

PRELIMINARY PROGRAM

TRANSGENIC TECHNOLOGIES *in* MODELING HUMAN DISEASES: Principles, Associated Technologies, Animal Management and Ethics

LECTURES

1st Day, Monday 5 June 2017

The Basics for Transgenic Technologies

- 08:00-08:30 **Registration**
- 08:30-08:50 **Sylva Haralambous**, Hellenic Pasteur Institute-ISTT member, **Martina Crispo**, Pasteur Institute of Montevideo-ISTT member, **Francina Langa Vives**, Pasteur Institute, Paris-ISTT member
Welcome
- 08:50-09:00 **Eirini Fragkiadaki**, Hellenic Pasteur Institute-ISTT member
Opening remarks
- 09:00-09:45 **Lluis Montoliu**, CSIC Centro Nacional de Biotecnologia, Spain-ISTT member
Classical and innovative methods for animal transgenesis
- 09:45-10:25 **Franciscus van der Hoeven**, German Cancer Research Centerdkfz-ISTT member
Basic principles of transgenesis in mouse
- 10:25-10:45 Coffee break**
- 10:45-11:25 **Martina Crispo**, Pasteur Institute of Montevideo, Uruguay
Micromanipulation of early embryos and main steps on development
- 11:25-12:05 **Francina Langa Vives**, Pasteur Institute, Paris, France
Conditional Transgenesis in the mouse: Cre Technology
- 12:05-12:45 **Franciscus van der Hoeven**, German Cancer Research Centerdkfz
CRISPR/Cas technology
- 12:45-13:45 Lunch break**
- 13:45-14:45 **F. Langa Vives, M. Crispo, S. Haralambous**
Setting-up a transgenic technology lab/ management
- 14:45-15:15 Company demonstration
- 15:15-15:35 Coffee break**
- 15:35-16:15** Trainees self presentation (10)

2nd Day, Tuesday 6 June 2017

Transgenic Mice in Modeling Human Diseases

- 09:00-09:10 **Sylva Haralambous**, Hellenic Pasteur Institute, Greece
Modeling human diseases with the use of transgenic animals
- 09:10-09:55 **Lluis Montoliu**, CSIC Centro Nacional de Biotecnologia, Spain
Animal models of human rare diseases: what can we learnt from studying mice?
- 09:55-10:35 **Eleni Douni**, B.S.R.C. "Alexander Fleming", Agricultural University of Athens, Greece

- Identification of novel pathogenic targets in mice through Forward Genetics
- 10:35-10:55** **Coffee break**
- 10:55-11:40 **Marcelo Rubinstein**, *INGEBI, Conicet, Argentina- ISTT member*
Transgenic and mutant mice to study hyperphagia, obesity and drug addiction
- 11:40-12:20 **Dimitra Thomaidou**, *Hellenic Pasteur Institute, Greece*
Transgenic mice as models for neurological diseases
- 12:20-13:00 **Serban Morosan**, *INSERM/Pierre et Marie Curie University, France*
Humanized models for hepatitis
- 13:00-14:00** **Lunch break**
- 14:00-14:40 **Spiros Efthimiopoulos**, *University of Athens, Greece*
Animal Models of Alzheimer's Disease
- 14:40-15:20 **Lesley Probert**, *Hellenic Pasteur Institute, Greece*
Towards humanized mouse models for Multiple Sclerosis
- 15:20-15:45** **Coffee break**
- 15:45-16:30 ISTT presentation site, activities
- 16:30-17:15 Trainees self presentation (10)

The Acropolis museum guided tour <http://www.theacropolismuseum.gr/en>

3rd Day, Wednesday 7 June 2017

Transgenesis Associated Technologies

- 09:00-09:10 **Martina Crispo**, *Pasteur Institute of Montevideo, Uruguay*
Approaches for analysis and archiving of GM mice: Where we are today.
- 09:10-09:55 **Dimitris Kafetzopoulos**, *Institute of Technological Research, Crete, Greece*
Next Generation Sequencing and Genome-Wide Analysis
- 09:55-10:35 **Artemis Hatzigeorgiou**, *Hellenic Pasteur Institute, Greece*
In silico analysis of miRNA transgenic mice
- 10:35-10:55** **Coffee break**
- 10:55-11:40 **Marcelo Rubinstein**, *INGEBI, Conicet, Argentina*
Identification of cell-specific regulatory elements by bioinformatics and functional analysis in genetically modified mice and zebrafish
- 11:40-12:20 **Dimitra Thomaidou**, *Hellenic Pasteur Institute, Greece*
In vivo imaging
- 12:20-13:00 **Florentia Papastefanaki**, *Hellenic Pasteur Institute, Greece*
Mouse models for neurological disorders: Behavioral assessment
- 13:00-14:00** **Lunch break**
- 14:00-14:40 **Jorge Sztejn**-Independent consultant, Spain
History of cryopreservation
- 14:40-15:20 **Jean Jaubert**, *Institut Pasteur, France-ISTT member*
Advances in cryopreservation
- 15:20-15:45** **Coffee break**
- 15:45-16:30 **Jean Jaubert**, *Institut Pasteur, France*
Cryopreservation technologies: what use?
- 16:30-17:15 Company demonstration

4th Day, Thursday 8 June 2017

Bioethics and Transgenic Animal Welfare

- 09:00-09:10 **Francina Langa Vives**, *Pasteur Institute, Paris, France*
Bioethics and transgenic animal welfare
- 09:10-09:55 **Eirini Fragkiadaki**, *Hellenic Pasteur Institute, Greece*
Legislation, ARRIVE's, retrospective analysis
- 09:55-10:35 **Stavroula Tsinorema**, *Philosophy and Social Studies, University of Crete, Greece*
Genome Editing using CRISPR/Cas: Bioethical challenges
- 10:35-10:55** **Coffee break**
- 10:55-11:40 **Nikos Kostomitsopoulos**, *Biomedical Research Foundation of the Academy of Athens (BRFAA)*
Transgenic animals and welfare
- 11:40-12:20 **Ismi Dantas**, *Laboratory of Experimental Surgery & Surgical Research, University of Athens, Greece*
Cost-benefit analysis in transgenesis
- 12:20-13:00 **Cristin Coman**, *Catacuzino Institute, Romania*
Breeding Strategies in mouse transgenesis
- 13:00-14:00** **Lunch break**
- 14:00-14:40 **Lucy Whitfield**, *Royal Veterinary College, UK*
Surgical procedures used in transgenesis
- 14:40-15:20 **Lucy Whitfield**, *Royal Veterinary College, UK*
Pathological phenotypes of transgenic animals
- 15:20-15:45** **Coffee break**
- 15:45-16:30 **Dimitris Vrettakos**, *Athens University of Economics and Business*
Design and statistical analysis of experiments using animal models.
- 16:30-17:30 **Martina Crispo, Francina Langa Vives, Sylva Haralambous**
Pasteur Institute, Uruguay, France, Greece
Closing Remarks

PRACTICALS

Professors: M. Crispo, F. Langa Vives, S. Haralambous, J. Jaubert, J. Sztejn

Instructors: M.N. Meikle, I. Lafosse, F. Badounas, M. Markogiannaki, F. Ioakeimidis, E. Fragkiadaki

Technical support: A. Lappa, A. Karles, N. Vlachogiannis A. Vagionas

Four student groups with 5 person each RoomA (A1=5 and A2=5) and RoomB (B1=5 and B2=5)

1st Day, Friday 9 June, 2017

Collection of embryos/evaluation/use of microinjection microscopes

- 08:30-09:10 Theory
- 09:10-10:30 Sacrifice mice/collect embryos /blastocysts
- 10:30-10:50 Coffee break**
- 10:50-13:00 Quality Assessment of mouse embryos
- 13:00-14:00 Lunch**
- 14:00-14:30 Discussion
- 14:30-15:00 Microscope presentation
- 15:00-15:20 Coffee break**
- 15:20-16:20 Student presentation of scientific papers

2nd Day, Saturday 10 June, 2017

Cryopreservation

- 08:30-09:00 Critical points on cryopreservation
- 09:00-10:30 Vitrification
- 10:30-10:50 Coffee break**
- 10:50-13:00 Sperm cryo/ IVF
- 13:00-14:00 Lunch**
- 14:00-15:00 Embryo transfer- Observation/NSET
- 15:00-15:20 Coffee break**
- 15:20-15:30 Discussion
- 15:30-16:30 Student presentation of scientific papers

3rd Day, Monday 12 June, 2017

Microinjections

- 08:30-09:00 Setting up microinjections
- 09:00-10:30 Distribute embryos
- 10:30-10:50 Coffee break**
- 10:50-13:00 Pronuclear, Cytoplasmic and Subzonal/perivitelline microinjection
- 13:00-14:00 Lunch**
- 14:00-15:00 Distribute ES cells/ Blastocysts- Blastocyst microinjection
- 15:00-15:20 Coffee break**
- 15:20-15:30 Discussion
- 15:30-16:30 Student presentation of scientific papers

4th Day, Tuesday 13 June, 2017

Genotyping / *In vivo* imaging

09:00-09:45 *In vivo* imaging: Group A1/ Genotyping: Group A2

09:45-10:25 Genotyping: Group A1/ *In vivo* imaging: Group A2

10:25-10:45 Coffee break

10:45-11:25 *In vivo* imaging: Group B1/Genotyping: Group A2

11:25-12:25 Genotyping: Group B1/*In vivo* imaging: Group A2

12:25-13:30 Course questionnaire

13:00-14:00 Lunch

14:00-15:00 Post-course evaluation sheet, Awards, Photos

End of course