



Paweł Stączek

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Currently held positions

Department of Molecular Microbiology, Faculty of Biology and Environmental Protection

University of Łódź

ASSOCIATE PROFESSOR POSITION

Faculty of Biology and Environmental Protection

University of Łódź

HEAD OF THE DEPARTMENT OF MOLECULAR MICROBIOLOGY

Scientific profile and collaborations

My main research interest focuses on the relationship between the structure and function of the DNA, mainly in bacterial cells. For many years I studied the role of endogenous factors, including topoisomerases, involved in the spatial organization of the bacterial chromosome. Because these enzymes are excellent molecular targets for antimicrobial agents, over a decade ago, I undertook a collaboration with chemists who were developing both entirely new groups of such compounds and modifying already known therapeutics in such a way as to most effectively address the problem of microbial drug resistance. Currently, the work of my team includes not only testing compounds showing anti-topoisomerase activity but also those with other mechanisms of action against bacteria and studies on their antifungal and anticancer potential. These studies are conducted in collaboration with the groups of chemists from the Medical University of Lublin, the Faculty of Chemistry, University of Łódź, the Institute of Medical Biology, Polish Academy of Sciences in Łódź, and from the Faculty of Chemistry, University of Adam Mickiewicz in Poznań.

In addition to the search for new bioactive compounds, my research team is also involved in studies on the role of microbiota in gynaecological cancers. Using samples originating from patients with cancerous and benign lesions, we are attempting to determine differences in the taxonomic composition of the microbiota of the reproductive tract of such women, to identify microorganisms that could serve as early indicators of cancerous lesions, and to understand the mechanisms through which dysbiosis in the reproductive tract leads to the induction and development of cancerous lesions. We conduct this research in collaboration with the gynaecologists from the 1st Clinical Hospital in Rzeszów, Poland. My research integrates microbiology, biochemistry, chemistry, and genomics. In our team, we would like to combine the results of basic research with applied science, aiming to develop new strategies to combat microbial infections and cancer processes

Selected publications

- 2013 *Synthesis and evaluation of antimicrobial activity of hydrazones derived from 3-oxido-1H-imidazole-4-carbohydrazides* [\[link\]](#)
- 1998 *Gyrase and Topo IV modulate chromosome domain size in vivo* [\[link\]](#)
- 2025 *Organometallic ciprofloxacin conjugates with dual action: Synthesis, characterization, and antimicrobial and cytotoxicity studies* [\[link\]](#)

Research grants

Principal Investigator: 2 grants: NCN, NATO Science Programme

Co-Investigator: 5 grants: KBN, NCN, The European Commission's HORIZON 2020 project

Obtained patents

6 patents given by the Polish Patent Office

International research stays

USA Birmingham, AL, Department of Biochemistry and Molecular Genetics, University of Alabama at Birmingham – postdoctoral fellow in the laboratory of prof. N. Patrick Higgins (01.08.1994-15.12.1996)

USA Birmingham, AL, Department of Biochemistry and Molecular Genetics, University of Alabama at Birmingham – visiting researcher in the laboratory of prof. N. Patrick Higgins (01.08.1998-15.12.1998)