

DR. SUSANNE PROKOP

Born: 04.14.1992. Birkenhead, UK

Education:

2010-2016: Semmelweis University, Budapest
Faculty of Medicine

2013-2016: Pazmany Peter Catholic University, Budapest
Quantitative Modeling

Research interest:

My main research interests lie in the mechanisms of action of clinically applied drugs. To fully understand how a pharmacological agent exerts its systemic effects, we must precisely map its binding sites in the human body and uncover the role of their target proteins in physiological and pathophysiological processes. As a graduate student, I had the chance to learn molecular pharmacological techniques to investigate the signaling and regulation of G protein-coupled receptors, which represent important, classical pharmacological targets. During my PhD, I worked on the development of novel microscopic approaches to visualize the drug binding of this receptor family in their native tissue environment. Despite of the rapid progress of modern research technologies, many open questions remain in the field of pharmacology, and mental disorders represent a particular challenge. Many people with psychiatric illnesses worldwide are still suffering from the lack of effective treatment strategies, and a specific motivation of my laboratory work is to contribute to the management of mental disorders.

Research:

2016-: PhD student at the Institute of Experimental Medicine, Hungarian Academy of Sciences
Laboratory of Molecular Neurobiology-Laboratory of Prof. Istvan Katona

2015-summer: Research at the Department of Pharmacology
Vanderbilt University, Nashville, Tennessee, USA
Laboratory of Vsevolod V. Gurevich

- Designing receptor specific arrestins
- Building research collaboration between *Gurevich laboratory* (Vanderbilt University) and *Hunyady laboratory* (Semmelweis University)

2014-summer: Research at the Department of Biological Sciences
Vanderbilt University, Nashville, Tennessee, USA
Laboratory of Todd Graham
Protein transport and membrane biogenesis

2012-2016: Undergraduate Research at the Department of Physiology
Semmelweis University
Molecular Endocrinology Laboratory of Prof. Laszlo Hunyady
Dimerization and signaling of G-protein coupled receptors

2011-2014: Undergraduate Research at the Department of Medical Chemistry

Semmelweis University
Molecular Genetic Laboratory of Prof. Mária Sasvári
Genetic background of Type 1 and Type 2 diabetes and its association
with depression

Clinical Experience:

2016- Volunteer at the Community Psychiatry Center of Semmelweis University
Helper at the Awakenings Foundation, idea owner of mobile-application based
Communication Training for People with Mental Health Illness

International awards:

2008: Trogir, Croatia and 2009 Tian Jin, China: International Young Physicists' Tournament
Representation of the Hungarian team

2010: Bali, Indonesia International Conference of Young Scientists: 2nd place in Physics
section

2015: Awardee of the Stephen W. Kuffler Research Foundation

2015: Semmelweis International Students Conference
Basic Sciences – 1st Award

2022: European Research Network on Signal Transduction – 6th Meeting
Early Career Investigator - Best short talk award

International courses:

2011: Summer practice at Lubinus Klinik, Traumatology Department:
Kiel, Germany

2013: Autumn School on Computational Aspects of Gene Regulation,
European Mathematical Society, Bedlewo, Poland

2014: Member of the Vanderbilt International Summer Research Academy

Languages:

Hungarian: native language

German: Proficient User

English: Proficient User

Publications:

Prokop S*, Ábrányi-Balogh P*, Barti B, Vámosi M, Zöldi M, Barna L, Urbán GM, Tóth AD,
Dudok B, Egyed A, Deng H, Leggio GM, Hunyady L, van der Stelt M, Keserű GM*, Katona I.
(2021) Pharmacostorm nanoscale pharmacology reveals cariprazine binding on Islands of
Calleja granule cells. *Nat Commun*, 212(1):6505.

Tóth AD, Garger D, **Prokop S**, Soltész-Katona E, Várnai P, Balla A, Turu G, Hunyady L.
(2021) A general method for quantifying ligand binding to unmodified receptors using
Gaussia luciferase. *J Biol Chem*, 296:100366.

Tóth AD*, **Prokop S***, Gyombolai P, Várnai P, Balla A, Gurevich VV, Hunyady L, Turu G. (2018) Heterologous phosphorylation-induced formation of a stability lock permits regulation of inactive receptors by β -arrestins. *J Biol Chem*, 293(3):876-892.

Prokop S, Perry NA, Vishnivetskiy SA, Toth AD, Inoue A, Milligan G, Iverson TM, Hunyady L, Gurevich VV. (2017) Differential manipulation of arrestin-3 binding to basal and agonist-activated G protein-coupled receptors. *Cell Signal*, 36:98-107.

Elek Z, Dénes R, **Prokop S**, Somogyi A, Yowanto H, Luo J, Souquet M, Guttman A, Rónai Z. (2016) Multicapillary gel electrophoresis based analysis of genetic variants in the WFS1 gene. *Electrophoresis*, 37(17-18):2313-21

Szalai B, Hoffmann P, **Prokop S**, Erdélyi L, Várnai P, Hunyady L. (2014) Improved methodical approach for quantitative BRET analysis of G Protein Coupled Receptor dimerization. *PLoS One*, 9(10):e109503