

Evelin Vágvölgyi-Sümegei

Szeged

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Education

PhD Program – Doctoral School of Clinical Medicine

University of Szeged – Faculty of Medicine • Szeged

09/2020

Supervisor: Prof. Dr. Péter Klivényi

Absolutorium obtained, degree acquisition not initiated

During my PhD training, I acquired the fundamentals of animal experimental work and gained practical experience in various behavioral tests conducted on mouse models (Open-field test, Rotarod, Y-maze). In addition to studies performed on awake animals, I learned how to anesthetize mice and administer different types of injections. I also gained experience in obtaining biological samples from deeply anesthetized or overdosed mice, including the dissection of the brain according to various anatomical criteria.

I participated in studies investigating gene expression changes induced by different pharmacological and mitochondrial toxins (MPTP, Na-Azide, 3-NP) in mouse models. Furthermore, I acquired proficiency in several molecular biology techniques, including Real-time PCR, qPCR, agarose gel electrophoresis, DNA and RNA isolation, tissue homogenization, and the RFLP technique.

Completion of the "Theory and Practice of Animal Experimentation – Level B" certification
(Certificate number: 079/2015)

Biologist

University of Szeged – Faculty of Science and Informatics • Szeged

07/2015

MA in Biology – *Specialization in Neuroscience and Human Biology* Degree classification: Excellent

BA in Biology – *Specialization in Cell and Molecular Biology* Degree classification: Good

Experience

Assistant Lecturer

University of Szeged - Faculty of Health Sciences and Social Studies • Szeged

01/2025

Since the beginning of 2025, I have been a teaching assistant at the Department of Theoretical Health Sciences and Health Management. I teach a practical course on the basics of research work to second-year students. The course aims to develop a scientific mindset, foster curiosity and motivation, and provide assistance with thesis writing. In addition to teaching, I participate in human-related migraine research.

Researcher Assistant

GI.HU Ltd. • Szeged

02/2023 - 12/2024

Conducting experiments related to the company's core profile of DNA-based vaccine development processes. Investigations aimed at creating and verifying plasmid DNA with genetic modifications. Working with HEK293T cells (passaging, cell counting, transfection) in a high-sterility environment as required. Applying basic microbiological techniques (media preparation, plating, inoculation, spreading, Gram staining, phage testing), creating chemically competent cells, plasmid transformation into *E. coli*, plasmid DNA isolation, restriction mapping, DNA fragment isolation. Creating cell banks (MCB, WCB, CCB) from *E. coli* strains and HEK cells. Compiling research plans for R&D projects and writing final reports at the end of the project. Actively participating in maintaining up-to-date records,

data management, and preparing other documentation (work instructions, protocols). Contributing to the establishment and implementation of a quality assurance system in compliance with GLP (Good Laboratory Practice) regulations. Performing work according to the procedures prescribed by the GLP system, and when applicable, GMP (Good Manufacturing Practice) procedures (deviation, CAPA). My responsibilities also included managing logistical activities related to R&D processes.

GLP – Good Laboratory Practice Training – Certificate obtained (2604/2024)

Laboratory Assistant

Seqomics Biotechnology Ltd. • Mórahalom

10/2020 - 01/2023

As a colleague at the Animal Health Laboratory, I was involved in the DNA-based screening and diagnosis of inherited genetic traits (such as disease susceptibility and physical characteristics) in various purebred dogs using Sanger sequencing. In addition to laboratory work, my responsibilities included providing information to clients, handling administrative tasks, and conducting literature research for the introduction of new genetic tests.

Skills

Laboratory Experience, Microsoft Word, Microsoft Powerpoint, Excel, Statistical Software

Languages

English, German

Publications

1. Molnár, MF ; Török, R ; Szalárdy, L ; **Sümegei, E** ; Vécsei, L ; Klivényi, P High-dose 1,25-dihydroxyvitamin D supplementation elongates the lifespan of huntington's disease transgenic mice ACTA NEUROBIOLOGIAE EXPERIMENTALIS (0065-1400 1689-0035): 76 3 pp 176-181 (2016)
2. Peter, Klivenyi ; Rita, Torok ; **Evelin, Sumegi** ; Andras, Salamon ; Laszlo, Vecsei Stimulation of the PGC-1A expression in mouse brain JOURNAL OF NEUROLOGY NEUROSURGERY AND PSYCHIATRY 87 : Suppl. 1 pp. A94-A94. Paper: L13 , 1 p. (2016)
3. Torok, R ; Salamon, A ; **Sumegi, E** ; Zadori, D ; Veres, G ; Molnar, MF ; Vecsei, L ; Klivenyi, P Effect of MPTP on mRNA expression of PGC-1 α in mouse brain BRAIN RESEARCH 1660 pp. 20-26. , 7 p. (2017)
4. Nánási, N ; Veres, G ; Cseh, EK ; Szentirmai, M ; Martos, D ; **Sümegei, E** ; Hadady, L ; Klivényi, P ; Vécsei, L ; Zádori, D The detection of age-, gender-, and region-specific changes in mouse brain tocopherol levels via the application of different validated HPLC methods NEUROCHEMICAL RESEARCH 43 : 11 pp. 2081-2091. , 11 p. (2018)
5. Salamon, Andras ; Torok, Rita ; **Sumegi, Evelin** ; Boros, Fanni ; Pesei, Zsofia Gabriella ; Fort Molnar, Mate ; Veres, Gabor ; Zadori, Denes ; Vecsei, Laszlo ; Klivenyi, Peter The effect of physical stimuli on the expression level of key elements in mitochondrial biogenesis NEUROSCIENCE LETTERS 698 pp. 13-18. , 6 p. (2019)
6. Boros, F.A. ; Török, R. ; **Vágvölgyi-Sümegei, E.** ; Pesei, Z.G. ; Klivényi, P. ; Vécsei, L. Assessment of risk factor variants of LRRK2, MAPT, SNCA and TCEANC2 genes in Hungarian sporadic Parkinson's disease patients NEUROSCIENCE LETTERS 706 pp. 140-145. , 6 p. (2019)
7. Salamon, Andras ; Maszlag-Török, Rita ; Veres, Gábor ; Boros, Fanni Annamária ; **Vágvölgyi-Sümegei, Evelin** ; Somogyi, Anett ; Vécsei, László ; Klivényi, Péter ; Zádori, Dénes Cerebellar Predominant Increase in mRNA Expression Levels of Sirt1 and Sirt3 Isoforms in a Transgenic Mouse Model of Huntington's Disease NEUROCHEMICAL RESEARCH 0364-3190 1573-6903 Paper: 0364-3190 (2020)

Research area

- Neurodegenerative diseases – Searching for neuroprotective substances or effects
 - Pathomechanism of primary headache disorders – preclinical and clinical investigations
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