Bridging regulatory science and innovation for dermal generics and advanced skin therapies

DC13: AI-enabled E2E workflow as a 'digital-twin' enabling non-AI experts to predict formulation performance

Host institution: University of Surrey (UOS), School of Chemistry and Chemical Engineering, United Kingdom

Supervisor: Professor Guoping Lian

Co-supervisors: Professor Tao Chen and Professor Wenwu Wang, University of Surrey (Academic); supervisor: Dr. Stephern Glavin, Unilever (Industrial)

Project description: The project will deliver an AI-enabled E2E workflow as a 'digital-twin' enabling non-AI experts to predict formulation performance.

The DC will collect and curate large datasets of IVRT (in vitro release testing) and IVPT (in vitro permeation testing) results, train machine-learning models and integrate them with mechanistic PBPK (physiologically based pharmacokinetics) skin modelling frameworks to enhance predictive accuracy. The expected output is an AI-assisted E2E workflow enabling faster, reproducible and more accurate prediction of novel formulation performance including transdermal permeation and bioavailability.

Host Organization: The doctoral candidate will be hosted at the School of Chemistry and Chemical Engineering at the University of Surrey, UK. The School of Chemistry and Chemical Engineering has established a portfolio of strong interdisciplinary research spanning fundamental science through to the commercialisation of technological innovations. The Skin Research Group undertakes world-leading research in *in-silico* modelling of transdermal permeation and bioavailability, supported by extensive international and intersectoral collaborations with academic and industrial partners.

Secondments: Planned secondments at Unilever and ESQlabs (9 months each) for AI model testing, refinement and validation within industrial research and development.

- 9 months at EsqLabs, Germany (supervisor: Dr. Stephan Schaller)
- 9 months at Unilever R&D Colworth, UK (supervisor: Dr. Stephern Gklavin)

Eligibility criteria

Applicants must satisfy the eligibility requirements of the Horizon-MSCA-2025-DN programme. In particular, they must:

- Have less than four years' research experience (full-time equivalent) after obtaining their Undergraduate/Master's degree.
- Not hold a PhD degree at the time of recruitment (**candidates currently registered for a PhD for less than four years and not yet copleted may apply**).
- Comply with the **mobility rule**: in general, the must not have resided or carried out their main activity (work, studies, etc.) in the country of their recruiting organization, i.e. in the UK, for more than 12 months in the 36 months immediately before their recruitment date.
- **Mobility Rule:** researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of the recruiting beneficiary for more than 12 months in the 36 months immediately before their recruitment date.
- **Local requirements:** Must meet the requirement for registering PhD study at Chemical Engineering Department of Surrey University, including
    - Hold (or expect to obtain) at least a 2:1 equivalent Bachelor's degree in a physical, math or engineering science discipline.
    - IELTS Academic: 6.5 or above (or equivalent) with 6.0 in each individual category.

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Required skills

- Essential: Strong computational and scientific programming skills.
- Desirable: Background in biophysics, heat and mass transfer, molecular dynamics, physical chemistry and or thermodynamics will be advantageous.

Remuneration

The successful candidates will receive the full benefits of MSCA Doctoral Candidates, including:

- A competitive living allowance at €4010 per month
- Mobility allowance at €710 per month
- Family allowance at €660 per month (if applicable)

Enquiries

For general information about the guideSkin Industrial Doctorate visit the project website (https://guideskin.eu/). Recruitment will be managed by the respective host or recruiting organisation. For additional information on this project, please contact Professor Guoping Lian at g.lian@surrey.ac.uk.

How to apply

Applications should be sent to Professor Guoping Lian at g.lian@surrey.ac.uk with the following required supporting documents:

- Statement of interest (limit of 2,500 characters) explaining why you wish to be considered for the fellowship and which qualities and experience you will bring to the role.
- Curriculum vitae et studiorum.
- A certificate of University examinations taken (with marks).
- A final degree certificate translated in English. If, at the time of application, candidates should not be yet in possession of a degree certificate, they can submit it at the time of the examination. However, if successful, the candidate will be required to provide a translated and legalised certificate as proof of eligibility for doctoral admission.
- Proof English Language tests (ELTS)
- Two recommendation letters

A limited number of applicants will be invited for an interview and will be required to provide contact information of up to two contact person for reference letters.

Application deadline: The closing date for applications is **17 July 2026.**