

# Tomasz Zajkowski

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## EDUCATION

- Oct 2011 –  
Sep 2016                    **PhD Biochemistry**– with honors  
Nencki Institute of Experimental Biology, Polish Academy of Sciences  
**Thesis:** *“Stabilization of microtubular cytoskeleton protects neurons from toxicity of cytosolic prion protein”*  
Aim of this study was to elucidate the role of phosphorylation of microtubule associated proteins Tau and MAP2, in protection against toxic effects of PrP mislocalized in the cytosol of primary neuronal cells.  
**Supervisor:** Prof. Krzysztof Nieznanski
- Oct 2007 –  
Dec 2009                    **Master of Science**  
University of Warsaw, National Research Institute of Mother and Child  
**Thesis:** *“Molecular basis of Friedreich’s ataxia – analysis of variability of Alu sequence in the first intron of FXN gene”*  
**Supervisor:** Dorota Hoffman-Zacharska, PhD
- Oct 2005 –  
Jul 2007                    **Bachelor of Science**  
University of Warsaw, National Research Institute of Mother and Child  
**Thesis:** *“Molecular basis of Friedreich’s ataxia – analysis of (GAA)n repeats’ normal range in the first intron of FXN gene”*  
**Supervisor:** Dorota Hoffman-Zacharska, PhD

## RESEARCH EXPERIENCE

- Oct 2019 –  
present                    **Visiting Postdoctoral Scholar**  
Department of Chemical and Systems biology  
Stanford University School of Medicine  
**Supervisor:** Prof. Daniel Jarosz
- Mar 2018 –  
present                    **Postdoctoral Scholar**  
Laboratory of Synthetic Biology  
USRA collaborating scientist at NASA Ames Research Center,  
**Supervisor:** Prof. Lynn Rothschild

- Oct 2016 – Oct 2017      **Postdoc**  
 Laboratory of Molecular Neurobiology,  
 Centre of New Technologies, University of Warsaw  
**Project title:** *“Transcription factors and afferent connections in shaping molecular diversity of thalamic neurons”*  
**Supervisor:** Prof. Marta Wiśniewska
- 2011 – 2016      **PhD studies**  
 Chair of Biochemistry,  
 Nencki Institute of Experimental Biology  
**Project title:** *“Stabilization of microtubular cytoskeleton protects neurons from toxicity of cytosolic prion protein”*  
**Supervisor:** Prof. Krzysztof Nieznanski
- 2008 – 2009      **Intern**  
 Chair of Neurology and Developmental Biology,  
 Johannes Gutenberg University of Mainz  
**Project title:** *“Segmental specification of the NB6-4-lineage in the gnathic segments of Drosophila”*  
**Supervisor:** Prof. Gerhard Technau

#### ADDITIONAL TRAINING

- 2007      **One-month laboratory training course**  
 Chair of Livestock Biotechnology at Technical University Munich  
**Supervisor:** Prof. Angelica Schnieke
- 2006      **One-month laboratory training course**  
 Chair of Animal Breeding at Technical University Munich  
**Supervisor:** Prof. Ruedi Fries

#### PROFESSIONAL ACTIVITIES

- 2010 – 2011      **Diagnostician and Sales Specialist for Genetic Testing**  
 ALAB Laboratories Sp. z o.o. [Ltd.]
- 2009 – 2010      **Diagnostician**  
 National Research Institute of Mother and Child,  
 Department of Genetics  
 Project title: *“Screening Programme for Cystic Fibrosis in Poland”*

#### HONOURS and AWARDS

- 2019      The supervised StanfordBrownPrince team working on “Astropharmacy” got a gold medal in the iGEM 2019 competition and the iGEMer’s Prize.
- 2018      The supervised Stanford-Brown-RISD team working on space applications of myco-architecture was a runner up for best manufacturing project and runner up for best composite “bio-brick” in the iGEM 2018 competition.
- 2017      Funding of research at NASA Ames Research Center under the auspices of the Polish Ministry of Science and Higher Education

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|-------------|---|
| 2016        | PhD with honors   |
| 2015        | Bursary from Federation of the Societies of Biochemistry and Molecular Biology (FEBS) to attend 15 <sup>th</sup> FEBS Young Scientists' Forum |
| 2013 – 2014 | Scholarship for Mazovia PhD students under the European Social Fund   |
| 2014        | Award for the Best Annual Report of Nencki Institute  |
| 2014        | Bursary from FEBS to attend FEBS – EMBO joint congress, Paris   |
| 2013        | Scholarship for the best PhD students of Nencki Institute   |
| 2013        | Bursary from Polish Biochemical Society to attend 9 <sup>th</sup> Parnas Conference, Jerusalem  |
| 2013        | Bursary from Bioimage to attend 38 <sup>th</sup> Polish Biochemical Society Conference, Torun   |
| 2012        | Bursary from Bioimage to attend 37 <sup>th</sup> FEBS conference, Seville   |
| 2012        | Award for the Best Annual Report of Nencki Institute  |

## MEMBERSHIPS

|            |   |
|------------|---|
| Since 2020 | American Society for Biochemistry and Molecular Biology       |
| Since 2019 | NASA Ames Sailing Club – active member and club secretary     |
| Since 2014 | SAGANet – Social Action for a Grassroots Astrobiology Network |
| Since 2012 | FEBS – The Federation of European Biochemical Societies       |
| Since 2012 | PTBioch – Polish Biochemical Society                          |

## SKILLS

Protein purification, molecular cloning, immunocytochemistry, immunohistochemistry, in-situ hybridization, affinity assay, spectroscopic assays, Western Blot, sequencing, PCR, fluorescent microscopy, confocal microscopy, electron microscopy, live cell imaging, in utero viral injections, cell culture, primary neuronal cell culture (derived from: hippocampus, cortex, thalamus).

## REFEREED PUBLICATIONS

Zajkowski T., Lee M., Mondal S., Carbajal A., Dec R., Brennock P., Piast R., Snyder J., Bense N., Dzwolak W., Jarosz D., Rothschild L. “The hunt for ancient prions: Archaeal prion-like domains form amyloids and substitute for yeast prion domains”, bioRxiv 2020.07.20.212902; submitted to Nature Microbiology (Aug 2020)

Lipiec M., Koziński K., Zajkowski T., Dąbrowski M., Chakraborty C., Toval A., Ferran J., Nagalski A., Wiśniewska M. “*TCF7L2 regulates postmitotic differentiation programs and excitability patterns in the thalamus*”, Development (2020) 147

Nieznanska H., Bandyszewska M., Surewicz K., Zajkowski T., Surewicz W., Nieznanski K. “*Identification of prion protein-derived peptides of potential use in Alzheimer's disease therapy*”, Biochimica et Biophysica Acta – Molecular Basis of Disease, 1864(6 Pt A) (2018) 2143–2153

Hoffman-Zacharska D., Mazurczak T., Zajkowski T., Tataj R., Górka-Skoczylas P., Połatyńska K., Kępczyński Ł., Stasiołek M., Bal J. „*Friedreich ataxia is not only a GAA repeats expansion disorder: implications for molecular testing and counselling*”, Journal of Applied Genetics, 57(3) (2016) 349–55

Zajkowski T., Nieznanska H., Nieznanski K. “*Stabilization of microtubular cytoskeleton protects neurons from toxicity of N-terminal fragment of cytosolic prion protein*”, Biochimica et Biophysica Acta Molecular Cell Research, 1853 (2015) 2228–2239

Nieznanska H., Dudek E., Zajkowski T., Szczesna E., Kasprzak A. A., Nieznanski K. “*Prion protein impairs kinesin-driven transport*”, Biochemical and Biophysical Research Communications, 425 (2012) 788–793

Sobczynska-Tomaszewska A., Oltarzewski M., Czerska K., Wertheim-Tysarowska K., Sands D., Walkowiak J., Bal J., Mazurczak T. and NBS CF working group: Bartnicka-Trawinska M., Gos M., Hryniewicz V., Jurek M., Nawara M., Niepokoj K., Piotrowski R., Swieckowski G., Wasiluk J., Zajkowski T., Zybert K., Jagiello T., Popielarz D., Rozwadowska M., Sienkiewicz M., Szpecht-Potocka A., Kurtyka Z., Lisowska A., Ostrowska I., Gizewska M., Pawlowicz J., Ruszczyk-Bilecka T., Sielska-Rotblum D., Wos H. "Newborn screening for cystic fibrosis: Polish 4 years' experience with CFTR sequencing strategy", European Journal of Human Genetics, 21(4) (2013) 391-396

## NON-REFEREED PUBLICATION

Chapter in "Discover the Nencki Institute", Polish Scientific Publishing – PWN, (2014) 20-21

Co-author of "Microscopy and Imaging", Published by Nencki Institute, (2013) 77

## ORAL COMMUNICATIONS

"Stabilization of microtubular cytoskeleton protects neurons from toxicity of cytosolic prion protein"  
International PhD Studies in Neurobiology, 2nd Nencki Institute PhD Student Conference, Warsaw, 2015

## FOUR MAJOR POSTER COMMUNICATIONS

Zajkowski T., Mondal S., Dunin-Horkawicz S., Lee M., Bense N., Carbajal A., Rothschild L.  
"The hunt for ancient prions", Astrobiology Science Conference, Seattle, 2019

Zajkowski T., Nieznanska H., Nieznanski K.  
"Prion protein mislocalized in the cytosol causes loss of dendritic spines", Young Scientists' Forum and The Federation of European Biochemical Societies (FEBS) Conference, Berlin, 2015

Zajkowski T., Nieznanska H., Nieznanski K.  
"Disassembly of microtubular cytoskeleton underlies neurotoxicity of cytosolic prion protein", The Federation of European Biochemical Societies (FEBS), European Molecular Biology Organization (EMBO), and the French Society for Biochemistry and Molecular Biology (SFBBM) Conference, Paris, 2014

Zajkowski T., Nieznanska H., Nieznanski K.  
"Lithium chloride protects neurons from toxicity of cytosolic PrP", 9th Jakub K. Parnas Conference, Jerusalem, 2013

## TEACHING EXPERIENCE

Advisor of Stanford-Brown-Princeton team for iGEM 2019 competition – Gold Medal obtained

Advisor of Stanford-Brown-RISD team for iGEM 2018 competition – Silver Medal obtained

Self-prepared cycle of 10 lectures about Astrobiology "Astrobiology and the Search for Extraterrestrial Life" Course at University of Warsaw, Open University (2017) – augmented by Skype calls to specialists in the relevant topic.

## PUBLIC OUTREACH

- [Seminar about astrobiology](#) - YouTube (2020)
- [Seminar about prions](#) - YouTube (2020)
- [Radio interview in the topic of astrobiology](#) - Radio RDC (2019)
- [Article about my work at NASA in a popular magazine](#) - Man's Journal (July/August 2019)
- [Radio interview in the topic of astrobiology](#) - TOK FM (2017)
- Panel discussion "Will we see a second Earth?" - Astronomy Society, Wrocław (2017)

## REFERENCES

Prof. Lynn Rothschild (head of laboratory)  
 Laboratory of Synthetic Biology, NASA Ames Research Center,  
 Mark Avenue, Building N-239, Room 377, Moffett Field, CA 94035, USA  
 e-mail: lynn.j.rothschild@nasa.gov  
 telephone: +1 650 283-3301

Prof. Daniel Jarosz (head of laboratory)  
 Department of Chemical and Systems biology, Stanford University School of Medicine,  
 CCSR Building, Room 3120, 269 Campus Drive, Stanford, CA 94305, USA  
 e-mail: danjarosz.aa@gmail.com  
 telephone: +1 650 498 1310

Prof. Marta Wisniewska (head of laboratory)  
 Laboratory of Molecular Neurobiology, University of Warsaw,  
 Centre of New Technologies, 2c S. Banacha St., 02-097 Warsaw, Poland  
 e-mail: m.wisniewska@cent.uw.edu.pl  
 telephone: +48 22 55 43 690, fax: +48 22 55 40 801

Prof. Krzysztof Nieznanski (PhD thesis supervisor)  
 Laboratory of Cell Motility, Department of Biochemistry, Polish Academy of Sciences  
 Nencki Institute of Experimental Biology, 3 Pasteur St., 02-093 Warsaw, Poland  
 e-mail: k.nieznanski@nencki.gov.pl  
 telephone: +48 22 5892318, fax: +48 22 8225342

*I hereby give consent for my personal data included in my application to be processed for the purposes of the recruitment process under the Personal Data Protection Act as of 29 August 1997, consolidated text: Journal of Laws 2016, item 922 as amended.*