

HORIZON EUROPE
Research and Innovation Framework Programme
PARTNER SEARCH FORM
for the call EIC Pathfinder

Organisation Name/ Department	Innox Limited Liability Company, with a seats in Białystok/Poland
Website of the organisation (in English)	www.innoxpharma.com
Organisation Type	<input type="checkbox"/> Higher Education establishment <input type="checkbox"/> Research organisation <input type="checkbox"/> Large company <input checked="" type="checkbox"/> SME <input checked="" type="checkbox"/> Start-up <input type="checkbox"/> NGO <input type="checkbox"/> Other (please specify)
Research/Innovation Fields	Biotech Company
Sub-Fields/ Keywords	Active plant substances, drug development, cancer, neurodegenerative diseases;
Short Description of the Organisation/ Department	Innox is a Polish-American biotech company. The company's headquarters is located in Białystok. Innox introduced an innovative drug development program focusing on halting, slowing down or preventing the pro-inflammatory cycle to stop the progression of cancer and neurodegenerative diseases.
Previous Projects/ Research Experience	The company so far has the following patent applications: Application number: WIPO ST 10/C PL441690 of July 8, 2022 titled "Method for isolating and purifying xanthohumol". Application under the PCT procedure under number WO 2023/283418 A1 of January 12, 2023 entitled "Prenylated chalcone and flavonoid compositions for use in treating cancers".
Main Collaboration Partners	Pikralida (Poland) – development of formulation process, Selvita (Poland) – in vitro study for drug-resistant leukemia, SciencePharma (Poland) - designing clinical study and investigator brochures, University of Białystok (Poland) - analytical and physicochemical research
Short Description of Your Project Idea	Our project aims to validate the feasibility of a novel drug candidate tailored to cross the blood-brain barrier (BBB) and selectively target malignant brain tumors. This

candidate will deliver a potent combination of multitargeted drugs, carefully selected to trigger programmed cell death (apoptosis) and eliminate cancerous cells within the brain.

The Proof of Concept (PoC) for this innovative drug will undergo rigorous validation through a series of accurately designed in vitro models, each crafted to mimic the intricate microenvironment of the brain and assess the drug candidate's effectiveness and safety profile.

Key objectives of our comprehensive research include:

- 1. Designing and Discovering Targeting Peptides:** Using state-of-the-art AI-driven techniques, our team aims to design and discover small peptides with high affinity for proteins which are known to be overexpressed on the surface of tumor cells within the brain. These peptides will serve as guides for precise drug delivery to malignant brain tumors.
- 2. Selecting Potent Multi-Targeted Drugs:** Our research involves the strategic selection of potent multi-targeted drugs derived from plant materials, chosen for their synergistic effects and ability to induce apoptosis and halt cancer cell proliferation within the brain.
- 3. Manufacturing and Characterization of Bionanoparticle Micelles:** We will undertake the lab-scale production of bionanoparticle micelles, sophisticated nanostructures designed to encapsulate our multi-targeted drug. Through comprehensive characterization studies, we will evaluate the stability, size, surface charge, drug load, release kinetics, and bioconjugation efficiency of these micelles, ensuring optimal drug delivery and efficacy.
- 4. PoC Studies Utilizing Advanced In Vitro Models:** Our PoC studies will utilize advanced in vitro models, including tissue culture insert-grown barriers composed of human brain capillary endothelial cells and astrocytes, to meticulously assess the BBB permeability and biological activity of our targeted nanomicelles. Additionally, we will evaluate the efficacy of our drug candidate in 2D planar models of glioblastoma (GBM) using different glioblastoma cell lines and sophisticated 3D tumor spheroids.

The design, discovery, and validation of this innovative bionanoparticle micelle drug candidate are estimated to span approximately 2-3 years. Throughout this period, our

	interdisciplinary team will work to advance the field of brain tumor therapy and offer hope to patients worldwide.
Related HE Calls	EIC Pathfinder, deadline 07.03.2024 – our consortium intends to apply for EU grants, adequate to our projects
Type and Role of Partner Sought	<p>We are looking for a Partner (for our consortium), with expertise in assessing the permeability of the blood-brain barrier (BBB). The ideal Partner would be a company with a proven track record in developing and utilizing models to evaluate BBB permeability, integrity, and function. Their experience should encompass a comprehensive understanding of BBB physiology, as well as proficiency in designing and conducting experiments using relevant cell culture systems, including co-culture models with endothelial cells, astrocytes, and pericytes or other relevant BBB models.</p> <p>Additionally, the Partner should possess capabilities in pharmacokinetic (PK) and pharmacodynamic (PD) assessments, enabling the evaluation of drug permeability, transport mechanisms, and biological activity at the BBB interface. Their expertise should extend to characterizing drug formulations, including stability, size, surface charge, and drug release kinetics.</p> <p>The Partner's role would involve collaborating closely with our consortium to design and implement studies aimed at validating the efficacy and safety of our novel drug candidates targeting brain tumors by assessing their BBB permeability. Utilizing a novel BBB model, the partner's expertise would facilitate the development and implementation of appropriate assay capable of assessing the penetration kinetics of molecules passing across the BBB.</p> <p>Furthermore, the Partner would provide a complementary assay to assess modulation of BBB permeability due to drug treatment. This assay service allows for both compound transport across the barrier to be studied as well as the effect of compounds on the structure and function of the BBB.</p> <p>In summary, we seek a Partner with specialized expertise in BBB assessment to enhance the scientific rigor and translational potential of our research efforts aimed at demonstrating the BBB permeability of our innovative drug candidates for the treatment of brain tumors.</p>
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