General Info

Organized by: Area Science Park, Elettra Sincrotrone Trieste, ICGEB and CNR
Name of the Advanced School Phenotypic Fingerprinting
Objective and learning goals Many metabolic pathways are involved in host cell response to infection, such as glycolysis, tricarboxylic acid cycle, pentose phosphate pathway, amino acid synthesis, fatty acid synthesis and oxidation, lipidome and proteome changes. The aim of the school is to shed light on fingerprints of the cellular metabolic pathways perturbed by infection and drug-response by exploiting complementary approaches and fostering their integration. Hints of techniques for the preparation of biological substrates will be also given. Theorical lessons will introduce the practical sessions on high-throughput screening (HTS) by cell imaging, Infrared (IR) chemical imaging, Ultraviolet (UV) - resonant Raman chemical imaging and Atomic Force Microscopy (AFM) biomechanical imaging and data analysis, with the aim to build a multi-dimensional reference space for host-pathogen interaction. At the end of the school, participants will acquire theoretical-practical skills relating to the topics addressed in the modules included in the scientific program.
Subject/scientific programme The following seven thematic modules will be addressed during the school: 1. Host-pathogen interaction models and HTS imaging 2. Genomics Single-Cell RNA-Sequencing 3. Atomic Force Microscopy (AFM) biomechanical imaging 4. Micro- and nano-machining for biology 5. Infrared (IR) chemical cytology (cellular imaging) 6. Ultraviolet (UV) - Raman chemical cytology (cellular imaging) 7. Data analysis, integration, and management Each module will include approximately 20/24 hours of lessons, except for the seventh module which will last approximately 10 hours.
Methods of carrying out the lessons The school will include theoretical lessons alternating with practical sessions/hands-on. All lessons (both theoretical and practical) will be carried out in person and in English.
Teachers The lessons will be held mainly by staff involved in the PRP@CERIC project. Furthermore, six selected internationally recognized invited speakers, with sector-specific skills and expertise, will hold a 4-hour lesson each in six of the seven thematic modules provided in the school.
Duration The school will last four weeks, divided into two sessions of two weeks each. Each session will include approximately seventy-two hours of theoretical lessons alternating with practical sessions/hands-on carried out in the laboratories.
Dates The school will include: • a first two-week session, from Monday 14th to Friday 25th October 2024

- a second two-week session, from Monday 18th November to Friday 29th November 2024

Lesson times

Each class day will include approximately 8 hours of lessons, four in the morning (from 9am to 1pm) and four in the afternoon (from 2pm to 6pm), except for the first and last day of each school session in which only half a day of lessons will take place (i.e., 4 hours).

Location

All lessons will be held at the Padriciano and Basovizza campuses of Area Science Park and the Elettra, ICGEB and CNR-IOM laboratories involved.

Admission requirements

- Master's or specialist degree or old system degree diploma in STEM subjects, preferably chemical sciences, medical, veterinary and pharmaceutical biotechnology, biology, physics, materials science and engineering, industrial biotechnology, pharmacy and industrial pharmacy, biomedical engineering, chemical engineering, medicine and surgery or in similar or equivalent subjects;
- knowledge of the English language;
- enjoyment of civil and political rights in the State of belonging or origin.

Recruitment of participants

The school will involve ten participants.

Two of the ten available positions are open to external applications, while eight positions are reserved for candidates belonging (as employees/ collaborators/ scholarship holders/ research fellow/ PhD students) to the PRP@CERIC project team, as indicated in the table below.

Number	Type of position
2	reserved for Area Science Park
2	reserved for Elettra Sincrotrone Trieste
1	reserved for ICGEB
1	reserved for CNR
1	reserved for UNISA
1	reserved for UNISALENTO/UNINA

Reserved positions not assigned as defined in the table will be awarded to suitable candidates according to the ranking order.

Documentation to be submitted

- Expression of interest drawn up according to the form downloadable from the Area Science Park website as soon as the public notice is available;
- motivation letter (max 1 page);
- educational and/or professional CV (max 4 pages).

Evaluation of participants

The evaluation of the applications is carried out by an Evaluation Commission made up of three members, experts in the subjects covered by the school and belonging to the PRP@CERIC project team, possibly supported by a minute-taker.

The Commission will evaluate the documentation submitted by each candidate, assigning the relevant scores. At the end of the evaluation, the Commission will form the ranking according to the decreasing order of the scores obtained by the candidates.

Certificate of attendance

At the end of the school, participants will receive a certificate of participation, subject to attendance of at least 80% of the theoretical/practical lessons.
Other information For further information on participation in the Phenotypic Fingerprinting school and to send applications, please refer to the public notice on the Area Science Park website as soon as available.
Contact person For any questions about the school, please refer to Chiara De Vita, Area Science Park – chiara.devita@areasciencepark.it; 0403755132.