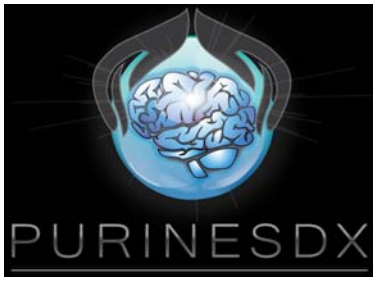

European Training Network

14 PhD Student Positions

Applications are invited for a pan-European academic/private sector research training network in the fields of diagnostic and therapy development for brain disorders.

PurinesDX brings together **global leaders in translational research** in purinergic signalling, Europe's **leading clinical specialists** in a broad range of brain diseases, and **industrial partners** specializing in drug and biomarker development. The synergism facilitated within **PurinesDX** will extend to the training of an urgently needed new generation of highly skilled, innovative, creative and entrepreneurial scientists. Alongside the provision of this **interdisciplinary**, **international** and **intersectoral environment**, an **original** and **high level training** in **state-of-the-art neuroscience** will be provided, nurturing a cohort of **highly competitive researchers** with potential to drive a new era of neuroscience research.

Brain disorders affect ~179 million people and their families in Europe alone, with an annual cost to the taxpayer estimated at €800 billion- a greater economic burden than cardiovascular disease and cancer combined. Despite diverse aetiology, overlap in clinical symptoms and comorbidities between brain disorders suggests shared patho-mechanisms. In particular, hyperexcitible states driven by glial activation and neuroinflammation appear near ubiquitous. Targeting these mechanisms offers the potential to ameliorate symptoms and reverse disease progression across a broad span of brain disorders. Functioning as a gatekeeper to neuroinflammation and mechanistic link between neuronal hyperexcitability and glial activation, the ATP-gated, ionotropic purinergic P2X7 receptor (P2X7R) offers the most promising target for pharmacological intervention in the neuroinflammation-hyperexcitability pathway, to date.

The overall research goal of **PurinesDX** is *to provide a novel therapeutic target and establish the diagnostic potential of newly developed devices to better diagnose and treat patients suffering from brain diseases and their underlying co-morbidities*.

The programme is funded through the Horizon 2020 Marie S. Curie Actions Programme. Selected candidates will be offered a competitive salary and, during their training, will spend time in academic, clinical and private sector research institutions.

Eligibility:

At the time of recruitment, the candidate must not have resided or carried out their main activity (work, studies, etc.) in the country of their recruiting organisation for more than 12 months in the 3 years immediately prior to start of the project. Short stays such as holidays and/or compulsory national service are not taken into account.

Candidate requirements:

Candidates can be of any nationality, but are required to undertake transnational mobility. Candidates should ideally possess a Master's degree in a relevant academic field. Previous related research experience will be a distinct advantage.

Ideal candidates should be motivated, eager to learn, and should possess excellent communication skills, as well as strong organizational skills with high level of attention to detail. In addition, applicants should have the ability to work independently and as part of a team.

Application process:

- **Project(s):** applicants can select **up to two (2)** preferred projects from the list available below;
- **Required documents:** a full CV, a motivation letter including a description of previous research experiences and contact details or recommendation letters of two 2 referees. **Only documents in English will be accepted.**
- **Submission:** applicants should submit the documentation to purinesdx@rcsi.ie writing on the subject line number of their selected projects (Ex: Projects 3 and 10) by **Friday, November 3rd, 2017 at 5 pm (GMT)**.

Applications failing to include the requested documentation, where the candidates do not meet the eligibility criteria or which do not indicate the preferred projects WILL NOT be considered in this competition.

Selection process:

Shortlisted candidates will be invited for interviews (telephone and/or Skype) and positions will be offered to candidates following approval by the PurinesDX training committee and coordinator.

We will endeavour to provide feedback to unsuccessful applicants where possible.

Projects

Project 1: Identification of the cell-specific contribution of the P2X7 receptor to seizure-induced pathology and epilepsy development

Location: Royal College of Surgeons in Ireland

Principal Investigator: Dr Tobias Engel (tengel@rcsi.ie)

Collaborators: Prof Felix Rosenow (Epilepsy Centre Frankfurt Rhein-Main; Germany); Dr John Ryan (Longboat Clinical Ltd. Ireland); Prof Miguel Diaz-Hernandez (University Complutense Madrid. Spain)

Project 2: P2X7 receptor signalling during seizures and identification of a seizure-specific P2X7R signature in blood

Location: Royal College of Surgeons in Ireland

Principal Investigator: Dr Tobias Engel (tengel@rcsi.ie)

Collaborators: Prof Annette Nicke (University of Ludwig Maximilans, Germany); Prof Nicholas Dale (Sarissa Biomedical Ltd, UK); Prof Felix Rosenow (Epilepsy Centre Frankfurt Rhein-Main; Germany)

Project 3: Identification of novel disease-specific P2X7R down-stream targets in schizophrenia and epilepsy

Location: University of Ludwig Maximilans, Germany

Principal Investigator: Prof Annette Nicke (annette.nicke@lrz.uni-muenchen.de)

Collaborators: Prof Antonio Garcia (Foundation Teofilo Hernando, Spain); Dr Tobias Engel (Royal College of Surgeons in Ireland); Prof Beata Sperlagh (Institute of Experimental Medicine, Hungarian Academy of Sciences, Hungary)

Project 4: Targeting of the purinergic P2X7 receptor to treat Alzheimer's disease

Location: University Complutense Madrid, Spain

Principal Investigator: Prof Miguel Diaz-Hernandez (mdiazher@ucm.es)

Collaborators: Dr Manuel Medina (CIEN, Spain); Dr Tobias Engel (Royal College of Surgeons in Ireland); Prof Andras Dinnyes (Bio Talentum, Hungary)

Project 5: Blood purines as novel diagnostic for pre-clinical Alzheimer's disease and identification of P2X7R-dependent down-stream targets in Alzheimer's disease

Location: University Complutense Madrid, Spain

Principal Investigator: Prof Miguel Diaz-Hernandez (mdiazher@ucm.es)

Collaborators: Dr Tobias Engel (Royal College of Surgeons in Ireland); Dr Manuel Medina (CIEN, Spain); Dr Benjamin Seibt (Dr Seibt Genomics, Germany)

Project 6: P2X7R signalling in the brain during schizophrenia and blood purine changes as novel diagnostics and prognostics for schizophrenia

Location: Institute of Experimental Medicine, Hungarian Academy of Sciences, Hungary

Principal Investigator: Prof Beata Sperlagh (sperlagh@koki.hu)

Collaborators: Prof Nicholas Dale (Sarissa Biomedical Ltd, UK); Prof Istvan Bitter (Semmelweis University, Hungary); Prof Miguel Diaz-Hernandez (University Complutense Madrid. Spain)

Project 7: Pathological contribution of the ATP-gated purinergic P2X7 receptor to the pathogenesis of schizophrenia

Location: Institute of Experimental Medicine, Hungarian Academy of Sciences, Hungary

Principal Investigator: Prof Beata Sperlagh (sperlagh@koki.hu)

Collaborators: Prof Istvan Bitter (Semmelweis University, Hungary); Prof Jose Lucas (Networking Research Center on Neurodegenerative Diseases Center for Molecular Biology (CIBERNED), Spain); Prof Antonio Garcia (Foundation Teofilo Hernando, Spain)

Project 8: The P2X7 receptor as drug target in depression and blood purines as novel diagnostic and prognostics in depression

Location: Max Planck Institute of Psychiatry, Germany

Principal Investigator: Dr Jan Deussing (deussing@mpipsykl.mpg.de)

Collaborators: Prof Martin E Keck (Max Planck Institute of Psychiatry (Hospital), Germany); Prof Beata Sperlagh (Institute of Experimental Medicine, Hungarian Academy of Sciences, Hungary); Dr Benjamin Seibt (Dr Seibt Genomics, Germany)

Project 9: The purinergic P2X7 receptor in diagnosis, prognosis and treatment in Huntington's disease

Location: Networking Research Center on Neurodegenerative Diseases Center for Molecular Biology (CIBERNED), Spain

Principal Investigator: Prof Jose Lucas (jjlucas@cbm.uam.es)

Collaborators: Dr Jose Lopez (Ramon y Cajal Hospital, Spain); Dr Benjamin Seibt (Dr Seibt Genomics, Germany); Dr Tobias Engel (Royal College of Surgeons in Ireland)

Project 10: Analysis of P2X7 receptor function and effects of P2X7R antagonism on neuronal differentiation and connectivity in neuronal networks generated from Alzheimer's disease patient derived pluripotent stem cells

Location: Bio Talentum, Hungary

Principal Investigator: Prof Andras Dinnyes (andras.dinnyes@biotalentum.hu)

Collaborators: Dr Manuel Medina (CIEN, Spain); Dr Tobias Engel (Royal College of Surgeons in Ireland); Prof Annette Nicke (University Ludwig Maximilans, Germany)

Project 11: Development of a novel in vivo biosensor for neuroscience applications

Location: Sarissa Biomedical LTD, UK

Principal Investigator: Prof Nicholas Dale (n.e.dale@warwick.ac.uk)

Collaborators: Dr Tobias Engel (Royal College of Surgeons in Ireland); Prof Felix Rosenow (Epilepsy Centre Frankfurt Rhein-Main, Germany); Dr Manuel Medina (CIEN, Spain)

Project 12: Biosensor approaches to the study of purinergic signalling during acute and chronic brain diseases

Location: Sarissa Biomedical LTD, UK

Principal Investigator: Prof Bruno Frenguelli (B.G.Frenguelli@warwick.ac.uk)

Collaborators: Dr Tobias Engel (Royal College of Surgeons in Ireland); Prof Beata Sperlagh (Institute of Experimental Medicine, Hungarian Academy of Sciences, Hungary); Prof Andras Dinnyes (Bio Talentum, Hungary)

Project 13: The ATP-gated P2X7 receptor as novel treatment target in amyotrophic lateral sclerosis

Location: Foundation Teofilo Hernando, Spain

Principal Investigator: Prof Antonio Garcia (agg@uam.es)

Collaborators: Prof Miguel Diaz-Hernandez (University Complutense Madrid, Spain); Dr Tobias Engel (Royal College of Surgeons in Ireland); Prof Beata Sperlagh (Institute of Experimental Medicine, Hungarian Academy of Sciences, Hungary)

Project 14: Development of a novel blood brain barrier and brain stable P2X7R antagonist

Location: Foundation Teofilo Hernando, Spain

Principal Investigator: Prof Antonio Garcia (agg@uam.es)

Collaborators: Prof Annette Nicke (University Ludwig Maximilans, Germany); Dr Jan Deussing (Max Planck Institute of Psychiatry, Germany); Prof Andras Dinnyes (Bio Talentum, Hungary)

Informal inquires:

For informal inquiries regarding the application and eligibility questions, contact purinesdx@rcsi.ie. For informal queries regarding specific projects contact the Principal Investigator directly.

Best of luck!

PurinesDX Recruitment Team