



Integrated Training in Dry Eye Disease Drug Development (IT-DED³)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 765608



PhD student - Early Stage Researcher (ESR6)

Development of new carriers to improve the bioavailability of topic formulations to treat ocular surface inflammatory diseases

About IT-DED³

The European Network for Integrated Training in Dry Eye Disease Drug Development ([IT-DED³](#)) aims to deliver multidisciplinary and entrepreneurial researchers trained to develop new therapies for patients suffering from Dry Eye Diseases (DED). DED is a chronic, multifactorial disease of the ocular surface and is a major and increasing healthcare problem due to its high prevalence and economic burden because of the ageing population and frequent computer/tablet/smartphone usage.

Both the research and training programme of [IT-DED³](#) will deliver researchers with an enhanced career perspective and employability, who know how to use their entrepreneurial skills to move drug development projects in DED and other fields to the next technology readiness level.

About the host organisation

The [University of Valladolid \(UVA\)](#) is one of the oldest universities in Spain. At an institutional level, UVA manages ~740 research projects financed through competitive public R+D+I calls (European, national or regional), and ~500 contracts or agreements aimed at the transfer of knowledge and technology, amounting to ~€15M/year. As a result, UVA holds 57 patents and annually publishes more than 800 articles in journals listed in the SCI, around 250 books, and presented at over 2000 conference presentations.

[IOBA](#) at UVA, was the first Spanish institute dedicated to Ophthalmology & Visual Sciences. It is a self-financed academic Institution of more than 100 members that develops research, teaching and sub-specialized clinical assistance, including clinical trials. These three pillars make IOBA a unique research centre in Spain that has an annual budget of around €4.5 M, and develops five Masters in Science Degrees and a Doctorate Programme in Visual Sciences, along with an extensive list of national and international cooperation programmes in research and teaching. Fifteen senior staff scientists from IOBA develop the Advanced Therapies for Ocular Inflammation horizontal research interdisciplinary programme, counting on well-trained scientific and technical personnel, almost half of them being clinical scientists. Also, IOBA develops *in vitro/ex vivo* models from human ocular tissue to study the physiopathology of ocular diseases and to test novel therapeutic developments while reducing animal testing. IOBA has expertise and training capacity in different in-house techniques: (1) Gene protein expression (IHC, SDS-PAGE and WB, RT-PCR, and Q-PCR); (2) Cell culture (animal and human cell lines, primary cultures, ex vivo tissue); (3) Ocular tissue histopathology, epi-fluorescence and confocal microscopy; and (4) Multiplex immunobead-based array (Luminex®) and Flow cytometry.

Tasks description

Our objective is to study the biocompatibility and efficacy of different drug delivery systems loaded with natural compounds and formulated to achieve adequate delivery to inflamed anterior eye structures.

Research will cover the following aspects:

- Formulation of natural compounds in drug delivery systems
- Physicochemical characterization of developed formulations
- Biological evaluation of biocompatibility of developed formulations
- In vitro and ex vivo efficacy studies of developed formulations using different inflammation models



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PhD student - Early Stage Researcher (ESR4) Evaluation of the topic use of natural compounds for the treatment of ocular surface inflammatory diseases

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Tasks description

In vitro data suggest that natural derived polyphenols (flavonoids and stilbenes, such as quercetin and resveratrol) can potentially be used as treatment of diseases of the ocular surface.

The aim of this research line is to determine the potential effect of different natural compounds (derived from grapes or from olives residues) on the maintenance of ocular surface health in inflammatory diseases such as dry eye and ocular allergy. Additionally, this research line includes the study of different formulation processes for the adequate delivery of these compounds on the ocular surface. All of this is carried through in vitro assays with primary cultures or established cell lines and experimental models.

We seek a highly motivated researcher to work in a multidisciplinary environment, with a strong background in pharmaceutical sciences, biotechnology and/or biomedical engineering, covering from drug formulation to cell biology.

Skills in cell cultures techniques will be highly valued.

Tentative incorporation date: December 2018

Profile and requirements

- ✓ Applicants can be of any nationality.
- ✓ Applicants must hold a MSc or equivalent in the field of biomedical sciences, biotechnology, pharmaceutical sciences or an equivalent.
- ✓ Applicants must have an ability to understand and express themselves in both written and spoken English to a level that is sufficiently high for them to derive the full benefit from the network training.
- ✓ Applicants must be eligible to enrol on a PhD programme at the host institution (or at a designated university in case the host institution is a non-academic organisation).
- ✓ Applicants must have the necessary academic skills and background to make the success of a doctoral degree.
- ✓ *H2020 MSCA Mobility Rule*: researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of the host organisation for more than 12 months in the 3 years immediately before the recruitment date. Compulsory national service, short stays such as holidays, and time spent as part of a procedure for obtaining refugee status are not taken into account.
- ✓ *H2020 MSCA eligibility criteria*: Early Stage Researchers (ESRs) must, at the date of recruitment by the host organisation, be in the first four years (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree. Full-Time Equivalent Research Experience is measured from the date when the researcher obtained the degree entitling him/her to embark on a doctorate (either in the country in which the degree was obtained or in the country in which the researcher is recruited, even if a doctorate was never started or envisaged).

Benefits

- ✓ You will be employed by the host organisation for 36 months.
- ✓ A competitive salary plus allowances. Moreover, funding is available for technical and personal skills training and participation in international research events.
- ✓ You will benefit from the designed training programme offered by the host organisation and the IT-DED³ consortium.
- ✓ You will participate in international secondments to other organisations within the IT-DED³ network and in outreach activities targeted at a wide audience.

Please, find additional information in the [Information package for Marie Skłodowska-Curie fellows](#)

Application

Interested candidates are invited to apply for this position by filing in the form on our website (www.itded3.eu), via this link: www.uantwerpen.be/en/projects/dry-eye-disease-drug-development/job-openings/submit-your-applicat/

Additional information

For additional information about the research project and this individual position, please contact:

Contact data:

Dr Yolanda Diebold

Email: yol@ioba.med.uva.es



Additional information

For additional information about the research project and this individual position, please contact:

Contact data:

Dr Amalia Enríquez-de-Salamanca

Email: amalia@ioba.med.uva.es



Research will cover multidisciplinary experiments including:

- natural polyphenols extraction and isolation
- polyphenol formulation to achieve adequate bioavailability for topical application.
- biological evaluation with ocular cell lines models (antioxidant and anti-inflammatory actions)
- in vivo evaluation of final formulation/s in an animal dry eye model.

- ✓ We look for a highly motivated researcher to work in a multidisciplinary environment, covering from compound isolation to final topical application studies in an animal model.
- ✓ ESR scientific profile sought for this position includes a researcher with a strong Biochemical, Biotechnology, or Biochemical engineering background/orientation.

It will be positively valued that ESR has previous knowledge/experience in any of the following points:

- Cell culture and molecular biology techniques
- Separation processes (extraction, precipitation, ...)
- Chemical analytical techniques

Expected/Tentative incorporation date: September 2018

Profile and requirements

- ✓ Applicants can be of any nationality.
- ✓ Applicants must hold a MSc or equivalent in the field of (bio) chemical sciences, biotechnology, (bio) chemical engineering, pharmaceutical sciences or an equivalent.
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