JOB OFFER

Position in the project:	**PhD candidate**
Scientific discipline:	Material Sciences; Injectable Nanomaterials; Biomaterials; Drug Delivery
Job type:	Scholarship
Number of job offers:	1
Remuneration/stipend amount/month:	Around 1 850 euro in the first 2 years and around 2 300 euro in the 3rd year.
Position starts on:	1st October 2024
Maximum period of contract/stipend agreement:	**36 months**
Institution:	Institute of Fundamental Technological Research (IPPT PAN), Warsaw
Project leader:	Paweł Nakielski
Project title:	**Injectable and RNA-releasing nanofibrous microcarriers for intervertebral disc regeneration** *Project is carried out within the Sonata Bis programme of the National Science Centre (NCN)*
Project description:	Low back pain affects up to 80% of people at some point, with 40% of chronic cases linked to IVD degeneration. Treatment options range from analgesics and anti-inflammatory drugs to physiotherapy and surgery, including NP removal or vertebral fusion. This project aims to develop an injectable hydrogel-based nanofibrous system serving as a scaffold for NP cells, RNA delivery, and NP crack filler in degenerated IVDs. This multifunctional material could aid IVD height reconstruction and regeneration by integrating tissue engineering and RNA therapy. The project involves three stages: fabricating porous nanofibrous microscaffolds with high water absorption, developing a non-viral vector delivery system for uniform nanoparticle loading in nanofibers, and evaluating the miRNA release and anti-apoptosis/inflammation performance of these microscaffolds in vitro. The anticipated outcome is a significant advance in IVD regeneration, potentially leading to minimally invasive therapies administered less frequently than current painkiller regimens. The project's multifunctional biomaterials could enhance existing and future therapies for IVD degeneration, offering new opportunities for tissue healing through combined drug delivery mechanisms using hydrogels, nanofibers, and miRNA.
Key responsibilities include:	1. Design and conduct electrospinning experiments 2. Develop hydrogels-based nanostructured microscaffolds

	3. Morphological, chemical, mechanical, and functional characterization of the obtained hydrogel-based microscaffolds (from designing/performing the experiments to the data analysis) 4. Report preparation 5. Disseminate the scientific results, publishing the work in high-quality journals
Profile of candidates/requirements:	1. Holding a MSc degree in Chemistry, Polymer Science, Physics, Nanotechnology or any related field of Materials Engineering 2. Solid background in polymer biomaterial development (expertise in electrospinning as well as hydrogel and/or polymer nanomaterial fabrication is desirable) 3. Keen interest in polymer nanomaterial characterization (e.g. SEM, AFM, FT-IR, XRD, DSC, TGA, etc.) 4. Ability to design, execute and evaluate research experiments 5. Excellent collaboration skills as well as the ability to work independently 6. Highly capable of communicating scientific results in English, both orally and in writing
Required documents:	1. Motivation letter with a description of research interests and previous experience relevant to the position applied for 2. CV including a complete list of publications 3. Attested copies of scientific degree (MSc), diploma in English 4. Recommendation letter and an additional referee that we can contact 5. Please include in your CV the following clause: "I agree to the processing of personal data contained in my job offer for the needs necessary to carry out the recruitment process conducted by IPPT PAN with headquarters in Warsaw, ul. A. Pawińskiego 5B, according to art. 13 para. 1 and 2 of Regulation (EU) 2016/679 of the Parliament and of the Council of 27 April 2016 on the protection of individuals with regard to the processing of personal data and the free movement of such data and the repeal of Directive 95/46 / EC (RODO).
We offer:	1. PhD position in a top-ranked research institute in Europe 2. Access to modern equipment and facilities 3. Possibility for interdisciplinary collaborations with foreign cooperation partners 4. Opportunity to participate in scientific conferences and training courses
Please submit the following documents to:	Applications should be sent to konkursy.ippt@ippt.pan.pl (with pnakiel@ippt.pan.pl in Cc) quoting "PhD1 Sonata Bis [Surname of the Applicant]" in the email subject.
Application deadline:	**15th August 2024** (candidates selected for interviews will be contacted a few days after the deadline)
For more details about the position, please visit:	www.nanoprg.com or email: pnakiel@ippt.pan.pl
Euraxess job/stipend offer:	TBA

Due to the entry into force of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016, we also require that your job advertisements include a clause requesting the candidate's consent to the processing of his or her personal data by the institution which carries out the recruitment process.