

Marie-Sklodowska-Curie Actions – Postdoctoral Fellowships 2024

INL Expression of Interest

Research Group Leader /Research Group name:	
Sara Abalde-Cela / Medical Devices Research Group	
Scientist in charge:	
Name & surname	Sara Abalde-Cela
Contact email	sara.abalde@inl.int
Short description of the research group, including URL if applicable (<i>Strengths and scientific achievements (publications, patents, etc.), important infrastructure (up to 2000 characters with spaces)</i>):	
<p>The Abalde-Cela Medical Devices Research Group (MD RG) focuses on the development of new bleeding-edge technology based on microfluidics, biosensors, and nanotechnology towards earlier diagnosis, management, and advancing our current understanding of human diseases. One of the main focuses of the group is cancer biology and metastasis, but the group also counts with ongoing projects on other impactful medical conditions including, for example, Alzheimer's and spinal cord injury. Among the greatest strengths of the MD RG is its close collaboration with clinicians and continuous access to patient samples aiming for high translatability of its technologies. The creation of the spin-off RUBYnanomed in 2018, which commercialises microfluidic devices for the capture and enumeration of circulating tumour cells, is proof of the group's emphasis on bringing technology from bench to bedside.</p> <p>The group is funded mostly by collaborative European projects obtained in competitive calls via, among others, Horizon Europe, La Caixa Foundation and MSCA programmes. The group published widely with ~80 publications in the last five years, and also has also produced patent applications (PCT/PT2018/050019, PCT/EP2017/189246, PT20171000035347, PCT/EP2016/078406). We are culturally, nationally, and gender diverse, and count currently with five staff researchers, seven postdocs, five PhD students, nine junior researchers and from 3-5 MSc students per year. Three members of the group are either former or current MSCA grantees.</p>	

Project title:
To be defined together with the candidate
Project description (<i>up to 2000 characters with spaces</i>):
<p>We are searching for highly talented and motivated candidates to submit an application for a Marie-Sklodowska Curie Actions individual fellowship. The project proposal should be aligned with one of the four research lines described below and we are expecting the candidate to contribute actively towards the delineation of the project idea. Our current research can be grouped in four main research lines:</p> <ul style="list-style-type: none"> i) microfluidic systems to isolate biomarkers from body fluids for non-invasive disease monitoring, ii) nanobiosensors to detect and quantify disease biomarkers aiming for early diagnosis and accurate disease monitoring iii) advanced three-dimensional disease models based on organ-on-chip systems to study disease evolution and treatment. iv) novel optical tools for cell signalling and VOCs detection through artificial nose.

The group has extensive work in the capture and downstream analyses of circulating tumour cells, but has also more recently started looking at other biomarkers found in whole blood including extracellular vesicles and circulating tumour DNA. We have expertise in using gold nanoparticles and other substrates for surface-enhanced Raman scattering (SERS) spectroscopy with high specificity and sensitivity. Our organ-chip and advanced 3D models are centred on tumour models to study the processes of metastasis at different stages (invasion, intravasation and extravasation) and novel therapeutics. The group has recently acquired state-of-the-art pieces of equipment including a new inverted Raman microscope (with an integrated incubator for long-term cell culture), an automated single-cell/colony manipulator, and a droplet digital PCR system, all of which can be used towards the execution of this proposal. For enquiries, please do not hesitate to contact us via the contact above and please note our internal deadline set on the 10th of July.

Research fields (*You may choose more than one*)

Chemistry (CHE)	X	Life Sciences (LIF)	X
Economic Sciences (ECO)		Mathematics (MAT)	
Environment and Geosciences (ENV)		Physics (PHY)	X
Information Science and Engineering (ENG)		Social Sciences and Humanities (SOC)	

Expiration date for Expressions of Interest from postdoctoral fellows:

10th July 2024

Necessary documents to be submitted (in addition to the required CV and motivation letter):

One-page synopsis of project proposal.