

Michał Jan Winnicki, MSc

PhD Student | École Polytechnique Fédérale de Lausanne (EPFL)

ABOUT ME

Passionate computational biologist working at the intersection of computer and life sciences. Enthusiast of using computational methods to solve complex biological problems.

HONORS & AWARDS

- 2023 - QIAGEN Gdańsk Conference Award
- 2023 - MCBIOS Young Scientist Excellence Award
- 2022-2023 - BioLAB Fulbright Program stipend
- 2022-2023 - Mentee in elite BioLAB Mentoring Program
- 2020-2021 - The University of Gdańsk Rector's scholarship

MEMBERSHIPS

- MidSouth Computational Biology and Bioinformatics Society (MCBIOS)
- Polish Astrobiology Society
- Fulbrighter Network
- Polonium Network
- Boost Biotech Poland

CERTIFICATES

Mass Spectrometry

(LabExperts)

Course on the LC/MS system, including PCA analysis

Good Clinical Practice (Soft Communication)

Standard ICH GCP E6 (R2)

LANGUAGES

Polish: Native

English: Fluent

CONTACT

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👤 Michał Winnicki

🔗 [mwinn99](#)

EDUCATION

PhD in Computational Biology - École Polytechnique Fédérale de Lausanne (EPFL) 2024-

- PhD student in Laboratory of Protein and Cell Engineering (Barth Group)
- Designing optogenetic therapy for vision restoration and *de novo* design of light-gated ion channels

MSc in Biotechnology - University of Gdańsk & Medical University of Gdańsk 2021-2023

- **Thesis:** Designing and studying physicochemical properties of peptides and peptidomimetics blocking PD-1/PD-L1 complex formation
- Master's joint studies at the Intercollegiate Faculty of Biotechnology of UG & MUG
- Graduated with the highest result (bardzo dobry)

BSc in Biotechnology - University of Gdańsk & Medical University of Gdańsk 2018-2021

- **Thesis:** Extending the functionality of the PyMOL plugin with the ability to simulate the dynamics of small molecules
- Bachelor's joint studies at the Intercollegiate Faculty of Biotechnology of UG & MUG
- Graduated with the highest result (bardzo dobry)

RESEARCH EXPERIENCE

Oklahoma Medical Research Foundation - Bioinformatics Analyst 2022-2024

- Developing large-scale gene expression meta-analysis software (Wren Lab)
- Polish-U.S. Fulbright Commission BioLAB Program

University of Cambridge - Intern 2021

- Internship at the Yusuf Hamied Department of Chemistry (Wales Group)
- Combining the functionality of the UNRES and OPTIM software

University of Gdańsk - Graduate Research Associate 2021-2022

- Investigator in the project financed by Polpharma Scientific Foundation
 - Designing peptides and peptidomimetics acting as potential inhibitors of PD-1/PD-L1 complex formation
- Investigator in the project financed by Polish National Science Centre
 - Introducing lipids to the coarse-grained UNRES force field by adapting potentials from the MARTINI force field

J.S. Hamilton Poland Sp. z o.o. - Microbiology analyst 2020-2022

- Performing microbiological analyses in accordance with ISO/IEC 17025 standards

RESEARCH ARTICLES

- Winnicki M.J. et al. "Biovdb: biological vector database for high-throughput gene expression meta-analysis", *Frontiers in Artificial Intelligence* (2024)
- Wesolowski P. A. et al. "Energy landscapes for proteins described by the UNRES coarse-grained potential", *Biophysical Chemistry* (2023)
- Bojko M. et al. "Design, synthesis and biological evaluation of PD-1 derived peptides as inhibitors of PD-1/PD-L1 complex formation for cancer therapy", *Bioorganic Chemistry* (2022)
- Antoniuk A. et al. "Simple Physics-Based Analytical Formulas for the Potentials of Mean Force of the Interaction of Amino-Acid Side Chains with lipids I. Aliphatic amino acids" (in preparation)

SKILLS

Hard skills

- UNIX environment
- Coarse-grained simulations (MARTINI, UNRES), All-atom simulations (Amber), QM calculations (Gaussian software), Schrödinger software (PyMOL)
- AlphaFold, RoseTTaFold
- PyTorch, Scikit-Learn, Docker
- Python, R, Fortran 90/95

Soft skills

- Teamwork, Communication
- Critical thinking, Problem-solving