

## Doctoral researcher (bioinformatics) - development of shotgun metagenomics approaches

### Sciensano

The Belgian Institute of Health (Sciensano) provides support for health policy through scientific research, expert opinions and divisional tasks. On the basis of scientific research, we formulate recommendations and solutions for a proactive health policy at the Belgian, European and international levels; assess the status of health (indicators) within a certified quality framework; and develop advanced solutions for the diagnosis, prevention and treatment of current and emerging diseases.

— The METAMORPHOSE project (Development of shotgun METAGenomics approaches in support of Public Health for the next Sequencing Era) aims to develop the shotgun metagenomics approach using Next-Generation Sequencing (NGS) technologies generically and this both at the wet- and drylab levels, including both short-read NGS but in particular also novel long-read NGS technologies (e.g. nanopore sequencing). The project aims to deliver a proof-of-concept of the potential of metagenomics to answer public health questions using different case studies: detection and characterization of genetically modified microorganisms used in fermentation products or as a bioweapon, metagenomics to support quality control of vaccines and medicinal products, and metagenomics to characterize microbiomes.

### Your function

- Perform doctoral research within the METAMORPHOSE project (drylab level) with the aim of submitting a dissertation and obtaining the PhD degree (academic promoter: Kathleen Marchal, Ghent University).
- Realize and manage original scientific research, and communicate research findings in the form of scientific reports, peer-reviewed publications, and presentations at conferences.
- Be integrated in the Bioinformatics Platform at the service Transversal activities in Applied Genomics of Sciensano as part of a team that works closely together to develop specialized workflows and pipelines for the analysis of (meta)genomics data.
- Collaborate closely and intensively with the project coordinator, and a second PhD candidate responsible for the wetlab component of the project, situated in the BIOTECH Platform at the service Transversal activities in Applied Genomics of Sciensano.
- Take care to timely meet project deliverables and contribute to the progress of the project. You will report to and be supervised by the head of the Bioinformatics Platform, but are also capable of providing feedback to the different scientific collaborators and stakeholders involved within the project.
- Follow-up required administrative tasks, be able to use obtained results to support providing scientifically motivated expert advice and opinions to the competent authorities, allowing the implementation of metagenomics into public health policy.
- Design and develop bioinformatics workflows for the analysis of metagenomics data with the aim of being introduced into the routine activities of Sciensano. In particular, tweak, optimize, and

validate quality control and performance metrics for the analysis of metagenomics data to assure the optimal quality of results.

## Your profile

- MSc with a specialization track in bioinformatics or equivalent through experience.
- High proficiency with scripting languages such as Python.
- Strong familiarity with working on the Linux command line.
- Good understanding of (micro)biology and genomics.
- Basic insight of statistics and mathematics.
- English language proficiency.
- A team player with excellent interpersonal, organizational, and communication skills.
- Solution-oriented with strong strategic and analytical problem-solving skills, being able to tackle tough problems independently.
- A quick learner that feels at home in a fast evolving environment.

Complementary strengths: prior exposure to NGS data analysis; familiarity with High-Performance-Computing (SGE, PBS, SLURM...), statistical/mathematical packages (Matlab, R, SAS, SPSS...), and other programming languages (Java, Perl, C...); knowledge of relational databases (MySQL, PostgreSQL...), web servers (Apache, nginx...), and automation systems (Ansible...); Dutch and/or French language proficiency.

## We offer

- A two-year doctoral research contract to be extended with two additional years after successful mid-term evaluation.
- A challenging and fascinating project in a fast evolving domain.
- A knowledge-intensive position in a renowned health institute that operates on an international level.
- The possibility to directly impact Belgian public health.
- A young enthusiastic team of colleagues.
- Advantages: insurances, flexible hours in a 38-hour working week, reimbursement of public transport...
- Starting date: 01/10/2021-31/03/2022

## Interested?

Send your application via our website (direct link: <https://wiv-isp.hi-technologies.com/content/jobpage.asp?a=DETAIL&jdkid=828&l=DUTCH>).

For more information about Sciensano and/or the job description, contact [kevin.vanneste@sciensano.be](mailto:kevin.vanneste@sciensano.be)