



EU Marie-Curie Initial Training Network



TRANSPOL

A European Research Training Network at the interface of
Cell/Molecular Biology and Membrane Physics

Topic: Transport and Signalling mechanism in Polarized Cells

Call: FP7-PEOPLE-ITN-210

Proposal Number: 264399

Project title: Modelling protein-induced membrane curvature and endocytosis using coarse-grained simulations

Type of position: Early Stage Researcher (ESR)/ PhD position

Reference Code: TRANSPOL-P5

Eligibility: To this position applies a mobility rule. The respective candidate must not have worked for more than 12 months in Denmark within the last three years. Furthermore, the candidate needs to be in his/her first four years of his/her research career. The four years are counted from the date a degree was obtained which formally entitles to embark on a doctorate.

Starting date: June 1st, 2011

Duration: 36 months

Salary: According to the Marie Curie-ITN rules: around 36000 Euro/year plus monthly mobility allowance of 500 Euro/month

Short description: Membrane invagination and vesicle fusion are fundamental highly-regulated processes in living cells. The combination of the membrane's material properties and protein function drives the molecular rearrangements involved. Artificial nanoparticles also induce membrane curvature and can be taken into a cell by endocytosis. This project will explore the effects of a membrane's structural properties (including lipid composition, membrane bending stiffness and tension) and protein/nanoparticle physico-chemical properties (size, shape, surface structure) on the efficiency of vesicle fusion and models of endocytosis. using parallel Dissipative Particle Dynamics and Monte Carlo simulations on 100-500 nm length scales. Experimental data will be used to calibrate the simulations, and theoretical modeling will

help in predicting the influence of the protein/nanoparticles on the dynamic processes.

Job

Requirements: Excellent knowledge of C++ and programming techniques, knowledge of Object-Oriented and parallel programming using Message Passing Interface an advantage but can be acquired on the job; background in biology, chemistry, physics or computing, but a desire to combine simulations of biological processes together with experimental analysis is essential.

Host Institute: Memphys - Center for Membrane Biophysics
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How to apply:

please send the following documents via e-mail to the TRANSPOL coordinating office: transpol@rub.de.

- Clearly indicate the project you are applying for by referring to the Reference code of this job offer
- Letter of motivation (research interests, reasons for applying to this program and project, respectively)
- A complete CV
- Certified copies of University Diploma or Master certificates
- Proof of proficiency in English language
- Two letters of recommendations

Deadline

for application: April 29th

**For further
information:**

Please contact the supervisor of this project or directly the TRANSPOL coordinating office: transpol@rub.de

