THERATOOLS

Funded by the European Union

DC6 – Job Vacancy

Position Description	
Reference	DC6
Title of the project	Personalized *in vitro* models of the blood-brain barrier
Recruiting Institutions	(1º) Italian Institute of Technology (Italy, 24 months) and (2º) University of the Basque Country-POLYMAT (Spain, 12 months)
Secondment	BeonChip
Expected Start Date (estimated)	Latest August, if possible, March/April

Job Offer Description	
Keywords	Induced pluripotent stem cells (iPSCs); Personalized medicine; *in vitro* models; Blood-brain barrier; Microfluidic;
Project description	The topic of this project will be mainly focused on the development of novel microfluidic devices for biomedical applications. Due to its multidisciplinary nature, a background in bioengineering, materials science, nanotechnology, biotechnology, biology, or related field is warmly welcome. The early-stage researcher will be involved in the use of Induced pluripotent stem cells (iPSCs) for the establishment of personalized in vitro blood-brain barrier models (BBB). The first task of the project will be aimed at the set-up of in vitro cultures of iPSCs derived from human subjects. The obtained iPSCs cultures will then be used to obtain various components of the BBB such as brain endothelial cells and astrocytes through differentiation procedures. Finally, the iPSCs-derived BBB components will be integrated in both static and microfluidic in vitro models of the BBB.
Objectives	1- Set up of “personalized” in vitro BBB model based on human induced pluripotent stem cells (iPSC) 2- Development of efficient and reproducible protocols to obtain iPSCs from fibroblast cells provided by human donors 3- Set up a protocol to differentiate iPSC into the various BBB components, in particular brain endothelial cells and astrocytes 4- Development of *in vitro* BBB model by using the cells differentiated from iPSCs and characterization of the obtained BBB models in terms of TEER, permeability to a fluorescent tracer, and expression of BBB-specific proteins 5- Fabrication of a microfluidic devices able to support O1 to O4
Expected Results	iPSCs will be obtained from fibroblasts and differentiated into BBB cellular components. A well characterized (in terms of

	TEER,permeability, and protein expressions) and personalized *in vitro* model of the BBB will be assembled on a chip
Supervisors	Dr. Gianni Ciofani and Dr. Mateo Battaglini (Italian Institute of Technology), Dr. Arianna Menciassi (Scuola Superiore Sant'Anna di Pisa), and Dr. Aitor Larrañaga (University of the Basque Country-POLYMAT)
Work in the secondment	A 3-months secondment at the Spanish company Beonchip is envisioned with the aim of adapting the iPSCs-derived BBB model to a functional microfluidics unit

Vacancy requirements	
Qualifications	Solid background in cell biology, biomaterials and molecular biology. Having a Master degree or equivalent diploma, and not having a doctoral degree.
Requirements	MSCA-recruiting rules are applied. Not having resided in Italy for more than 12 months in the 3 years immediately before the recruitment date, and not having carried out their main activity (work, studies, etc.) in Spain during this period.
Languages	Excellent command of written and spoken English is a must
Skills	Ability for research management, dissemination, communication with colleagues and supervisors, strong teamwork spirit, creativity, problem solving and attention to safety
Experience	Research experience in the academic or industrial sector will be considered

Job Details	
Salary	Salary and benefits will follow the rules of the MSCA-DN, as foreseen in the Marie Skłodowska-Curie Actions Work Programme. Gross salary per month in Spain: 3104,20€ (3400€ per month*CCC Spain (91,3%)) + 600 € mobility allowance Gross salary per month in Italy: 3.311,60€ (3400€ per month*CCC Spain (97,4%)) + 600 € mobility allowance *CCC (Country Correction Coefficient)
Other benefits	Other benefits: Gross family allowance: 660€ per month - if applicable* *The family allowance will also be made available to researchers whose parental status changes during their project.
Duration	36 months
Type of contract	Full time
Place of work	*Italian Institute of Technology*: Pisa, Italy (24 months) *University of Basque Country*: Donostia/San Sebastian, Spain (12 months)

	The prospective Ph.D. will be, upon successful accomplishment of their course of studies, awarded with a double degree by the University of the Basque Country and Scuola Superiore Sant'Anna di Pisa