

DC01: Establishment of criteria for excipient equivalence in cutaneous formulations

Host institution: [University of Belgrade](#) (UBG), [Department of Pharmaceutical Technology and Cosmetology](#), Serbia

Supervisor: [Prof. Snežana Savić](#)

Co-supervisors: Dr. Pantelić, University of Belgrade (Academic); Dr. Michael Herbig, RaDes GmbH (Industrial)

Project description: Demonstrating equivalence for cutaneous formulations is complicated by the intrinsic variability of excipients, which is not adequately captured by current Q1/Q2 sameness requirements. Complex excipients such as petrolatum, paraffins, emulsifiers and polymeric systems exhibit compositional heterogeneity that can influence microstructure and performance.

This PhD project aims to establish scientifically justified criteria for excipient equivalence by linking compositional variability to critical quality attributes and biopharmaceutical performance. The work will combine advanced analytical characterisation, including LC-MS, FTIR, gel permeation chromatography (GPC), differential scanning calorimetry (DSC) and atomic force microscopy (AFM), with EMA-recommended techniques such as microscopy, rheology and solubility assessment.

A central objective is to determine how excipient variability affects formulation microstructure and IVRT/IVPT performance, and to define thresholds beyond which differences become relevant. The project will deliver validated workflows and decision criteria supporting regulatory assessment of excipient interchangeability beyond simple Q1/Q2 sameness.

Host laboratory: The doctoral candidate will be hosted by the Department of Pharmaceutical Technology and Cosmetology at the University of Belgrade, Serbia. The department has established expertise in dermal formulation design, physicochemical characterisation and regulatory science, with infrastructure supporting rheology, microscopy, thermal analysis and advanced analytical methods. The group maintains strong collaboration with industrial partners in topical and transdermal product development.

Secondments: This project is carried out in collaboration with the following company partners, and extended mobility to their laboratories is expected during the project:

- 9 months at [RaDes GmbH](#), Germany (supervisor: Dr. Michael Herbig)
- 9 months at [LTS Lohmann Therapie-Systeme AG](#), Germany (supervisor: Dr. Patrick Mohr)

A willingness to travel and spend time abroad is therefore essential.

Eligibility conditions:

- Master's degree (300 ECTS) in Pharmacy, Pharmaceutical Engineering or Industrial Pharmacy.
- Applicants must be doctoral candidates (or in the PhD enrollment process), i.e not already in possession of a doctoral degree. Candidates who possess a foreign higher education certificate must timely start the recognition process for continuing education at the University of Belgrade.
- Mobility rule: researchers must not have resided or carried out their main activity in the country of the recruiting beneficiary for more than 12 months in the 36 months immediately before their recruitment date.

Required skills:

- In line with the requirements within the call of the University of Belgrade – Faculty of Pharmacy for enrolling Doctoral Academic Studies in Pharmaceutical Sciences – English language (180 ECTS) – available at <https://www.pharmacy.bg.ac.rs/en/>

- Proficiency in the English language is required, as well as good communication skills, both oral and written. Successful candidates will need to provide a suitable certificate (e.g. IELTS, TOEFL, Cambridge English). You may be exempt if you are a national of a majority native-English speaking country, or have qualifications / degree that has been taught and assessed in English. The supervisor may also confirm that a candidate has the required level of English.

Remuneration:

The Doctoral Candidate will receive a gross yearly salary of ~43000 EUR in accordance with the MSCA Doctoral Networks programme, including a living allowance and a mobility allowance. This amount corresponds to the contractual gross salary and is indicated before deduction of employer costs, employee taxes and social security contributions. An additional family allowance (if applicable) is foreseen. The net salary will depend on local taxation, social security and employment regulations.

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 Ivana Pantelić (ivana.pantelic@pharmacy.bg.ac.rs).

How to apply

Interested PhD candidates should submit their application via ivana.pantelic@pharmacy.bg.ac.rs

Required 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 to 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.

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 **November 10th, 2026.**

DC15: Evaluation of formulation and skin properties of relevance for the quality and equivalence of nano-enabled formulations

Host institution: [University of Belgrade](#) (UBG), [Department of Pharmaceutical Technology and Cosmetology](#), Serbia

Supervisor: [Prof. Snežana Savić](#)

Co-supervisors: Dr. Sonja Vučen, University College Cork (Academic); Dr. Tanja Ilić and Dr. Branka Grujić, Galenika a.d. (Industrial)

Project description: Nano-enabled formulations, including nanoemulsions, liposomes and other nanocarrier-based systems, are increasingly used in dermal drug delivery due to their ability to enhance solubility, stability and skin penetration of active substances. However, their complex structure and dynamic behaviour present challenges for quality assessment and demonstration of equivalence within the current regulatory framework, including the EMA guideline on quality and equivalence of cutaneous products.

The aim of this project is to evaluate formulation and skin properties that are critical for the quality and equivalence assessment of nano-enabled dermal formulations. The project will investigate key parameters such as particle size distribution, stability, interaction with skin components and their influence on drug release and penetration. Advanced analytical techniques will be used to characterise nano-structures and their evolution during storage and after application to the skin.

The relationship between these properties and product performance will be assessed using IVRT and IVPT methodologies. The resulting data will be used to define critical quality attributes and to establish a framework for assessing equivalence of nano-enabled formulations. The outcomes will contribute to the development of regulatory-relevant methodologies for complex dermal delivery systems in alignment with the EMA guideline.

Host laboratory: The doctoral candidate will be hosted by the Department of Pharmaceutical Technology and Cosmetology at the University of Belgrade (UBG), Serbia. The department provides extensive expertise in nano-enabled formulation development, physicochemical characterisation and regulatory science. It offers advanced analytical infrastructure and strong collaboration with industrial partners, supporting translational and regulatory-relevant research.

Secondments: This project is carried out in collaboration with the following company partners, and extended mobility to their laboratories is expected during the project:

- 9 months at [Galenika a.d.](#), Serbia (supervisor: Dr. Branka Grujić)
- 9 months at [ESQlabs GmbH](#), Germany (supervisor: Dr. Stephan Schaller)

A willingness to travel and spend time abroad is therefore essential.

Eligibility conditions:

- Master's degree (300 ECTS) in Pharmacy, Pharmaceutical Engineering or Industrial Pharmacy.
- Applicants must be doctoral candidates (or in the PhD enrollment process), i.e. not already in possession of a doctoral degree. Candidates who possess a foreign higher education certificate must timely start the recognition process for continuing education at the University of Belgrade
- Mobility rule: researchers must not have resided or carried out their main activity in the country of the recruiting beneficiary for more than 12 months in the 36 months immediately before their recruitment date.

Required skills:

- In line with the requirements within the call of the University of Belgrade – Faculty of Pharmacy for enrolling Doctoral Academic Studies in Pharmaceutical Sciences – English language (180 ECTS) – available at <https://www.pharmacy.bg.ac.rs/en/>

- Proficiency in the English language is required, as well as good communication skills, both oral and written. Successful candidates will need to provide a suitable certificate (e.g. IELTS, TOEFL, Cambridge English). You may be exempt if you are a national of a majority native-English speaking country, or have qualifications / degree that has been taught and assessed in English. The supervisor may also confirm that a candidate has the required level of English.

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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 Tanja Ilić (tanja.ilic@pharmacy.bg.ac.rs).

How to apply

Interested PhD candidates should submit their application via tanja.ilic@pharmacy.bg.ac.rs

Required 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 to 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.

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.

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