

Two Bioinformatic Research Positions in Lipidomics and Multiomics

Start date: January 2027 or as soon as possible

Duration: 12 months, with the possibility of extension by mutual agreement

Location: [Lipidomics Group](#) led by Prof. Michal Holčapek, University of Pardubice, Faculty of Chemical Technology, Department of Analytical Chemistry, Czech Republic

About the Lipidomics Research Group

Our international team of 15 researchers and students offers a collaborative and stimulating research environment with access to state-of-the-art mass spectrometry and chromatography instrumentation. Our research focuses on lipidomics, metabolomics, and their integration with other omics, particularly for cancer biomarker discovery. Our [patented methodology](#) for early [cancer detection](#) is being translated into clinical applications through our spin-off company [Lipidica](#). The advertised positions are supported by the ERC Advanced Grant “Oncolipidomics: Why is lipidomic dysregulation pattern in blood similar for various cancers? (ONCOLIPID)” and other grant projects.

Position 1 – Multiomics Data Integration and Biological Interpretation

We collect large datasets generated by different omics technologies, including lipidomics, metabolomics, proteomics, and transcriptomics. A key objective is to integrate these datasets using multiomics approaches to gain deeper insights into lipid dysregulation in patients with pancreatic and other types of cancer. The relationships between different omics layers will be explored and visualized, with particular emphasis on the interpretation of metabolic pathways involved in lipid metabolism. We envisage using methods, such as Multi-Omics Factor Analysis (MOFA) and Data Integration Analysis for Biomarker discovery using Latent cOMponents (DIABLO).

Requirements

- PhD. or Master's degree in bioinformatics, computational biology, or related field
- Experience in multiomics data integration or analysis of high-dimensional omics datasets
- Good programming skills in R or Python

Preferred but not required

- Knowledge of molecular biology and metabolic pathways
- Experience with lipidomics or metabolomics data
- Experience with multiomics integration methods (e.g., MOFA, DIABLO) or pathway analysis

Position 2 – Statistical Analysis and Cancer Lipidome Atlas Development

1. Development of the Cancer Lipidome Atlas

Organization, integration, and analysis of quantitative lipidomics data to establish a comprehensive database. This task will include the development of a publicly accessible web application enabling users to search, explore, and visualize lipid concentration data.

2. Advanced statistical analysis

Development and application of statistical and machine learning approaches to analyze large-scale datasets, including univariate and multivariate analysis, data visualization, identification of cancer-associated lipid and metabolite signatures, and evaluation of their diagnostic potential using predictive models.

Requirements

- PhD. or Master's degree in bioinformatics, statistics, data science, or related field
- Programming skills, preferably in R or Python
- Experience in univariate and multivariate analysis of complex datasets

Preferred but not required

- Experience with data management and database development
- Experience with web application development or interactive data visualization
- Experience with lipidomics or metabolomics data

What we offer

Full-time position with flexible working hours and the possibility of partial remote work by mutual agreement; opportunities for scientific publications, international collaboration, and professional development in a young and friendly team with regular team-building activities.

- **Salary:** Competitive, commensurate with qualifications and experience, and in accordance with university salary guidelines
- **Holidays:** Six weeks of paid annual holidays

How to Apply

We expect strong motivation for research, reliability, and ability for teamwork. We welcome motivated candidates who meet most, but not necessarily all, of qualifications and are willing to develop additional skills. Neither position requires laboratory work. Please send the following documents to: Michal.Holcapek@upce.cz

1. **Motivation letter** detailing your research interests, why you want to join our group, and how you could contribute to our research.
2. **CV** including a description of your skills and relevant experience.
3. **Letter of recommendation** confirming the candidate's relevant knowledge and experience, e.g., from a previous supervisor or employer

Shortlisted candidates will be invited to an online interview. Applications will be reviewed on a rolling basis until the positions are filled.