A fully-funded position[1] for a PhD student (4 years) or a research assistant (1 year contracts, renewable) is open in the CBIO lab focusing on protein sub-cellular localisation (spatial) proteomics, post-translational modification and machine learning.

The goal of the project is to apply and extend existing spatial proteomics methods [1,2,3] and software infrastructure (such as the pRoloc package) to focus more specifically on the detection and the effect of post-translational modifications in protein and proteoform sub-cellular localisation. This position is part of the FWO-funded Protein Contours project, in collaboration with Win Vranken from the VUB and Lennart Martens from the VIB and Ghent University.

The successful candidate will have a degree in bioinformatics, statistics, computer sciences, biomedical sciences, bio-engineering, or equivalent and be able to demonstrate experience and/or keen interest in one or several of the following:

- experience in one or multiple omics experimental technologies, data processing, analysis and/or interpretation
- experience in mass spectrometry and proteomics is an advantage;
- a keen interest in understanding and tackling biomedically relevant questions;
- interest in robust method development;
- background/expertise in statistics, machine learning and/or artificial intelligence;
- open and reproducible research (e.g., Rmarkdown, Jupyter notebooks, Github, version control, …);
- experience in R/Bioconductor data structures, in particular those used for omics data analysis (e.g., SummarizedExperiment, SingleCellExeriment, QFeatures, …);
- contribution to an open and inclusive research environment;
- good written and oral communication skills.

About the CBIO lab

The Computational Biology and Bioinformatics lab is headed by Prof Laurent Gatto and is composed of students and researchers with expertise in biomedical sciences, statistics, omics data analysis and bioinformatics. Details about our work and the members can be found at https://lgatto.github.io/cbio-lab/. The lab supports a friendly and supportive work environment through flexible working hours and the possibility to work remotely. The lab meetings are typically scheduled in-person (or mixed remote/in-person) to favour interactions among lab members. While joining the lab and contribution to our research, you will also have the opportunity to get involved in the international Bioconductor community. The lab members have opportunities to join courses and conferences in Belgium and abroad to present their work.

Academic environment

The de Duve Institute is a multidisciplinary biomedical research institute (250-300 scientists) hosting several laboratories the UCLouvain, as well as the Brussels branch of the Ludwig Institute for Cancer Research. The focus is on basic research in the fields of tumour immunology and signal transduction in cancer, genetics and development, including human genetics, stem cells and organ development, infection and inflammation and metabolism and hormones. The de Duve Institute also features several core facilities, including imaging, transgenesis, mass spectrometry, flow cytometry and cell sorting, as well as genomics. The de Duve Institute provides access to a high-performance computing cluster and storage, managed by a dedicated IT team.

[1] https://lgatto.github.io/spatprot-job-2023/

Application

To apply for the position, please send the following documents to Laurent Gatto:

- A cover letter describing why you would like to join the lab and how you match the requirement;
- A detailed CV including some or all of the following: a list of publications, pre-prints, posters and/or software contributions; a link to publicly available code/data analysis you have contributed to; education and professional experience; awards; teaching experience; any additional information you deem relevant.
- If no code is publicly available, please include code chunks that illustrate best your programming experience and interests.
- Among your projects, select 1 and provide a short narrative describing why these are important in your career, your specific contributions and/or the unique skills you have gained through these.
- A list of at least 2 academic references.

For more details, feel free to contact Laurent Gatto.

References

[1] Gatto *et al.* Mass-spectrometry-based spatial proteomics data analysis using pRoloc and pRolocdata. Bioinformatics 2014. DOI:10.1093/bioinformatics/btu013.
[2] Crook *et al.* A Bayesian mixture modelling approach for spatial proteomics. PLOS Computational Biology 2018. DOI:10.1371/journal.pcbi.1006516.
[3] Crook *et al.* Inferring differential subcellular localisation in comparative spatial proteomics using BANDLE. Nature Communication 2022. DOI: 10.1038/s41467-022-33570-9.

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