



Centrum Wiskunde & Informatica

## Postdoc

Subject:

Computational Biology; Tumour Development

Department:

MAC 4 Life Sciences

Hours on a weekly basis:

38

### Centrum Wiskunde & Informatica

Founded in 1946, the Centrum Wiskunde & Informatica (CWI) is the national research institute for mathematics and computer science in the Netherlands. It is located at the Science Park Amsterdam and is part of the "Netherlands Organisation for Scientific Research" (NWO). The institute is internationally focused and renowned for its high quality research. Over 160 researchers conduct pioneering research and share their acquired knowledge with society. More than 30 researchers are employed as professors at universities. The institute has generated twenty-one spin-off companies.

CWI maintains excellent relations with industry and the academic world, both in the Netherlands as well as abroad. After their research careers at CWI, an increasing number of young staff members find employment in these sectors, for example in spin-off companies that are based on research results from CWI. Of course, library and computing facilities are first-rate. CWI's non-scientific services to its personnel include career planning, training and courses, and assistance in finding housing.

CWI has a **full time** vacancy for a

### **Postdoc position,**

for a two year period,

### on **Computational Biology of Tumour Development**

The opening is a research position within the field of *computational biology*.

The work will be embedded in the Biomodeling and Biosystems Analysis group of the Netherlands Consortium for Systems Biology (NCSB; [www.ncsb.nl](http://www.ncsb.nl)) at the CWI in Amsterdam. The research will be carried out in close collaboration with the Bioinformatics and Statistics group at the Netherlands Cancer Institute (NKI) that is part of NCSB-partner the Cancer Genomics Center (CGC). As the "core modeling group" of the NCSB, the modeling group carries out biomodeling research in collaboration with systems biology groups in partner institutes, including the CGC.

## Research background

Tumour growth and metastasis are topics of intense experimental and computational investigation. An important step towards tumour development is mutagenesis. This random mutation of genes regulating of key cellular processes including the cell cycle and cell migration, potentially leads to deregulated growth and cell division. Recent work in the group of Lodewyk Wessels at NCSB-partner CGC has identified pairs of genes co-mutated with common tumour suppressor genes, and pairs of genes of which either, but not both, are mutated. Such pairwise exclusivity is difficult to explain in terms of single cell dynamics. More recently it has become clear that higher-level effects, including cooperation between cancer cells and competition between cancer cell lines are equally important alongside genetic networks for explaining tumour development and eventually for predicting the outcome of treatments. To what extent such higher-level phenomena are responsible for the outcome of gene association studies is an open question.

## Job description

In this project you will build abstract, cell-based simulation models of evolving tumours to study the role of cell-cell interactions in shaping gene association networks. You will interact closely with two PhD-students in applied computational biology and with bioinformaticians at the Netherlands Cancer Institute in Amsterdam.

Level:

Academic

Competences:

The post-doc is required to have a completed PhD in computational biology or a related discipline. This is **not** a vacancy in bioinformatics: a background in modeling and simulation is required. The candidate is expected to have affinity with interdisciplinary applications, able to communicate with scientists in biology and bioinformatics, and have excellent programming skills. The candidate is expected to have a demonstrated record of excellent research, have strong organizational and guidance skills, be able to carry out his/her own research agenda, and to be able to collaborate with colleagues at CWI and other institutions. Candidates are required to have an excellent spoken and written command of English.

Offer:

CWI offers excellent and flexible terms of employment, including an employee pension fund.

The terms of employment are in accordance with Dutch Collective Labour Agreement for Research Institutes ("CAO-onderzoeksinstituten"). Moreover, CWI offers attractive working conditions, including flexible scheduling and help with housing for expat employees. Depending on relevant work experience, the gross monthly salary for an employee on a full time basis ranges from € 3,090 to € 4,395.

Information:

Additional information can be obtained from dr. Roeland Merks, email [Roeland.Merks@cwi.nl](mailto:Roeland.Merks@cwi.nl), telephone +31(0)20 592 4117.

Website: [www.cwi.nl/~merks](http://www.cwi.nl/~merks)

Please send your application before 31 March 2011 to: [pd@cwi.nl](mailto:pd@cwi.nl).

Applications should include a detailed CV, a motivation letter, and a list of publications.

Locations:

Amsterdam

Organisations:

CWI

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**Disclaimer | Report suggestions or problems to [webmaster@cwi.nl](mailto:webmaster@cwi.nl)**