

Curriculum Vitae

Mgr. Matúš Tomko, PhD.

Address: Žiacka 12
040 18 Košice – Krásna
Slovakia



Phone: +421 903 640 168

E-mail: matus.tomko@savba.sk

ResearchGate: <https://www.researchgate.net/profile/Matus-Tomko>

ORCID: <https://orcid.org/0000-0002-2915-1780>

Twitter: <https://twitter.com/mtomko3>

Education

09/2017 – 08/2021: **Comenius University in Bratislava**, Faculty of Mathematics, Physics and Informatics

PhD studies, Informatics

09/2015 – 05/2017: **Pavol Jozef Šafárik University in Košice**, Faculty of Science

Master studies, Teaching of Biology and Informatics

09/2012 – 05/2015: **Pavol Jozef Šafárik University in Košice**, Faculty of Science

Bachelor studies, Teaching of Biology and Informatics

Courses and Schoolings

09/2019 – 12/2019: **Internship in lab of prof. Petra Jedlicka**

Justus-Liebig University, Giessen, Germany

08/2019: **7th Baltic-Nordic School on Neuroinformatics BNNI 2019**

Frankfurt Institute for Advanced Study, Germany

3-day summer school and symposium

05/2019: **The NEURON School**

Alghero, Sardinia, Italy

1-week summer school

08/2018 – 09/2018: **GIS 2018 Summer School on the Logistics of Neuronal Function**

Frankfurt Institute for Advanced Study, Frankfurt, Germany

2-week summer school and symposium

09/2015 – 02/2016: **Erasmus+**

University of South Bohemia in České Budějovice, Czech Republic

04/2015: **ECLD – European Computer Driving License**

The Slovak society for informatics

08/2013: **OS Linux: Usage and basics of administration**

T-Systems Slovakia

2 weeks course

Practice and Work Experience

09/2021 – present: **Institute of Molecular Physiology and Genetics, Slovak Academy of Science, Bratislava, Slovakia**

Post doc position

01/2022 – 12/2022: **Justus Liebig Universität Gießen, Gießen, Germany**

Werkvertrag

09/2016 – 04/2017 **Pavol Jozef Šafárik University in Košice**

testing of the Academic information system

02/2017 – 04/2017 **Continuous practice teaching** at primary school

09/2016 – 10/2016 **Continuous practice teaching** at secondary school

Teaching activities

Teaching: **Comenius University in Bratislava**, Department of Applied Informatics
Databases (1) (4h/w), Databases (2) (4h/w), (2017 - 2022)

Participation in research projects

01/2022 – 12/2025 **Modulation of neuronal excitability by homocysteine**
Principal investigator: prof. RNDr. Lacinová Ľubica, DrSc.
Funding: VEGA

01/2022 – 12/2025 **Physiopathology of T-type calcium channels in motor neuron function**
Principal investigator: dr. Weiss Norbert, PhD.
Funding: APVV

07/2020 – 06/2024 **Novel antidepressant therapy – long term consequences on offspring**
Principal investigator: prof. RNDr. Lacinová Ľubica, DrSc.
Funding: APVV

Publications

ADCA01 Jedlicka, P., **Tomko, M.**, Robins, A., Wickliffe, A. C. Contributions by metaplasticity to solving the Catastrophic Forgetting Problem. **In Trends in Neurosciences**, 2022, vol. 45, no. 9, p. 656-666. ISSN 0166-2236. <https://doi.org/10.1016/j.tins.2022.06.002>

ADCA02 **Tomko, M.**, Benuskova, L., Jedlicka, P. A new reduced morphology model for CA1 pyramidal cells and its validation and comparison with other models using HippoUnit. **In Scientific Reports**, 2021. vol. 11, no. 1, p. 7615. DOI 10.1038/s41598-021-87002-7.

AFD01 **Tomko, M.**, Jedlicka, P., Benuskova, L. Computational model of CA1 pyramidal cell with meta-STDP stabilizes under ongoing spontaneous

- activity as in vivo. **In Kognícia a umelý život 2019**. Bratislava: Vydavateľstvo Univerzity Komenského. 2019. p. 118–123. ISBN 978-80-223-4720-4.
- AFD02 **Tomko, M.**, Jedlicka, P., Benuskova, L. Meta-STDP Rule Stabilizes Synaptic Weights Under in Vivo-like Ongoing Spontaneous Activity in a Computational Model of CA1 Pyramidal Cell. **In Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)**. Springer Science and Business Media Deutschland GmbH. 2020. p. 670–680. ISBN 9783030616151.
- AFHB01 Hoppanová, L., Jurkovičová Tarabová, B., Idunková, A., **Tomko, M.**, Dubovický, M., Lacinová, Ľ. Alteration of hippocampal excitability by prenatally applied antidepressant. **In 10th Slovak Biophysical Symposium**, Máj 3-5, 2022, Smolenice : Book of Contributions. – Smolenice, Slovakia : Slovak Biophysical Society : Institute of Experimental Endocrinology, Biomedical Research Center of Slovak Academy of Sciences, Bratislava, Slovakia, 2022, p. 35-36. ISBN 978-80-973719-4-4.
- AFHB02 Idunková, A., Jurkovičová Tarabová, B., Hoppanová, L., **Tomko, M.**, Dubovický, M., Lacinová, Ľ. Účinok mirtazapínu podávaného počas gravidity na excitabilitu hipokampálnych neurónov u potomstva. **In Dni mladých biológov 11. ročník**, 15. jún 2022 Bratislava : zborník abstraktov. – Bratislava : Centrum biovied Slovenská akadémia vied, v. v. i. – Ústav biochémie a genetiky živočíchov, 2022, s. 20. ISBN 978-80-974246-1-9.
- FAI01 Farkaš, I., Takáč, M., Gergel', P., **Tomko, M.** 1. vyd. - Bratislava: Univerzita Komenského v Bratislave, 2019. - 140 s. ISBN 978-80-223-4720-4.
- Poster **Tomko, M.**, Benuskova, L., Jedlicka, P. The event timing-dependent plasticity rule corroborates the key role of dendritic spikes for LTP induction at distal apical synapse in the CA1 pyramidal cell model. **In FENS Forum 2022** : E-Book of Abstracts. – 2022, p. 4688-4690, board number S05-509.
- Poster Hoppanová, L., Jurkovičová Tarabová, B., Idunková, A., **Tomko, M.**, Dubovický, M., Lacinová, Ľ. Effect of antidepressant mirtazapine intake during gestation on the excitability of hippocampal neurons observed in the offspring. **In FENS Forum 2022** : E-Book of Abstracts. – 2022, p. 2572, board number: S03-206.
- Poster **Tomko, M.**, Benuskova, L., Jedlicka, P. 2021. Modeling homo- and heterosynaptic plasticity using a new reduced-morphology model of CA1

pyramidal cells. **Poster presented at the CNS*2021 – 30th Annual Computational Neuroscience Meeting**, 03.07.2021 – 07.07.2021.

Poster

Tomko M. (2018) Computational modeling of heterosynaptic plasticity in the CA1 using STDP-BCM rule. **Poster presented at the Giersch Summer School on the Logistics of Neuronal Function / 3rd Giersch International Symposium**, 28.8-7.9. 2018, FIAS, Frankfurt, Germany.

Grants

SAIA, n. o. National Scholarship Programme of the Slovak Republic, 2019

Memberships

01/2021 – 12/2023 Organization for Computational Neuroscience (OCNS)

01/2022 – 12/2022 Federation of European Neuroscience Societies

01/2022 – 12/2022 Slovenská spoločnosť pre neurovedy

Language Skills

English B2 level

Slovak Mother language

Computer Skills

MS Office Advanced

Java Advanced

Python Intermediate

SQL Intermediate

NEURON Basic

Unix/Linux Basic

BLAST Basic

Other Skills and Abilities

Driver's license B Class