

CURRICULUM VITAE

Zoltan Nemeth, PhD

Contact information:

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Education and training:

2002-2007: University of Pecs, Faculty of Science. Master's degree program in Biology,
University of Pecs, Faculty of Science, 2008

Principal subjects: anatomy, biochemistry, genetics, physiology

2011-2015: University of Pecs, Medical School, Department of Pathophysiology and
Gerontology, full-time PhD student

2016 – 2017: Department of Molecular and Cell Biology, Boston University Henry M.
Goldman School of Dental Medicine, Boston University Medical Campus, Post-doctoral
associate.

2016: Online Laboratory Safety Training (Department of Molecular and Cell Biology, Boston
University Henry M. Goldman School of Dental Medicine, Boston University Medical
Campus).

2018: Introduction to laboratory Animal Science, and Species-specific Mouse and Rats
courses (Leiden University Medical Center).

Professional experience, positions:

2008 - 2010 Department of Anatomy, University of Pecs Medical School, assistant lecturer

2011- 2015 Department of Pathophysiology and Gerontology, University of Pecs Medical
School, PhD student

2016 – 2017 Department of Molecular and Cell Biology, Boston University Henry M.
Goldman School of Dental Medicine, Boston University Medical Campus, postdoctoral
research associate

2017 – 2018 Department of Nephrology, Leiden University Medical Center, postdoctoral
researcher

2018 – 2019 Department of Morphology and Physiology, Faculty of Health Sciences,
Semmelweis University, researcher

2019 – Department of Physiology and Biophysics, University of Mississippi Medical Center,
postdoctoral researcher

Teaching experience:

Practical course in Hungarian and English: Anatomy, histology, embryology (University of
Pecs, Medical School, Department of Anatomy I-II. years. 2008-2010).

Seminars in Hungarian and English: Pathophysiology (University of Pecs, Medical School, Department of Pathophysiology and Gerontology III. year 2011-2015).

Contribution to curriculum development:

Writing of chapters of an edited textbook for universities (Developmental Biology) (Kronosz – University of Pecs, Faculty of Science – University of Pecs, Medical School 2014).

Supervising:

Student researchers

Research topics:

Biochemical and functional investigation of human pericardial fluid (ex vivo and biochemical, rat and human samples).

Investigation of mechanosensitive ion channels in the pressure-induced vasoconstriction.

Molecular mechanisms for impaired pressure-induced constriction of cerebral vessels in preeclampsia.

Knowledge of techniques:

Biochemical techniques (enzyme assays, column chromatography, mitochondrial function assays using Oroboros O2k-FluoRespirometer).

Microbiological and molecular biological techniques (DNA and RNA extraction from animal tissues, PCR, mutagenesis PCR, RT-qPCR, plasmid preparation, ligation, bacterial transformation, electroporation, gel electrophoresis, Western Blot).

In vitro procedures (cell - and tissues cultures, passaging cells, transfection), mouse embryonic stem cell culture.

Ex vivo procedures (surgical techniques in rat model, wire myograph and pressure-flow myograph systems). Two-Photon Microscopy (Mes and MATLAB programs).

In vivo procedures (cranial window surgery in mouse model, measurement of invasive blood pressure in rat).

Certificates:

FELASA Certificate with reference to article 5 and the annex 6 of the Ministerial Ruling on Animal Experiments 2014

FELASA Certificate with reference to the Ministerial Decree on Recognition of Courses and Certificates relating to Laboratory Animals

Awards:

2020 Caroline tum Suden/Francis A. Hellebrandt Professional Opportunity Award

Language:

Hungarian: Native

English: Conversational, Intermediate (B2) Combined (C)

German: Medical, Basic (B1), Combined (C)

Portuguese: Conversational, Beginner level courses

Peer-reviewed publications:

Anna Pato, **Zoltan Nemeth**, Zoltan Jarai, Akos Koller., *Not all young, athletic university students have optimal blood pressure. Results of the May 2019 Measurement Month (MMM19)*, 2020; 24(3): 121-5. Hypertension and Nephrology. doi: <https://doi.org/10.33668/hn.24.014>.

Zoltan Nemeth, Emily Hildebrandt, Michael J Ryan, Joey P Granger, Heather A Drummond., *Pressure-induced Constriction of the Middle Cerebral Artery Is Abolished in TrpC6 Knockout Mice*, 2020. May 15. doi: 10.1152/ajpheart.00126.2020.

Timea Teglas, **Zoltan Nemeth**, Akos Koller, Eddy A. Van der Zee, Paul G.M. Luiten, Csaba Nyakas., *Effects of Long-Term Moderate Intensity Exercise on Cognitive Behaviors and Cholinergic Forebrain in the Aging Rat*. 2019 May 28;411:65-75. doi: 10.1016/j.neuroscience.2019.05.037.

Istvan Seffer, **Zoltan Nemeth**, *Recovery from Bell palsy after transplantation of peripheral blood mononuclear cells and platelet rich plasma*. *Plast Reconstr Surg Glob Open*. 2017 Jun 29;5(6):e1376. doi: 10.1097/GOX.0000000000001376. eCollection 2017 Jun.

Zoltan Nemeth, Attila Cziraki, Sandor Szabados, Bernadett Biri, Sandor Keki, Akos Koller, *Elevated Levels of Asymmetric Dimethylarginine (ADMA) in the Pericardial Fluid of Cardiac Patients Correlate with Cardiac Hypertrophy*. 2015 Aug 27;10(8):e0135498. doi: 10.1371/journal.pone.0135498. eCollection 2015.

Istvan Seffer, **Zoltan Nemeth**, Gyula Hoffmann, Robert Matics, A Gergely Seffer, Akos Koller., *Unexplored Potentials of Epigenetic Mechanisms of Plants and Animals Theoretical Considerations*. 2013 Jun 30;5:23-41. doi: 10.4137/GEG.S11752. eCollection 2013.

Manuscript under review:

Jeremy W. Duncan, **Zoltan Nemeth**, J. Paula Warrington, Joey P. Granger, Michael J. Ryan, Heather A. Drummond *Interleukin-17 impairs cerebrovascular function in pregnant rats. Hypertension in Pregnancy*

Manuscript in preparation:

Zoltan Nemeth, Michael J. Ryan, Joey P. Granger, Heather A. Drummond. *Upregulation of Epithelial Na⁺ Channel Beta Subunit in Isolated Mouse Middle Cerebral Artery Increases Pressure-Induced Constriction*.

Zoltan Nemeth, Timea Teglas, Gabriella Dornyei, Csaba Nyakas, Mark Szanto, Tamas Nagy, Attila Cziraki, Akos Koller. *Pericardial fluid homocysteine levels may contribute to ischemia-induced cardiac remodeling in humans.*

Zoltan Nemeth, Akos Koller. *Vasoactive and proinflammatory molecules in the PF: cross-talk with the heart (or cardiac muscle).* International Journal of Molecular Sciences (IJMS).

Abstracts in peer-reviewed journals

Jeremy W. Duncan, Junie P. Warrington, **Zoltan Nemeth**, Joey P. Granger, Heather A. Drummond, Michael J. Ryan., *Interleukin-17 Impairs Cerebrovascular Function, Increases Blood-Brain-Barrier Permeability, and Induces Cerebral Edema in Pregnant Rats.* <https://doi.org/10.1096/fasebj.2020.34.s1.05801>

Zoltan Nemeth, Michael J. Ryan, Joey P. Granger, Heather A. Drummond., *Pressure-Induced Constriction of the Middle Cerebral Artery is Abolished in TrpC6 Knockout Mice.* <https://doi.org/10.1096/fasebj.2020.34.s1.05380>

Anna Pato, **Zoltan Nemeth**, Csaba Nyakas, Akos Koller., *Changes in skin microcirculation in response to ischemia and heat in trained and untrained individuals.* J Vasc Res 2019;56(suppl 1):1–134 DOI: 10.1159/000499516.

Zoltan Nemeth, Attila Cziraki, Sandor Szabados, Ivan Horvath, Akos Koller., *Human pericardial fluid derived endothelin elicits arterial constriction.* Faseb Journal 30:(1 Suppl.) p. 952.1. (2016)

Koller Akos, **Nemeth Zoltan**, Szabados Sandor, Biri Bernadett, Keki Sandor, Cziraki Attila. *Asymmetric dimethylarginine (ADMA) in the pericardial fluid may contribute to the development of cardiac hypertrophy.* EUROPEAN HEART JOURNAL 36:(Suppl. 1) p. 1008. (2015)

Zoltan Nemeth, Attila Cziraki, Sandor Szabados, Ivan Horvath, Akos Koller. *Potential Role of Endothelin1 in Pericardial Fluid of Cardiac Patients in Eliciting Arterial Constriction.* JOURNAL OF VASCULAR RESEARCH 52:(Suppl. 1) p. 64. (2015)

Zoltan Nemeth, Attila Cziraki, Sandor Szabados, Fanni Springman, Bernadett Biri, Sandor Keki, Akos Koller. *ADMA in pericardial fluid of patients may be a biomarker of cardiac hypertrophy.* CARDIOVASCULAR RESEARCH 103:(Suppl 1) p. S1160. (2014)

Akos Koller, Attila Cziraki, Sandor Szabados, Bernadett Biri, Sandor Keki, Istvan Seffer, **Zoltan Nemeth**., *L-arginine and Asymmetric Dimethylarginine (ADMA) levels in pericardial fluid in patients undergoing open heart surgery.* European Heart Journal, Volume 34, Issue suppl_1, 1 August 2013, P3895, <https://doi.org/10.1093/eurheartj/eh309.P3895>.

Cziraki A, Ajtay Z, Sulyok E, Horvath I, Nemeth A, Lenkey Z, **Nemeth Z**, Szabados S, Koller A, Bode Boger SM. *Investigation of asymmetric dimethylarginine in patients with coronary artery disease.* EUROPEAN HEART JOURNAL 34:(Suppl.) p. 563. (2013)

Seffer Istvan, Seffer Andras Gergely, **Nemeth Zoltan**. *Environmental Cues to Determine Stem Cell Fate in Three Dimensional in vivo Tissue Growth*. PLASTIC AND RECONSTRUCTIVE SURGERY 13:(5) p. 182. (2013)

Zoltan Nemeth, M Haris, V Kormos, P Kiss, M Wlasitsch, A Lubics, A Lamas, H Hashimoto, A Baba, Zs Helyes, D Reglodi., *Tooth development in mice deficient in pituitary adenylate cyclase activating polypeptide (PACAP)*. NEUROPEPTIDES 44 (6), 543-543

Balogh A, Pap M, **Nemeth Z**, Stark B, Harci A, Szeberenyi J. *Role of amino acids Ser29 and Ser133 of cAMP-response-element-binding protein (CREB) in the proliferation of PC12 cells*. 7TH Hungarian Genetic Congress, Balatonfured, Hungary (2007)

Zoltan Nemeth, Edit Pollak, Laszlo Molnar., *Reorganization of GABA immunreactive neural system in brain extirpated earthworms*. International Brain Research Organization (IBRO) Symposium. Budapest, Hungary, 25/01/2006-28/01/2006.p. x.

Book chapters

Németh Zoltán, Seffer István, Csoknya Mária. *The regeneration*. In: Rauch Tibor, Varga Máté, Hoffmann Gyula (ed.) *Fejlődésbiológia II: Epigenetika és fejlődési mintázatképzés*. Pécs: Kronosz Kiadó; PTE TTK; PTE ÁOK, 2014. pp. 461-492. (ISBN:9786155339998)

Schipp Renáta, Harci Alexandra, Kiss Katalin, **Németh Zoltán**, Mátics Róbert, Barna János, Hoffmann Gyula, Varga Dániel, Varga Máté Varga Judit. *Cellular crosstalk and interaction, signal transduction pathways, apoptosis*. In: Rauch Tibor, Varga Máté, Hoffmann Gyula (ed.) *Fejlődésbiológia II: Epigenetika és fejlődési mintázatképzés*. Pécs: Kronosz Kiadó; PTE TTK; PTE ÁOK, 2014. pp. 171-218. (ISBN:9786155339998)

Varga S, Varga D, Hoffmann G, **Németh Z**, Szatmári D, Mátics R, Rauch T, Varga M. *Pattern formation during ontogenesis*. In: Rauch Tibor, Varga Máté, Hoffmann Gyula (ed.) *Fejlődésbiológia II: Epigenetika és fejlődési mintázatképzés*. Pécs: Kronosz Kiadó; PTE TTK; PTE ÁOK, 2014. pp. 255-310. (ISBN:9786155339998)

Németh Z, Seffer I, Mátics R, Bajusz I, Varga S, Rauch T. *Genomic equivalence and epigenetics, stem cells*. In: Rauch Tibor, Varga Máté, Hoffmann Gyula (ed.) *Fejlődésbiológia II: Epigenetika és fejlődési mintázatképzés*. Pécs: Kronosz Kiadó; PTE TTK; PTE ÁOK, 2014. pp. 752. (ISBN:9786155339998)

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