



Institute of Molecular  
Genetics and Genetic  
Engineering,  
University of Belgrade



September 7-9, 2022.

## COST Training School “Bioinformatics approaches in adhesion GPCR research”

Institute of Molecular Genetics and Genetic Engineering, University of Belgrade, Serbia

<https://www.adhernrise.eu/events.html>

### Registration:

To register, please [click here](#)

Registration opens:

19.05.2022.

Registration deadline:

30.06.2022.

### Venue:

Institute of Molecular Genetics  
and Genetic Engineering,  
University of Belgrade. Vojvode  
Stepe 444a, Belgrade, Serbia.

### Prerequisites:

- Membership of the Adher'n Rise COST Action
- Basic knowledge of R programming language and Linux command line is recommended (in case you do not have any knowledge, we will provide suggestions for free online courses).

### Organizers:

- Dr Nikola Kotur, Institute of Molecular Genetics and Genetic Engineering, University of Belgrade.
- Dr Biljana Stankovic, Institute of Molecular Genetics and Genetic Engineering, University of Belgrade.
- Dr Milan Secanski, Vinča Institute of Nuclear Sciences, University of Belgrade.

### Contact:

[trainingschool@imgge.bg.ac.rs](mailto:trainingschool@imgge.bg.ac.rs)

**COST Action Adhesion GPCR Network: Research and Implementation Set the path for future Exploration** (Adher'n Rise) training school will take place in person, in Belgrade, Serbia. The program will encompass theoretical and practical sections. Participants will have the opportunity to learn how to search popular databases and to use popular, freely available software to aid their aGPCR research. Three topics will be covered:

#### 1. Adhesion GPCR genetic variation repertoire

Trainer: **dr Vladimir Jovanović**, Institute of Biology, Freie Universität Berlin, Germany

Description: The genomics part of the workshop will be investigating: 1) the public repositories and databases where the sequence and/or information on aGPCR genes can be found and surveyed; 2) the diversity of specific aGPCR genes and its intramolecular and populational patterns; 3) evolutionary context of specific aGPCR genes. All practical work will be done in Internet browser, command line and in R (RStudio)

#### 2. RNAseq data analysis

Trainers: **dr Andrea Gelemanović**, Mediterranean Institute for Life Sciences, Split, Croatia and **dr Maja Kuzman**, Kuzman consulting d.o.o. Zagreb, Croatia

Description: This workshop will cover the theoretical background of the main concepts of RNA-seq data analysis and a practical session which will be performed on adhesion G protein-coupled receptors (aGPCRs). Participants will be guided through the complete process from acquiring raw RNA sequences to differential gene expression analysis. Practical session will be organized using the R (RStudio).

#### 3. Computer-aided drug design based on molecular docking prediction

Trainers: **dr Teodora Đikić**, Laboratoire d'Innovation Thérapeutique, Université de Strasbourg, France and **Nemanja Đoković**, Department of Pharmaceutical Chemistry, Faculty of Pharmacy, University of Belgrade

Description: In the first part of the session the participants will learn the theory behind the molecular docking, and its application in the design of drugs that target aGPCRs. In the second part of the lecture participants will have the opportunity to learn how to use one of the most popular docking software – AutoDock. They will learn how to search Protein Data Bank (PDB) (<https://www.rcsb.org/>) in order to find the 3D structure of the protein of interest, to draw the ligand structure, as well as to prepare protein and ligand structure for docking. This will be followed by molecular docking and finally data analysis.