

A Special Journal Issue: Fostering Scientific Research at the Faculty of Pharmacy, University of Ljubljana, Slovenia

This special issue of *Acta Pharmaceutica* is dedicated to the Faculty of Pharmacy at the University of Ljubljana, the leading Slovenian institution for pharmaceutical education and research. The Faculty has established itself as a centre of excellence in pharmaceutical sciences in Europe. It offers high-quality education at all academic levels and fosters a dynamic research environment that spans pharmaceutical chemistry, pharmaceutical technology, biopharmacy, clinical pharmacy, and pharmaceutical biotechnology. With strong international collaboration, state-of-the-art research infrastructure, and a focus on translational and innovative science, the Faculty plays a vital role in advancing both academic and applied pharmaceutical research.

The eight scientific research articles, five original research papers and three short communications presented in this special issue reflect the Faculty's diverse expertise and its ongoing commitment to scientific innovation and research. Each study represents a significant contribution to its respective field.

The first study explores the medicinal chemistry-oriented optimisation of 6-(trifluoromethyl)pyrimidin-2-amine derivatives as TLR8 antagonists, in which the authors discovered two promising TLR8 antagonists with IC_{50} values in a single-digit micromolar range. These compounds represent promising starting points for further investigation. The second paper discloses tetrahydropyrane- and thiadiazole-based lead compounds as direct inhibitors of mycobacterial enoyl-acyl carrier protein reductase *InhA*. In the course of series optimisation, the authors also discovered a novel reaction – direct C-C reaction to form 1,3-diols *via* coupling of ethynylmagnesium bromide and aryl methyl ketones. The third study explores structural modifications of nitroxoline and its regioisomers, focusing on the effects of ring saturation and nitro group positioning on metal chelation, enzyme inhibition, and antibacterial activity. While most changes reduced biological activity, two partially saturated nitroxoline analogues emerged as promising hits for further development. The study by the Tomašić group delves into the ligand-based optimisation of thiophene-containing benzamide derivatives as $K_v1.3$ channel inhibitors, targeting autoimmune and inflammatory diseases. Structural modifications revealed distinct stereochemical preferences across series, yielding several potent candidates for further immunomodulatory development. The fifth study reaches into the field of pharmaceutical technology and highlights the critical role of excipient quality and antioxidant selection, revealing both protective and pro-oxidant behaviours that inform strategies for enhancing formulation stability.

The communication by Purić *et al.* investigates a novel fluorescent probe that enables screening of novel galectin-8 inhibitors based on a competitive fluorescence polarisation assay. The probe is suitable for applications in high-throughput screening. The following

study describes the screening of an *in-house* library of α -heteroarylthiomethyl ketones, which led to the identification of novel inhibitors of SARS-CoV-2 main protease 3CL^{pro}. Detailed kinetic experiments tentatively propose a covalent mode of inhibition. Lastly, communication by Bergant Marušič and colleagues investigates the impact of SARS-CoV-2 structural proteins on cytokine expression and *APOBEC3* gene regulation in human cell lines. The findings highlight a complex interplay between viral proteins and host immune responses, offering new insights into the immunopathology of COVID-19 and potential therapeutic targets.

We are confident that this special issue not only celebrates the scientific achievements of the Faculty of Pharmacy, University of Ljubljana, but also offers valuable contributions to the pharmaceutical community and beyond. Both Guest Editors express appreciation to the authors who have decided to share the latest results within this Issue. A huge thanks is also dedicated to all reviewers who meticulously read the studies and provided insights that improved the readability and quality of the manuscripts. The Guest Editors also express sincere gratitude to the Editor-in-Chief and Technical Editor for giving us valuable guidance throughout the journey of creating this Special Issue. Last but not least, we invite readers to explore the innovative research showcased in this issue.

Assoc. prof. dr. Damijan Knez
Assoc. prof. dr. Izidor Sosič
Faculty of Pharmacy, University of Ljubljana, Slovenia
Guest Editors *Acta Pharmaceutica*