



**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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## **Early Stage Researcher (ESR9) Development of Human Cell-Based Models for study of Blood Brain Barrier Molecular Permeability**

### **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**



AvantiCell Science Ltd (ACS) is an SME company specialising in cell-based analysis using advanced cell culture technology based on physiologically-relevant primary human and animal cells, including stem cells.

The company was founded in 2006, is located in Ayr, Scotland, and delivers leading-edge solutions for customers wishing to evaluate bio-activity or bio-safety in a wide-range of test materials; from pharmaceuticals, traditional medicines and natural products to medical devices and nano-structured materials.

ACS commercial business comprises an extensive cell-based service portfolio which may be viewed online at [www.avanticell.com](http://www.avanticell.com). The company also builds and sell a range of cell-based products which take advantage of leading-edge expertise in human cell isolation, 3D cell model assembly by bio-printing, and cryopreservation. ACS supports an international customer base including European and Japanese large pharmaceutical companies, and has regularly participated in collaborative projects with European partner institutions and companies.

Colin Wilde, PhD, co-founded ACS and serves as its Chief Executive Officer. He trained as a biochemist and has published more than 100 research papers in the field of biochemistry/cell biology; he is a named inventor on ten patents or patent applications in related fields. Colin leads ACS commercial science business and oversees its programme of technical innovation in the field of cell-based analysis, which has secured >€10M in public funding support.

ACS Chief Scientific Officer Marie-Ann Ewart PhD has >20 years' experience in academic and industrial life science research and postgraduate student supervision. Dr Ewart has extensive expertise in mammalian cell isolation, culture and analysis, and currently manages AvantiCell's portfolio of ITN training programmes and H2020 projects.

### Description of tasks for the position

The project shall build cell models for use in the evaluation of neurotrophic agonists and antagonists. The model shall be a representation of the human blood brain barrier (BBB) produced by the controlled differentiation of human induced pluripotent stem cells (iPS cells) into microvascular cells displaying a BBB phenotype. The project shall investigate methods for iPS-derived microvascular cell co-culture with primary astrocytes, and assess the beneficial effect of co-culture on BBB integrity and filtration performance. The BBB model shall be characterised in terms of trans-epithelial resistance and by measurement of the passage of agents with known BBB molecular permeability. These models shall then be used to evaluate the permeability properties of small molecules identified during the EuroNeurotrophin project as having neurotrophic mimetic properties. The ESR fellow will gain experience in leading edge cell technologies whilst acquiring skill-sets based firmly in robust, commercial scientific practice.

### Requirements

- Applicants must hold an MSc or equivalent in Cell Biology or a related field.
- 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 26 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: [marieann.ewart@avanticell.com](mailto:marieann.ewart@avanticell.com) and [info@euroneurotrophin.eu](mailto:info@euroneurotrophin.eu)

**IMPORTANT:** Please also arrange for two recommendation letters to be submitted directly to [marieann.ewart@avanticell.com](mailto:marieann.ewart@avanticell.com) and to [info@euroneurotrophin.eu](mailto:info@euroneurotrophin.eu)

### **Additional Information**

For additional information about the research project and this individual position, please contact:  
Dr Marie-Ann Ewart Email: [marieann.ewart@avanticell.com](mailto:marieann.ewart@avanticell.com)