



# Rafal Zdanowicz

## Postdoctoral Researcher

As a highly ambitious scientist with a decade of experience in the laboratory, I have gained extensive knowledge in molecular biology, protein biochemistry, and structural biology through my work with various international groups across Poland, the U.S., and Switzerland. I am excited about contributing my expertise to seek new challenges and perspectives.

## Personal Details

Born: 24.05.1991

Nationality: Polish

Address: 8046 Zurich, Switzerland

Email: raflazdan@gmail.com

Phone: +41 76 673 18 42

LinkedIn: [linkedin.com/in/rafal-zdanowicz](https://www.linkedin.com/in/rafal-zdanowicz)

## Education

2016 - 2022

**Doctorate**, PhD Program in Biomolecular Structure and Mechanism  
ETH Zurich, Switzerland

2013 - 2015

**Master's Degree**, Biotechnology  
University of Gdansk & Medical University of Gdansk, Poland

2010 - 2013

**Bachelor's Degree**, Biotechnology  
University of Gdansk & Medical University of Gdansk, Poland

## Languages

Polish (native proficiency)

English (full professional proficiency)

German (elementary proficiency)

## Skills

- Management of **multiple research projects**
- Ability to work **independently** and as part of a **team (collaborations)**
- Teaching** and **supervision** of students/trainees
- Public presentation** of research in spoken and written formats
- Documentation** and **reports** of laboratory and computational work
- Great **communication skills**

## Experience

05.2022 - present

ETH Zurich, Switzerland

### Postdoctoral Researcher

- Collaborated on five research projects including biochemical work and protein structure determination via single-particle cryo-EM
- Prepared **scientific manuscripts** and **high-quality figures** published in renowned, peer-reviewed journals

11.2016 - 05.2022

ETH Zurich, Switzerland

### Doctoral Researcher

- Independently **designed** and **managed** several research **projects**
- Routinely conducted **data processing, analysis**, and prepared public **presentations**
- Gained deep experience in **critical thinking** and **problem solving**
- Participated in **international conferences** and workshops involving public research presentations and **networking**
- Supervised** and **trained** semester project and practical laboratory course students

11.2015 - 07.2016

University of Virginia, USA

### Research Technician

- Continued the laboratory work on the master's thesis project which led to a **publication** in a scientific journal

07.2014 - 07.2015

University of Virginia, USA

### Visiting Graduate Student

- Selected by the **Fulbright Commission** to conduct the experimental portion of the master's thesis in the U.S. as part of the VRGTP/BioLAB program
- Gained experience in a **multidisciplinary** and **international** environment
- Initiated** and **managed** a research project, developed confidence in the laboratory
- Improved **English language skills**

2013 - 2014

University of Gdansk & Medical University of Gdansk, Poland

### Trainee - practical laboratory work

- Participated in two practical trainings at the Laboratories of Virology and Molecular Bacteriology
- Experienced molecular biology and cell culturing techniques

08.2012

Polish Academy of Sciences, Poland

### Research trainee

- Participated in a one-month internship at the Institute of Oceanology
- Assisted in the laboratory work, particularly in molecular cloning

## Skills

- **Problem solving** and analytical skills
- **Quick and independent learner**
- **Adaptable and persistent**
- Broad **technical knowledge**
- Hands-on **technical skills**
- **Data processing and analysis** (Excel, OriginPro)
- Deep knowledge of the **Windows** operating system and **Microsoft Office** package
- Knowledge of the **Linux** operating system
- Experienced user of **Adobe Illustrator** for generating high-quality figures
- **DNA manipulation software** - CLC Genomics Workbench, Snappgene
- **Structural biology software** - PyMol, UCSF ChimeraX, Phenix, Coot
- **Molecular biology techniques** - molecular cloning, site-directed mutagenesis, gel electrophoresis
- **Protein production and purification** - aseptic techniques, cell cultures, protein expression, chromatographic techniques (affinity, hydrophobic interaction, ion-exchange, size-exclusion), ÄKTA systems, ultracentrifugation
- **Protein characterization** - UV/Vis and fluorescence spectroscopy, circular dichroism, EPR spectroscopy, HPLC, binding kinetics and affinity (including stopped-flow), cross-linking, GraFix
- **Liposome preparation** - SUVs and LUVs
- **Structural biology** - protein crystallization, transmission electron microscopy (negative staining and cryo-EM), operation of various electron microscopes (TFS Morgagni 268, TFS Tecnai F20, TFS Talos L120C, TFS Titan Krios), EPU software, single-particle cryo-EM analysis using Relion, cisTEM, and CryoSPARC, protein structure determination and model building, PDB validation and deposition

## Publications

- [Zdanowicz R](#), Afanasyev P, Pruška A, Harrison JA, Giese C, Boehringer D, Leitner A, Zenobi R, Glockshuber R. *Stoichiometry and architecture of the human pyruvate dehydrogenase complex* (in review).
- Meinhold S\*, [Zdanowicz R\\*](#), Giese C, Glockshuber R. *Dimerization of a 5-kDa domain defines the architecture of the 5-MDa gammaproteobacterial pyruvate dehydrogenase complex*. *Sci. Adv.* 10(6), 6358 (2024)
- von Rosen T\*, [Zdanowicz R\\*](#), Afanasyev P, Boehringer D, Leitner A, Glockshuber R, Weber-Ban E. *Substrates are recruited for degradation by specific residues lining the ring of the asymmetrically engaged bacterial proteasome activator Bpa in M. tuberculosis* (in review).
- Zyla D, Wiegand T, Bachmann P, [Zdanowicz R](#), Giese C, Meier BH, Waksman G, Hospenthal MK and Glockshuber R. *The assembly platform FimD is required to obtain the most stable quaternary structure of type 1 pili* (in review).
- Schilling CM, [Zdanowicz R](#), Rabl J, Müller AU, Leitner A, Boehringer D, Weber-Ban E. *The mycobacterial DNA damage response is triggered by ssDNA binding to PafBC* (manuscript in preparation).
- [Zdanowicz R\\*](#), Kreutzberger A\*, Liang B\*, Kiessling V, Tamm LK, Cafiso DS. *Complexin binding to membranes and acceptor t-SNAREs explains its clamping effect on fusion*. *Biophys. J.* 113, 1235–1250 (2017).

\* These authors contributed equally.

## Conferences & Workshops

- Linderstrøm-Lang Symposium on “Protein Folding”, Copenhagen, Denmark (2019, 2022)
- EMBO workshop on “Enzymes, biocatalysis and chemical biology: The new frontiers”, Pavia, Italy (2018)
- PhD retreat of the Biomolecular Structure and Mechanism graduate program, Morschach, Switzerland (2018)
- Faltertage conference on “Protein Folding, Dynamics and Stability”, Halle, Germany (2017, 2018)
- EMBO week-long workshop on “The application of kinetic methods to dynamic biological systems”, Canterbury, UK (2017)

## Awards & Certificates

- Congratulatory letters and Dean's scholarships received for academic performance in academic years: 2011/2012, 2012/2013, 2013/2014, 2014/2015, University of Gdansk, Poland
- “Best students”, edition 2012/2013, University of Gdansk, Poland
- Case Simulator - case studies and computer business simulation, University of Gdansk, Poland
- Certificate in Advanced English (CAE), 2009, Cambridge University Press & Assessment, UK
- Certificate of completion for level A2 German language course, ETH Zurich, Switzerland