



## ESR Project Information Sheet

<b>Project title</b>	Targeting diabetic vascular complications using a novel rat model for diabetic retinopathy
<b>Reference number</b>	ORBITAL_ESR_2019_Project 15
<b>Host Institution</b>	Experimentica Ltd., Finland
<b>Academic Institution</b>	University of Birmingham, UK
<b>Supervisor(s)</b>	Dr. Giedrius Kalesnykas (PI), Dr. Satu Mering, Dr. Simon Kaja (Co-PI), Dr. Ann Logan, Dr. Ana Gonzales Paredes (non-academic supervisor)
<b>Duration</b>	36-month employment contract provided and ESR enrolled on Ph.D. programme, typical duration 36 – 48 months ESR will be required to self-fund after the initial 36 months
<b>Status: Full-time / part-time</b>	Full time
<b>Funding information</b>	Funding agency: H2020-MSCA-ITN-2018
<b>Early Stage Researcher Allowances:</b>	Living allowance: €47,400 p/a + mobility allowance of €7,200 p/a + family allowance where applicable ( <b>all values before tax and social security payments</b> ) Fees: paid for first 36 months
<b>Closing date and time</b>	5 p.m. (CET) Friday 28 <sup>th</sup> June, 2019
<b>Commencement date</b>	2 <sup>nd</sup> September 2019

## Post summary

Diseases of the posterior segment of the eye are increasing considerably, in part due to an ageing population. One such disease, diabetic retinopathy, is the most common cause of blindness in working-age adults. Typical treatment involves regular injections into the eye, which is associated with significant patient discomfort and potentially serious side effects, including bleeding, infection and retinal detachment. As such, there is an unmet clinical need for the development of new and improved medicines for diabetic retinopathy. One of the major challenges in drug discovery for diabetic retinopathy is the paucity of standardized and predictable animal models that allow for the testing of novel drug targets. This project aims to address this challenge through the development of a novel rat model that mimic the ocular complications of diabetes, including vascular leak, neovascularization and diabetic macular oedema. Research and experimental work will include *in vivo* ocular imaging and electrophysiology, molecular biology, drug formulation, and nanomedicine. The project is highly transdisciplinary in nature, incorporating biological, biomedical, medicinal, industrial and clinical expertise, as well as being highly relevant to patients and industry.

This project will include three international secondments, to a total of 9 months over the project lifetime. The secondments are to the University of Birmingham (UK), Loyola University Chicago (USA) and an industrial secondment to Nanovector srl. (Italy)

The main objectives of the research can be summarised as follows:

- To develop a novel rat model to mimic the ocular complications of diabetes, including vascular leak, neovascularization and diabetic macular oedema.
- To determine the effect of a high fat (Western) diet on the severity of ocular complications of diabetes
- To determine the feasibility of targeting the liver X receptor (LXR) as therapeutic strategy to ameliorate the ocular complications of diabetes.

## Standard duties and responsibilities of the ESR

For the 36 months of employment contract the ESR will be required to work exclusively on the MSCA programme.

**In all cases, all duties and responsibilities will be clearly outlined in the researchers Personal Career Development Plan, as determined in the early stages of the project between the ESR and their supervisory committee.**

## Person specification

### Qualifications

Essential

Applicants should hold or expect to attain, as a minimum a 2:1 Honours degree, or equivalent, in Neuroscience, Life Sciences, Biological Sciences, Zoology, or equivalent.

### Knowledge & Experience

Essential

- Research project carried out in one of the above disciplines
- A demonstrated knowledge of at least three of the following: pharmaceutical formulation development, drug delivery, cell culture/molecular biology, nanotechnology, polymerisation techniques

Desirable

Work placement undertaken in an industry related to the above disciplines

### Skills & Competencies

Essential

- Applicants whose first language is not English must submit evidence of competency in English, please see <https://www.birmingham.ac.uk/postgraduate/pgt/requirements-pgt/international/index.aspx> for details.
- Evidence of interest, aptitude and research experience in the above disciplines

## Further information

For any informal queries, please contact Experimentica Ltd. by email at [info@experimentica.com](mailto:info@experimentica.com).

For queries relating to the application and admission process please contact Dr Laurence Fitzhenry at [orbital@wit.ie](mailto:orbital@wit.ie) or by telephone at +353 (0)51 302624.

Website: [www.orbital-itn.eu](http://www.orbital-itn.eu)

**The Institute may decide to interview only those applicants who appear from the information available, to be the most suitable, in terms of experience, qualifications and other requirements of the position.**



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