



Brief Report

Educational course named as “TT-RIIP 2017”

**“TRANSGENIC TECHNOLOGIES *in* MODELING HUMAN DISEASES:
Principles, Associated technologies, Animal Management and Ethics”**

Hellenic Pasteur Institute

5 – 13 June 2017

Athens, Greece

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A. INTRODUCTION

In the context of the Institut Pasteur International Network (IPIN), three established Transgenic Facilities (Institut Pasteur of Athens, Montevideo and Paris) organized an international course entitled “Transgenic Technologies in modeling human diseases: principles, associated technologies, animal management and ethics, 12-20 June 2017, in Athens, Greece.

The course coordinators team was composed by:

Dr Sylva Haralambous, Hellenic Pasteur Institute, sharalambous@pasteur.gr

Dr Martina Crispo, Pasteur Institute of Montevideo, crispo@pasteur.edu.uy

Dr Francina Langa Vives, Pasteur Institute of Paris, francina@pasteur.fr

All course organizers, as well as coordinators and many of the speakers and instructors are ISTT members

The main objectives of this joint inter-continental Transgenic Facilities action was: a) to train young scientists and offer know-how on classical and innovative transgenesis methodologies used in modeling human diseases, b) to offer a holistic perspective of transgenic technologies focusing on their interdisciplinary character and c) promote networking of students, originating from countries where transgenic technologies applications are limited, with experts

This course was financially supported by the Institut Pasteur International Network (Reseau International des Instituts Pasteur-RIIP) based on successful course grant application #5051, and therefore is referred as **TT-RIIP course and co-sponsored by ISTT**. A list of additional sponsors is appeared in the poster, booklet, the welcome and opening talk of the course and in the closing remarks.

During the course Dr Martina Crispo presented the activities of ISTT and the opportunities the members may have.

B. COURSE STRUCTURE

The course included 4-days theoretical and 4-days practical part and two cultural events.

The theoretical part was performed in the Amphitheatre of Hellenic Pasteur Institute and included 30-40 minutes lectures from 24 field-experts that covered the following topics:

- Transgenesis principles, Pronuclear and ES blastocyst injections, Cre and CRISPR technologies, Transgenic workstations and services
- Transgenic animal models of autoimmune, infectious and neurological diseases
- Transgenesis technologies, Genome wide analysis, miRNA transgenesis, *in vivo* imaging
- behavioural analysis
- Cryopreservation principles and advanced technologies
- Transgenic animal welfare, animal legislation and 3R's, bioethics, cost-benefit analysis, breeding strategies, principles of mouse surgery and basic design of experimental procedures

The practical part was performed in the facilities of Transgenic Laboratory Unit. The mice scheduled to support the hands on session were provided from the Department of Animal



Models for Biomedical Research. All procedures were performed according to the SOPs of the facility and the licence PN 6999/26/11/2012 issued in the context of the use of mice for education. The practical part was comprised of 30 minutes lectures on the techniques and then one instructor per 2-3 trainees was providing guidance for them in order to practice on the techniques referred on a booklet written specially for the needs of the practical session of the course

List of the distributed documents

Course material included:

- Course folder with **DVD** containing, **the lectures** of the theoretical and practical sessions, a **booklet with all the protocols** applied during the hands-on session, the **program** of the course, and **course questionnaires** for theoretical and practical part and course evaluation sheet. In addition, the folder contained **a pen, holder, lanyard, and notebook** (sponsored by ISTT), **commercial leaflets** (sponsor AnLab, Eppendorf) and **a leather mouse microinjecting zygote-shaped sous-verre** as course souvenir (sponsor Design Lab, Lyochoros IKE offer),
- **Access to e-learning platform** of London Royal Veterinary College (Dr L. Whitfield contribution).
- **Certificate of course attendance**
- **Acknowledgements certificate** to speakers and instructors

Everyday lunch was served to the participants in the garden of Hellenic Pasteur Institute, offering a refreshing relaxing environment. Coffee was offered during the breaks of the lecture and practicals sessions in adjacent areas.

A guided tour to Acropolis museum was organized for all trainees and speakers, and some local trainees that wished to follow.

A public lecture of Dr Marcelo Rubinstein was organized by Hellenic Pasteur Institute, and Hellenic Society for Neurosciences under the auspices of the Embassy of Argentina, in Megaron Mousikis (Concert Hall) of Athens, that was open free of charge to all course participants, giving them also the opportunity to visit this modern cultural monument of Athens.
<http://www.megaron.gr/default.asp?pid=5&la=2&evID=3679>

C. TRAINEES SELECTION AND GRANTS

The course was addressed to PhD-students, Post-doctoral fellows in life sciences, early-stage researchers and technicians who are RIIP, ISTT or non-members and are involved in Transgenic Technologies. All interested participants had to complete the *course application form* to enter the selection process. Selection priority was given to RIIP applicants. *Course program, poster, flyer, course application and grant application forms* were available in the following links
<http://pasteur.edu.gr/tt-riip-international-course-2017/and>
<https://www.pasteur.fr/en/international/international-courses/international-courses-2017/tt-riip-international-course>

Twenty-five (25) course applications were received from 21 February 2017 to 10 April 2017. Application forms were submitted from: One (1) from Bulgaria's RIIP institution, two (2) ISTT members, twelve (11) from non-RIIP institutions from various countries and eleven (11) from



institutions of Greece. Applicants are members of scientific staff in institutions of Bulgaria, Cameroon, Ireland, Egypt, Turkey, Denmark, Sweden, USA, India, Venezuela, Serbia and Greece. Due to financial limitations in covering the travel or course fees, visas delays and personal problems some of the initial applicants failed to complete their registration. Course fees included course manuals, coffee breaks, lunches and two social events

Attendees

Sixteen **trainees** attended the course of which **six (6) international and ten (10) Greek registered applicants** attended the course.

Our policy for the grants was to support mainly young scientists, and RIIP and ISTT members. We provided **3 full courses fees grants** for RIIP members **and 3 reduced courses fees grants** (two (2) young PhD-students were granted for 45% reduced course fees, one (1) ISTT member with 7% reduced course fees) **and one travel grant**.

D. LEARNING OUTCOMES ASSESMENT

The self-assessment of course learning outcomes was made via two multiple-choice questionnaires one for the theoretical and one for the practical part. The questionnaires were distributed to the trainees at the beginning of the course and were collected relatively after the last theoretical and the last practical part. The correct answers were given to the trainees at the end of the course. Electronic learning resources (videos, presentations) were kindly made available by London Royal Veterinary College e- platform and were forwarded to the trainees after the course under a username and password and for a limited period of access.

E. COURSE QUALITY EVALUATION

The assessment of the course quality was made by the trainees via [an evaluation sheet](#) comprised of six sessions. Mean score of the course **evaluation was 4.4 out of 5**.

F. CONCLUSIONS

A RIIP course on Transgenic Technologies was implemented for **the first time in Hellenic Pasteur Institute in Greece** and Eastern Europe and managed to achieve its role in:

- providing training and practice in transgenic technologies by state-of-the art experts
- contributing to the attitude's shift towards ethical laboratory animals use
- enhancing networking of non-European RIIP researchers with experts
- strengthen the RIIP network by the excellent collaboration between Pasteur Institutes transgenic units namely of Athens, Paris and Montevideo.
- reclaiming Hellenic Pasteur Institute's infrastructure and human resources towards enhancing Hellenic Pasteur Institute's collaboration with the International Network of Instituts Pasteur.



Expensive specialized equipment and strong applicants' demand should be better considered in future similar initiatives, reflecting to larger grant amounts in order to facilitate the participation of more applicants.

G. ACKNOWLEDGEMENTS

We would like to thank the RIIP grant course program for financially supporting this initiative, ISTT for co-sponsoring this activity that took place for first time in Greece and in Eastern

Europe, as well as Hellenic Pasteur Institute for additional funding. We would also like to thank all speakers, instructors, trainees, organizers, sponsors, institute's technical support and administration for contributing to this successful course implementation.

H. APPENDIX

Representative photos from the course are attached