



**A European training network for the discovery of neurotrophins small molecule mimetics as candidate therapeutic agents for neurodegeneration and neuroinflammation (EuroNeurotrophin)**

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**PhD student - Early Stage Researcher (ESR6)**  
**In silico screening and Hit to lead development of small molecules neurotrophin receptors ligands**

**EuroNeurotrophin Overview**

**EuroNeurotrophin** will be the first European consortium to study small molecule neurotrophin mimetics (synthetic or natural) in depth, use them as molecular probes to interrogate neurotrophins, and emphasise their clinical translation.

**Neurodegenerative diseases (ND)**, like Alzheimer's disease, Parkinson's disease, Multiple Sclerosis and motor neuron disease, are on the rise worldwide. Preclinical studies point to the therapeutic potential of neurotrophins in preventing or slowing the progression of ND. The key idea behind this project is to address the major limitations of neurotrophins by developing novel **small molecule, neurotrophin mimetics** with favourable profiles of stability, tissue penetration and targeted biological actions.

**EuroNeurotrophin** meets the emerging need for training young researchers in drug discovery and development with a focus on the design, synthesis and isolation of new neuroprotective small molecule neurotrophin mimetics and their assessment using multimodal approaches, as well as their use towards market applications.

**Host Institution**



The University of Caen Normandie (UNICAEN) ([www.unicaen.fr](http://www.unicaen.fr)) is a major player for Normandie higher education and research developments with a student population of over 25,000 students. The Centre d'Etudes et de Recherche sur le Médicament de Normandie (CERMN) ([www.cermn.unicaen.fr](http://www.cermn.unicaen.fr)) is a research unit associated to the faculty of Pharmacy and is an interdisciplinary drug design unit at the interface between the physicochemical and the biological sciences. CERMN has the expertise to design and produce novel derivatives with therapeutic or diagnostic interest. The areas of research currently being developed at the Centre are in cancer research and the neurosciences.

Prof. Christophe Rochais, Full Professor of Organic and Medicinal Chemistry at the Faculty of Pharmacy of the University of Caen Normandie. He is one of the coordinator of the Master Degree "Drug Design" and his group is mainly dedicated to the development of biological tools and pleiotropic agents of interest in the treatment of neurodegenerative diseases.

## Description of tasks for the position

ESR6 will be able:

- To identify novel small molecules hits using *in silico* screening of UNICAEN chemical library.
- To validate the *in silico* hits identified with the *in vitro* assays available within the network.
- To conduct a pharmacomodulation study on the novel identified chemical series.
- To identify the molecular structural interaction of the lead with its/their targets.
- To evaluate and optimize the physicochemical properties of the lead.
- To fluorescently label active compounds for *in vivo* imaging studies.

## Requirements

- Applicants must hold a MSc or equivalent in the field of chemistry (organic or medicinal chemistry), Drug Design or pharmaceutical sciences
- Applicants can be of any nationality.
- Applicants must have a very good knowledge (written and oral) of the English language.
- **H2020 MSCA Mobility Rule:** researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of the host organisation for more than 12 months in the 3 years immediately before the recruitment date. Compulsory national service, short stays such as holidays, and time spent as part of a procedure for obtaining refugee status are not taken into account.
- **H2020 MSCA eligibility criteria:** Early Stage Researchers (ESRs) must, at the date of recruitment by the host organisation, be in the first four years (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree. Full-Time Equivalent Research Experience is measured from the date when the researcher obtained the degree entitling him/her to embark on a doctorate (either in the country in which the degree was obtained or in the country in which the researcher is recruited, even if a doctorate was never started or envisaged).

## Benefits

- ✓ The position is full-time with a 12 month duration renewable to 36 months.
- ✓ A very attractive salary plus allowances package according to the allowance amounts defined in the rules for Early Stage Researchers (ESRs) EU Marie Skłodowska-Curie Actions Innovative Training Networks (ITN) ([http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016\\_2017/main/h2020-wp1617-msca\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/wp/2016_2017/main/h2020-wp1617-msca_en.pdf))
- ✓ Network-wide specialised training and training in transferable/technical skills.
- ✓ Local specialist training provided by the host institution.
- ✓ Intersectoral and interdisciplinary secondments within the EuroNeurotrophin network.
- ✓ International exposure through participation in scientific conferences.

## Application

The application form can be downloaded from our website ([www.euroneurotrophin.eu](http://www.euroneurotrophin.eu)). Interested candidates for the position should submit the completed application form along with their cv, motivation letter, copies of publications and/or thesis (if available) and scans of transcripts to the

following emails:

[christophe.rochais@unicaen.fr](mailto:christophe.rochais@unicaen.fr) and [info@euroneurotrophin.eu](mailto:info@euroneurotrophin.eu)

**IMPORTANT:** Please also arrange for two recommendation letters to be submitted directly to

[christophe.rochais@unicaen.fr](mailto:christophe.rochais@unicaen.fr) and to [info@euroneurotrophin.eu](mailto:info@euroneurotrophin.eu)

### **Additional Information**

For additional information about the research project and this individual position, please contact:

Professor Christophe Rochais. Email: [christophe.rochais@unicaen.fr](mailto:christophe.rochais@unicaen.fr)