National Research Council of Italy

INSTITUTE OF NEUROSCIENCE

Pisa Padova Milano Cagliari Firenze

Milan, Sept 16 2013

Two positions for PhD students are available in the laboratory of Prof. Nica Borgese at the CNR Institute of Neuroscience in Milan, to carry out research on tail-anchored membrane protein biogenesis within the EU-funded Marie Curie TAMPting Network (see http://ec.europa.eu/euraxess/index.cfm/jobs/jobDetails/33879657 and http://www.tampting.ls.manchester.ac.uk/ for details. Candidates must have completed their undergraduate or master's degree no more than four years before the date of application and must have spent no more than 12 months during the past three years of their professional life in Italy.

Tail-anchored proteins constitute an important class of membrane polypeptides that includes, among others, key players in vesicular traffic and in the regulation of apoptosis. Because of their particular topology, tail-anchored proteins have unique post-translational mechanisms of targeting and insertion into the bilayer, which have only recently begun to be unravelled (for a review, see Borgese and Fasana, BBA **1808:**937, 2011). The selected PhD students will be involved in projects addressing currently poorly understood aspects of tail-anchored protein biogenesis, i.e., how they discriminate between the Outer Mitochondrial and the Endoplasmic Reticulum membrane, as well as the mechanism of translocation of the C-terminal polar domain across the phospholipid bilayer. The latter project aims also to lay the basis for the utilization of tail-anchored protein-based liposomes as novel vehicles for drug delivery. Execution of both projects will involve mastering a variety of biochemical, molecular and imaging techniques.

Research experience in the lab of the principal investigator will be complemented by secondments in academic and industry labs of the network, giving the students ample opportunity for interdisciplinary training.

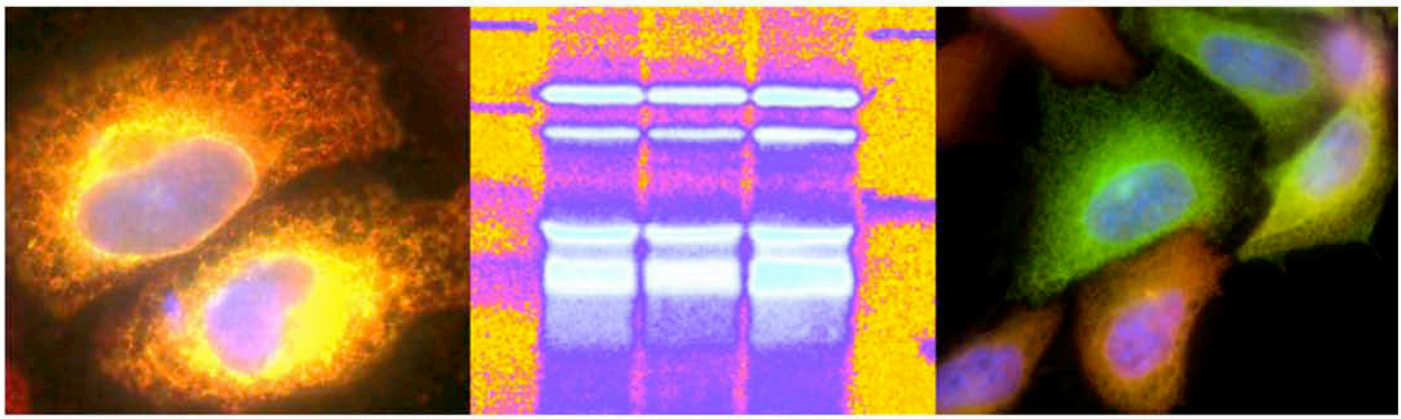
Interested candidates should submit the following documents to Nica Borgese at n.borgese@in.cnr.it:

- CV
- Degree Transcript
- List of publications (if any)
- Name and contact of two referees
- Cover letter detailing motivation for postgraduate study

Istituto di Neuroscienze del CNR – Sede di Milano – Via Vanvitelli 32 – 20129 Milano
Partita IVA 02118311006 - e-mail: segreteria.fcm@in.cnr.it - Tel.: +39 02 503 16963 / Fax: +39 02 503 17132

MANCHESTER 1824
The University of Manchester

The TAMPting Network



The TAMPting network – The biogenesis of tail-anchored membrane proteins: knowledge and exploitation

Tail-anchored proteins have several unusual features that both challenge prevailing views of membrane protein biogenesis and provide unique opportunities for their exploitation. Our recently awarded Marie Curie Initial Training Network brings together six academic partners and three SMEs at locations across Europe and Israel with two common goals: i) understanding how tail-anchored proteins are incorporated into a variety of target membranes; ii) using tail-anchored proteins to improve liposome based drug delivery and create artificial membranes. The overriding ethos of our consortium is to develop a robust platform for the application and exploitation of tail-anchored membrane proteins that operates within a framework where we develop and enhance our knowledge and understanding of their cellular biogenesis.

Opportunities for innovative training and research

Ten PhD positions and 3 postdoctoral fellowships are available with the TAMPting ITN.

The TAMPting initial training network provides the opportunity for an interdisciplinary training within a collaborative framework that has a combination of academic and industrial expertise. Fellows will have the opportunity to work in University and SME environments during the course of their projects and there will be extensive collaboration between partners. Each academic network partner will supervise two early stage researchers during the course of the PhD training: Stephen High (coordinator, UK), Nica Borgese (IT), Joen Luirink, (NL), Doron Rapaport (DE) and Blanche Schwappach (DE); whilst each SME partner will supervise one experienced post-doctoral researcher: Lipocure (IL); Xbrane (SE) and Synaptic Systems (DE).

For a recent review of tail-anchored proteins see: Johnson, N., Powis, K. and High, S. (2013). Biochimica et Biophysica Acta. BBA - Molecular Cell Research 1833: 2403–2409.

For further information see:
http://ec.europa.eu/euraxess/index.cfm/jobs/jobDetails/33879657
http://www.tampting.ls.manchester.ac.uk/

Projects

Early stage researcher (PhD) positions:

1. Creating synthetic membranes using TA-chimeras (High)
2. BAG6/SGTA mediated quality control of MLPs (High)
3. Intracellular targeting of TA proteins (Borgese)
4. Spontaneous TA protein insertion (Borgese)
5. Tail-anchored protein biogenesis in E. coli (Luirink)
6. Mycobacterial tail-anchored proteins: a druggable target? (Luirink)
7. Biogenesis of mitochondrial tail-anchored proteins (Rapaport)
8. Cytosolic delivery factors for mitochondrial TAs (Rapaport)
9. Biogenesis of hepatic tail-anchored proteins (Schwappach)
10. Role of WRB in cardiac function (Schwappach)

Experienced researcher (Postdoctoral) positions:

1. Customising liposomes with tail-anchored proteins (Friedman)
2. Recombinant tail-anchored protein chimeras (de Gier)
3. Novel antibodies for key components (Martens)