Dipartimento Ricerca Traslazionale, Medicina di Laboratorio, Diagnostica e Servizi U.O.C. Laboratorio di Oncologia IRCCS Istituto Giannina Gaslini, Genova

**Thursday April 27 (2:30 PM–4:30 PM) A. Falaschi room (IGM)**