A.G.I.
Associazione Genetica Italiana

"MARIO POLSINELLI" SCHOOL OF GENETICS IN CORTONA

MASTERING EPIGENETICS:
FROM BASICS TO BREAKTHROUGHS

7-8 June 2024

Sala Pancrazi, Centro Convegni S. Agostino, Via Guelfa 40, Cortona (AR)

ORGANIZERS

Stefano Amente
University of Naples Federico II

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University of Pavia

Epigenetics, crucial for deciphering complex biological processes, involves reversible mechanisms like DNA methylation, histone modifications and non-coding RNAs that regulate gene expression, chromatin structure, and cellular functions. These mechanisms are pivotal in development, differentiation, and environmental response, offering avenue for targeted interventions. Aiming to provide a comprehensive understanding and forward-looking perspective on epigenetics, this course will encompass foundational principles, advanced epigenomics technologies, and their implications in the latest breakthroughs across human, plant, and animal biology fields. Additionally, there will be a focus on cutting-edge topics such as novel epigenetic marks, epidrug-based therapies, and Artificial Intelligence (AI) application in epigenetic research, showcasing the forefront of this evolving and impactful field. Each lesson will take approximately 35-40 minutes, with an additional 5-10 minutes for questions and comments.

Friday June 7

14:00-14:15 *Course presentation*
Sergio PIMPINELLI (Director of the School of Genetics in Cortona) & **Giuseppe PASSARINO** (AGI President)

Exploring epigenetics: from foundational principles to technological innovations

14:15-15:00 *Epigenetics: an introductory overview*
Giovanni PERINI (University of Bologna, Italy)

15:00-15:45 *Revolutionizing epigenetic research: from classic to cutting-edge technologies*
Pietro GATTI (Illumina) & **Maria Carla GERRA** (University of Parma, Italy)

15:45-16:30 *Deciphering the 3D epigenomic landscape and its role in epigenetic inheritance*
Giacomo CAVALLI (University of Montpellier, France)

16:30-16:45 Break

16:45-17:30 *Targeted epigenetic editing from platform development to applications*
Angelo LOMBARDO (San Raffaele Telethon Institute for Gene Therapy (SR-Tiget) & Vita-Salute San Raffaele University, Italy)

The Human Epigenetics landscape: from normal to disease states

17:30-18:15 *Genomic imprinting in humans: from biology to disease*
Flavia CERRATO (University of Campania L. Vanvitelli, Italy)

Saturday June 8

The Human Epigenetics landscape: from normal to disease states

9:00-9:45 *Epigenetic mechanisms in development and cancer*
Diego PASINI (University of Milan & European Institute of Oncology (IEO), Italy)

Deciphering epigenetic landscapes in plant and animal adaptation

9:45-10:30 *Small RNA's role in epigenetic inheritance in C. elegans*
Germano CECERE (Institut Pasteur, Paris, France)

10:30-11:15 *Epigenetic mechanisms in animal stress response*
Paolo AJMONE-MARSAN (Catholic University of Piacenza, Italy)

11:15-11:30 Break

11:30-12:15 *Unlocking the secrets of plant stress response: the role of epigenetic regulation*
Serena VAROTTO (University of Padua, Italy)

Frontiers in epigenetics: computational insights, emerging epimarkers, and therapeutic innovations

12:15-13:00 *Artificial Intelligence in epigenetics: mining new frontiers in the identification of cancer diagnostic biomarkers*
Francesca CORDERO, (University of Turin, Italy)

13:00-14:00 Break

14:00-14:45 *Emerging epigenetic markers: pioneering new classes and functions*
Luigi LANIA, Professor of Genetics, Italy

14:45-15:30 *Advancing therapeutics: the transformative role of epidrugs in disease treatment*
Saverio MINUCCI (University of Milan & European Institute of Oncology (IEO), Italy)

15:30-15:45 *Concluding remarks*
Stefano AMENTE (University of Naples Federico II, Italy) & **Rossella TRICARICO** (University of Pavia, Italy)

Course Participation

Participation is **free of charge**. In order to be able to prepare official certificates of attendance, interested students are requested to register using the following link: *https://forms.gle/2FCwm2rDnkv4xRE37* by **15/05/2024**.

Further information can be requested directly from Prof. Mario Ventura (mario.ventura@uniba.it, +39 0805443583).

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