**Modern Technologies in Biomedicine**

**24 October – 28th October**

Biological and medical sciences in the last decades have made great progress. New technologies are at the heart of this revolution, with technical advances pushing the science forward. It has become possible to perform imaging in the living cells (imaging technologies), analysing genes and gene expression (genomics) while obtaining a complete protein profiling (proteomics), to name a few. Understanding these technologies and their applications are crucial for modern scientists.

**Aims of the course:**

* To give an overview of the core technologies in biomedical research with the focus on the ones available at the GIGA
* To teach the application of these technologies with their pros and cons

**By the end of the course, the participants should be able to:**

* Describe the main technologies in biomedical science
* Name the platforms that are present at the GIGA
* Discuss the applications of the technologies

**Target group:** PhD candidates (group limited to 15 participants)

**Prerequisites:** Working knowledge of English;

**Duration of the course:** 3 days, 8 hours per day = 24 hours

**Location:** GIGA B34, B30, B6C

**Workload:** 8 hours per day over 3 days.

**Educators:** Carine Bebrone (GIGA Platforms); Wouter Coppieters (GIGA Medical Genomics), Andre Luxen (GIGA CRC in vivo imaging), Sandra Ormenese (GIGA-Platforms Flow Cytometry and Imaging), Emmanuel Di Valentin (GIGA Platforms Viral Vectors), Chantal Humblet (GIGA Platforms Immunohistology), Nathalie Jacobs (GIGA I3), Helene Pendeville (GIGA Platforms Zebrafish Facility and Transgenic), Bernard Peers (GIGA Stem Cells), Dominique Baiwir (GIGA Platforms Proteomics), Gabriel Mazzucchelli (GIGA Platforms Proteomics)

**The course schedule:**

**Day 1. 24th October**

**9:00 -9:30**     Lecture. Overview of the technological platforms at the GIGA (Carine Bebrone)

**9:30–10:30**   Lecture. Imaging and Flow cytometry (Sandra Ormenese, Hamaidia Malik)

**11:00 - 12:00**  Visit to the imaging platform (2x30’)

**12:00 - 13:00** Lunch break

**13:00 - 14:00**  Lecture. CRC in vivo imaging platform (Andre Luxen) Location -  B30

**14:00 - 15:00** Visit to the CRC platform

**15:00– 17:00**  Lecture. Mouse facility and transgenics (Nassim Moula)

**Day 2. 25th October**

**9:00 – 10:00** Lecture. Proteomics platform (Gabriel Mazzucchelli, Dominique Baiwir). Location: B6C building, ground floor, room R42

**10:00- 11:00** Lecture. Example of research performed using the platform

**11:00 –12:00** Visit to proteomics platform (Gabriel Mazzucchelli, Dominique Baiwir)

**12:00- 13:00** Lunch break

**12:00 -13:00** Lecture. Genomics platform (Wouter Coppieters)

**13:00-14:00** Visit to genomic platform

**14:00 - 15:00** Lecture. Example of research performed using the imaging platform (Souad Rahmouni)

**Day 3. 28th October**

**9:00 – 10:00**  Lecture. The zebrafish: an interesting model for biomedical research (Helene Pendeville)

**10:00- 11:00** Visit to zebrafish facility

**11:00 – 12:00** Lecture. Example of research performed using the platform (Bernard Peers; Marianne Voz)

**12:00- 13:00**   Lunch break

**13:00- 14:00**  Lecture. Immunohistology (Chantal Humblet, Nathalie Jacobs)

**14:00 -15:00**  Lecture. Viral Vectors (Emmanuel Di Valentin)

**15:00- 16:00**  Lecture. Example of research performed using the platform

**16:00 –17:00**  Visit to viral vector platform