



Press Release

June 15th, 2017

Launch of the project: Modelling neuron-glia networks into a drug discovery platform for pain efficacious treatments (NGN-PET)

The new research project NGN-PET was launched in the framework of the Innovative Medicine Initiative (IMI), the largest public-private partnership (PPP) for health research worldwide co-funded by the EU and the European pharmaceutical industry. The NGN-PET consortium unites the expertise and knowledge of industry partners from the European Federation of Pharmaceutical Industries and Associations (EFPIA), small and medium-sized enterprises (SMEs) and academia. Together they will investigate neuron-glia interactions aiming to develop authentic cellular (co-culture) assays to discover improved treatments of neuropathic pain using neuronal and glial cell types derived from human induced pluripotent stem cells (iPSC), and their co-cultures.

The primary objective is to provide a translational platform for the identification, validation and testing of neuropathic pain targets in preclinical and human-relevant test systems suitable for drug discovery.

Chronic pain is a serious debilitating disease which greatly reduces the quality of life for the individual patients. In Europe, 20% of the population are affected which causes considerable socioeconomic burden of over 200 bn € per year¹. Chronic pain of neuropathic origin has a population prevalence of 8.2%².

Neuropathic pain arises after insults such as surgery, trauma, diabetes, chemotherapy or viral infections, and its prevalence is expected to rise in the future due to the ageing society.

Current treatments for chronic pain have limited efficacy, leaving about 60% of patients without adequate pain relief¹. Moreover, these therapies address only symptoms not the causes of the pain, and are therefore not curative. In fact, the aetiologies of the disease are poorly understood which hinders the development of new analgesics with improved efficacies.

One of the major findings of the last decade in pain research is that non-neuronal cells play a very active role in the development of sensory abnormalities. In particular, glia – like Schwann cells, microglia, or astrocytes – contribute directly to modulation of neuronal functions.

1. van Hecke O, Torrance N, Smith BH. Chronic pain epidemiology and its clinical relevance. *Br J Anaesth.* 2013; 111(1):13-8.

2. Torrance N, Smith BH, Bennett MI, Lee AJ. The epidemiology of chronic pain of predominantly neuropathic origin. Results from a general population survey. *J Pain.* 2006 Apr;7(4):281-9.



NGN-PET consortium: understand biology and develop test systems for neuropathic pain

The NGN-PET consortium aims to explore neuron-glia interactions in subtypes of neuropathic pain which are induced by chemotherapy or trauma, and to develop human-predictive test systems that can be implemented in the drug discovery process. These cellular systems will use preclinical tissues and human iPSC-derived neuron-glia co-cultures in novel high-throughput screening platforms. We hope this new science helps in identifying novel more efficacious treatments for neuropathic pain patients.

To achieve these ambitious goals, a consortium of 6 partners, with the support of IMI, has been formed. NGN-PET brings together experts from industry, SMEs and academia in a synergistic public-private partnership. NGN-PET is supported by over 3million euros from IMI2 and industry partners in direct and in-kind contributions. The project duration is 3 years. The consortium will disseminate the results through publication in high-impact scientific journals, applying open access policy whenever possible, or in scientific meetings by means of poster or oral presentations. Online outreach of the project publications will be performed via the project website.

The NGN-PET project is coordinated by Axxam; the project leader is ESTEVE, supported by Grünenthal as project Co-Leader.

About the partners



NGN-PET project members, during the kick-off meeting held in Barcelona on May 2nd.

About Axxam

Axxam is an innovative Partner Research Organization (iPRO) based in Milan, Italy. Axxam is a leading provider of integrated discovery services across Life Sciences industries including: pharmaceuticals, crop protection, animal health, cosmetics, fragrances, food and beverages. The company has consolidated expertise across a broad range of discovery disciplines and innovative technologies including: assay development, high-throughput screening of both the Axxam high quality compound collections (synthetic and natural) or those provided by our clients, compound management, hit identification and hit validation. Axxam performance-driven approach has been recognized by the clients as key to the success for their



discovery programs. Axxam is also engaged in alliance-based research towards innovative small molecule therapies for diseases with a high unmet medical need. Axxam's business terms are flexible, ranging from fee-for-service to risk-sharing deal structures.

More information: www.axxam.com

About Life & Brain

LIFE & BRAIN GmbH is a biomedical enterprise founded in 2002 and located at the University Hospital Campus in Bonn, Germany. As a center of innovation, LIFE & BRAIN acts as a revolving door between academic research and industry. Innovative research results are recognized early and developed further into marketable biomedical products and services. Its mission is to discover and develop novel strategies for the diagnosis and therapy of nervous system disorders. A key focus of LIFE & BRAIN is the development and provision of human pluripotent stem cell-based tools and services for neurological disease modeling and drug discovery. Within the project LIFE & BRAIN will provide induced pluripotent stem cell-derived glial and neuronal populations to model the neuron-glia network in neuropathological pain conditions.

More information: www.lifeandbrain.com

About King's College London

King's College London is one of the top 25 universities in the world (2016/17 QS World University Rankings) and among the oldest in England. Research at King's has played a major role in many of the advances that have shaped modern life, such as the discovery of the structure of DNA and work that led to the development of radio, television, mobile phones and radar.

King's has more than 26,500 students from some 150 countries world-wide and nearly 6,900 staff. The university has an outstanding reputation for world-class teaching and cutting-edge research. King's was ranked 6th nationally in the 2014 Research Excellence Framework (REF) and is in the top seven UK universities for research earnings with an overall annual income of more than £600 million.

More information: www.kcl.ac.uk

About NMI

The Natural and Medical Sciences Institute at the University of Tübingen (NMI) is a member of the Innovation Alliance Baden-Württemberg. Its main activities focus on application-oriented research at the interface between life and material sciences. In addition, it also operates as business incubator for start-up companies. NMI unique and interdisciplinary spectrum of skills and competencies, supported by a strong team of more than 150 scientists, provides an ideal research environment where innovative technologies are brought together for the benefit of public stakeholders and industry. A broad range of thematic areas are covered across several departments and laboratories:

- Pharma & biotechnology: targets and biomarkers for the identification of active compounds, electrophysiology, diagnostics and bio-analytics
- Biomedical engineering: implants, biosensors, biomaterials and regenerative medicine
- Surface and material technology: micro and nano-analytics, coatings, adhesive bonding systems

More information: www.nmi.de



About Esteve

Esteve is a leading pharmaceutical chemical group based in Barcelona, Spain. Since it was founded in 1929, Esteve has been firmly committed to excellence in healthcare, dedicating efforts to innovative R&D of new medicines for unmet medical needs and focusing on high science and evidence-based research. Esteve has a strong partnership approach to drug discovery, development and commercialisation. The company works both independently and in collaboration to bring new, differentiated best-in-class treatments to patients. The company currently employs 2,300 professionals and has subsidiaries and production facilities in several European countries, USA, China and Mexico.

More information: www.esteve.es

About Grünenthal

The Grünenthal Group is an entrepreneurial, science-based pharmaceutical company specialized in pain, gout and inflammation. Our ambition is to deliver four to five new products to patients in diseases with high unmet medical need by 2022 and become a €2 billion company. We are a fully integrated research & development company with a long track record of bringing innovative pain treatments and state-of-the-art technologies to patients. By sustainably investing in our R&D above the industrial average, we are strongly committed to innovation.

Grünenthal is an independent, family-owned company headquartered in Aachen, Germany. We are present in 32 countries with affiliates in Europe, Latin America and the US. Our products are sold in more than 155 countries and approx. 5,500 employees are working for the Grünenthal Group worldwide. In 2016, Grünenthal achieved revenues of approx. € 1.4 bn.

More information: www.grunenthal.com

About the Innovative Medicines Initiative

The Innovative Medicines Initiative (IMI) is working to improve health by speeding up the development of, and patient access to, the next generation of medicines, particularly in areas where there is an unmet medical or social need. It does this by facilitating collaboration between the key players involved in healthcare research, including universities, pharmaceutical companies, and other companies active in healthcare research, small and medium-sized enterprises (SMEs), patient organisations, and medicines regulators. This approach has proven highly successful, and IMI projects are delivering exciting results that are helping to advance the development of urgently-needed new treatments in diverse areas.

IMI is a partnership between the European Union and the European pharmaceutical industry, represented by the European Federation of Pharmaceutical Industries and Associations (EFPIA). Through the IMI 2 programme, IMI has a budget of 3.3 bn € for the period 2014-2024. Half of this comes from the EU's research and innovation programme, Horizon 2020. The other half comes from large companies, mostly from the pharmaceutical sector; these do not receive any EU funding, but contribute to the projects 'in kind', for example by donating their researchers' time or providing access to research facilities or resources.

- More info on IMI: www.imi.europa.eu
- Follow IMI on Twitter: @IMI_JU



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