

The Netherlands Cancer Institute - Antoni van Leeuwenhoek Hospital (NKI-AVL) is for the group of Prof. Peter J. Peters in the department of Cell Biology, looking for a

POSTDOC

Vacancynumber 2010/...

Project information:

The cellular nanocosm is made up of numerous types of macromolecular complexes or biological nanomachines. These form functional modules that are organized into complex subcellular networks. Information on the ultra-structure of these nanomachines has mainly been obtained by analyzing isolated structures, using imaging techniques such as X-ray crystallography, NMR, or single particle electron microscopy (EM). Yet there is a strong need to image biological complexes in a native state and within a cellular environment, in order to gain a better understanding of their functions. Emerging methods in EM are now making this goal reachable. Cryo-electron tomography is approaching macromolecular resolution. X-ray data can be 'docked' into the lower resolution particle density maps to create a macromolecular atlas of the cell under normal and pathological conditions. The majority of cells, however, are too thick to be imaged in an intact state and therefore methods such as 'high pressure freezing' with 'cryo-sectioning of unperturbed vitreous fully hydrated samples' have been introduced for electron tomography. The candidate will join a new EU project, which has the goal to image biological nano-machines and their mode of action within stem cells at macromolecular-scale. The identification and analysis of pathways of toxicological relevance in organotypic cell cultures is the ultimate aim of this consortium.

Challenges include visualizing individual conformations (imposed by drugs) of GFP tagged macromolecular complexes and using volumetric classification algorithms based on maximum likelihood statistical approach. Our initial attempt at understanding the spatial arrangements of the ribosome in situ is exciting and hints at the possibilities of imaging the vast majority of other biological machines. With new technologies being developed by us and others a resolution of 2.5 nm is approaching. We recently obtained grants for 2 Krios Titan cryo-TEMs thus creating a great infrastructure. For more details see www.necen.nl

Requirements:

The optimal candidate will hold a PhD, with interest in 3D electron microscopy. The candidate will join a team of 12 postdocs, PhD's and technicians that work cooperatively. More details at www.nki.nl/research/peters

The project is challenging and the candidate must be in possession of strong motivation, good social and communication skills and commitment to the scientific research, as well as flexibility in conducting experiments.

Employment conditions:

The temporary employment will be for a period of 2 years which can be extended for another 2 years when the project is successful. Obtaining a fellowship for the next career step will then be supported. The gross salary per month will be from € 2.619,- to € 3.495,- according to the FWG-function group 55, depending on previous experience.

The Dutch Cancer Institute offers a good scientific infrastructure and friendly environment for their scientist and is one of the high-ranking institutes in the world. See also www.pcdi.nl. In addition, Amsterdam is a great place to live.

For information:

For further information about the position please contact Prof. Peter J. Peters, E-mail: p.peters@nki.nl.