

**Title****Systems biology of insertional mutagenesis (Postdoc/PhD)****Research**

A major goal of cancer research is to understand the gene networks that control tumorigenesis. Towards this end, large scale in vivo insertional mutagenesis screens are performed at the NKI. While this approach is extremely powerful, it still suffers from some limitations. First, viral insertions in the genome are not completely random, but show substantial biases. Second, when a virus integrates in an intergenic region, it is difficult to predict which of the surrounding genes will be affected. Third, the expression status of the integrated provirus itself is likely to be affected by the local chromatin structure. In this project we will employ very large scale insertion data obtained via deep sequencing, expression data en newly generated and public genome and chromatin profiling datasets to construct predictive models of insertion bias, effects of the environment on the genes and the effects of the insertions on genes. These models will be validated through directed perturbations of components identified in the modeling step as critical.

**Job description**

The successful candidate will be responsible for the modeling tasks, including overseeing the proper processing of the sequencing data and liaising with the groups that perform the wet experiments. The candidate will primarily be responsible for the construction of the predictive models, identifying testable targets and feeding the result of the tests back into the models.

**Location**

The position is embedded within the Bioinformatics and statistics group lead by Dr Lodewyk Wessels (<http://bioinformatics.nki.nl>) at the Netherlands Cancer Institute (NKI), Amsterdam. Within this project we will be closely collaborating with the research groups of Drs Maarten van Lohuizen and Bas van Steensel, also located within the NKI. Since this project is embedded within the Netherlands Systems Biology Consortium, frequent contact with the other modelers is also envisaged.

**Requirements**

Candidates should fulfill the following criteria.

- MSc or PhD in one of the following areas: bioinformatics, engineering, computer science, statistics, physics, biotechnology, or biology.
- Knowledge of fundamental aspects of computer science (algorithms and data structures, programming languages)
- Knowledge of statistics, artificial intelligence or bioinformatics is highly desirable.

**Conditions of Employment**

The employment conditions follow general employment rules as laid down in the 'CAO' for hospitals. The salary will be determined depending on education and experience.

**Contact and Applications**

Dr Lodewyk Wessels, tel. +31 20 512 7987 or e-mail: l.wessels@nki.nl. Applicants should send a CV, list of publications and the names and addresses of at least two persons that can be approached to obtain further information.

**Website**

<http://bioinformatics.nki.nl>

**Closing time**

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