

Position: PhD student @BIOBIX to mine the genome for allele-specific effects

“Big data is the starting point, not the end.” (Pearl Zhu)

The **BIOBIX** lab of Bioinformatics and Computational Genomics at the Faculty of Bioscience Engineering of Ghent University (Belgium) is looking for a highly motivated PhD student to join our forces as soon as possible (September 1st 2020 the latest).

Allele-specific expression (ASE) is the generic term for the phenomenon where one of both alleles (in diploid organisms) is expressed to a higher extent than the other one. In health, ASE can be caused by several molecular phenomena, including genomic imprinting and random monoallelic expression. Some loci feature recurrent ASE in disease only, indicating that they are likely to be causally involved, independent of the fact whether the ASE observed is due to copy number variation, allele-specific (epi) mutations, ... Despite major relevance in health and disease, common methods to comprehensively study ASE are typically very expensive, prone to artefacts, and blind to the type of ASE.

At the BIOBIX lab, we are currently developing the **MAGE suite** (Modeller of Allelic Gene Expression) which circumvents these problems by explicit allele-specific statistical modelling of RNA-seq data (or similar) at the population level. The candidate will introduce novel functionality in MAGE and apply this innovative methodological framework to obtain a **pan-cancer overview of allele-specific aberrations** and their causes. Depending on the applicant's interests and data availability, other diseases can be studied as well.

As a candidate, you have/are:

- an MSc degree in Bioinformatics, Bioscience Engineering, Biochemistry and Biotechnology, Statistical Data Analysis, Biomedical Sciences or similar (or will have this degree by September 1st)
- proficient in scripting (e.g. Python) and biostatistics (R), experience with the statistical analysis of sequencing data and/or machine learning is a plus
- proficient in English, both written and oral
- acquainted with molecular biology
- a drive to answer biological questions by mining huge omics data sets
- an analytical, critical and independent attitude

We provide an open and stimulating working environment at a top 100 ranking university, in which teamwork, initiative, a critical mindset and originality are highly appreciated. We offer a position for 1 year, which will normally be extended to **4 years**.

How to apply?

Candidates should send their CV, a motivation letter (approx. 1 page) and the email addresses of two potential referees to prof. Tim De Meyer (tim.demeyer@ugent.be), by **April 1st 2020** the latest. Applicants not meeting the criteria will not be considered.

To learn more on our methodological approach (imprinting), see e.g. Goovaerts et al., *Nature Communications* 2018 (<https://www.nature.com/articles/s41467-018-06566-7>).