Curriculum Vitae

Tamás Horváth

Address: Műegyetem rkp. 3., D building, Budapest, HUNGARY, H-1111
Email: tom.horvath.md@gmail.com
Mobile: +36 30 210 2778
Researcher ID: A-2061-2015
Orcid ID: orcid.org/0000-0003-3038-8643

Current position:

- *2015* - Assistant Professor, Department of Hydrodynamic Systems, Budapest University of Technology and Economics.

Past positions:

- *2013 – 2015* Assistant Lecturer, Cardiovascular Imaging Research Group, Hungarian Academy of Sciences and Semmelweis University Heart and Vascular Center
- *2006 – 2013* Assistant Lecturer, Institute of Human Physiology and Clinical Experimental Research, Semmelweis University

Degrees:

- *Ph.D.: Semmelweis University (2015).*
  Focus: Arterial stiffness, endothelial function and autonomic cardiovagal control mechanisms.
  Dissertation: Genetic and environmental influences on baroreflex sensitivity and the elasticity of common carotid artery. Advisors: Mark Kollai and György Jermendy.
- *M.D.: Semmelweis University (2005).*
  Thesis: Functional Neurosurgery of Parkinson's disease – Deep Brain Stimulation of the Subthalamic Nucleus. Advisor: Volker Tronnier, Heidelberg University.

Research interests:

- Large arterial stiffness determination.
- Cardiovascular control by endothelial and autonomic nervous mechanisms.
- Epidemiological (classical) twin studies focusing on cardiovascular phenotypes.
- Coronary imaging, invasive coronary artery hemodynamics.
- Coronary blood flow modeling (1D and 3D)
- Blood pressure modeling in 1D arterial networks.
- Cardiovascular data processing using custom written scripts (mainly in R).
- Scientific data visualization.

Known methods:

- Applanation tonometry (Millar SPT-301 with and without SphygmoCor, multi-sensor tonometry: Colin CBM-7000)
- Pulse wave velocity determination (carotid-femoral, carotid-brachial and radial)
- Vascular ultrasonography (ArtLab, Wall Track)
- Brachial artery flow mediated dilation (FMD), with beat-to beat diameter and blood flow velocity determination.

- Heart rate variability quantification (in time and frequency domain and fractal-based methods)
- Arterial baroreflex sensitivity determination with spontaneous sequential and spectral methods and invasive Oxford method (phenylephrine provocation)
- Laser Doppler Flowmetry (post-occlusive reactive hyperemia and heat-induced hyperemia ~ Perimed Periflux 5000)
- Coronary CT angiography image processing (Medis and VMTK)
- Coronary Fractional Flow Reserve determination, raw data collection and processing (with commercial and custom written softwares).
- Ex-vivo, human coronary CT angiography for coronary plaque quantification.
- R, Matlab and C# programming.
- Performing classical twin statistical analyses with structural equation modeling and maximum likelihood estimation. Software: Mplus, OpenMx and R.
- Scientific data-recording software knowledge: LabChart (ADInstruments), AcqKnowledge (Biopac), WinCPRS (Absolut Aliens Ltd.).

Teaching activities:

- Medical physiology (lectures and labs) for graduate medical students (15 years experience in English and Hungarian). Faculty of Medicine, Semmelweis University.
- Statistical methods (labs) for BSc. engineering students at the Faculty of Mechanical Engineering, Budapest University of Technology and Economics (2 years experience).

Academic group memberships:

- Hungarian Medical Chamber
- Hungarian Physiological Society
- Hungarian Society of Hypertension
- Hungarian Society of Cardiology

Publications:

Engelen L, Bossuyt J, Ferreira I, van Bortel LM, Reesink KD, Segers P, Stehouwer CD, Laurent S, Boutouyrie P. *Reference values for local arterial stiffness*. Part A: carotid artery. JOURNAL OF HYPERTENSION 33:(10) pp. 1981-1996. (2015)

Maurovich-Horvat P, Tarnoki DL, Tarnoki AD, **Horvath T**, Jermendy AL, Kolossvary M, Szilveszter B, Voros V, Kovacs A, Molnar AA, Littvay L, Lamb HJ, Voros S, Jermendy G, Merkely B. *Rationale, Design, and Methodological Aspects of the BUDAPEST-GLOBAL Study (Burden of Atherosclerotic Plaques Study in Twins-Genetic Loci and the Burden of Atherosclerotic Lesions).* CLINICAL CARDIOLOGY 38:(12) pp. 699-707. (2015)

Pál Maurovich-Horvat MPMF, Mihály Károlyi MD, **Tamás Horváth MD**, Bálint Szilveszter MD, Andrea Bartykowszki MD, Ádám L Jermendy MD, Alexisz Panajotu MD, Csilla Celeng MD, Ferenc I Suhai MD, Gyöngyi P Major MD, Csaba Csobay-Novák MD, Kálmán Hüttl MPD, Béla Merkely MPD. Accepted Manuscript. *Journal of Cardiovascular Computed Tomograph* 2015; 1–29.

Molnár AÁ, Kovács A, Apor A, Tarnoki AD, Tarnoki DL, **Horvath T**, Maurovich-Horvat P, Kiss RG, Jermendy G, Merkely B. Case Report of Multiple Valve Disease Found in Triplets. *Twin research and human genetics* 2014; 17:383–389.

Pinter A, **Horvath T**, Tóth A, Kádár K, Kollai M. Impaired baroreflex function is related to reduced carotid artery elasticity in patients with tetralogy of Fallot. *Autonomic neuroscience: basic & clinical* 2014;

Tarnoki DL, Bikov A, Tarnoki AD, Lazar Z, Szilagyi BK, Korosi BZ, **Horvath T**, Littvay L, Losonczy G, Horvath I. Lack of heritability of exhaled volatile compound pattern: an electronic nose twin study. *Journal of breath research* 2014; 8:016001.

Horvath T, Osztovits J, Pinter A, Littvay L, Cseh D, Tarnoki AD, Tarnoki DL, Jermendy AL, Steinbach R, Metneki J, Schillaci G, Kollai M, Jermendy G. Genetic impact dominates over environmental effects in development of carotid artery stiffness: a twin study. *Hypertension research* 2014; 37:88–93.

Lucatelli P, Tarnoki AD, Tarnoki DL, Giannoni MF, Gazzetti M, Boatta E, Zini C, Cotichini R, Baracchini C, Meneghetti G, Nisticò L, Fagnani C, Karlinger K, **Horvath T**, Molnar AA, Garami Z, Medda E, Stazi MA, Berczi V, Fanelli F. Genetic and environmental effects on carotid flow velocities: An international twin study. *Atherosclerosis* 2013; 231:205–210.

Tarnoki AD, Tarnoki DL, **Horvath T**, Metneki J, Littvay L. [Hungarian twin studies: results of four decades.]. *Orvosi hetilap* 2013; 154:1579–1586.

Tarnoki AD, Baracchini C, Tarnoki DL, Lucatelli P, Boatta E, Zini C, Fanelli F, Molnar AA, Meneghetti G, Stazi MA, Medda E, Cotichini R, Nisticò L, Fagnani C, Osztovits J, Jermendy G, Preda I, Kiss RG, Metneki J, **Horvath T**, Pucci G, Bata P, Karlinger K, Littvay L, Berczi V, Garami Z, Schillaci G. Evidence for a strong genetic influence on carotid plaque characteristics: an international twin study. *Stroke* 2012; 43:3168–3172.

Engelen L, Ferreira I, Stehouwer CD, Boutouyrie P, Laurent S, on behalf of the Reference Values for Arterial Measurements Collaboration. Reference intervals for common carotid intima-media thickness measured with echotracking: relation with risk factors. *European heart journal* 2012; 34:2368–2380.

Pinter A, **Horvath T**, Sarkozi A, Kollai M. Relationship between heart rate variability and endothelial function in healthy subjects. *Autonomic neuroscience: basic & clinical* 2012; 169:107–112.

Tarnoki AD, Tarnoki DL, Stazi MA, Medda E, Cotichini R, Nisticò L, Fagnani C, Lucatelli P, Boatta E, Zini C, Fanelli F, Baracchini C, Meneghetti G, Osztovits J, Jermendy G, Preda I, Kiss RG, Metneki J, **Horvath T**, Karlinger K, Racz A, Lannert A, Molnar AA, Littvay L, Garami Z, Berczi V, Schillaci G. Heritability of central blood pressure and arterial stiffness: a twin study. *Journal of hypertension* 2012; 30:1564–1571.

Horvath T, Pinter A, Kollai M. Carotid artery stiffness is not related to endothelial function in young healthy subjects. *Autonomic neuroscience: basic & clinical* 2012; 166:85–88.

Osztovits J, **Horvath T**, Littvay L, Steinbach R, Jermendy AL, Tarnoki AD, Tarnoki DL, Metneki J, Kollai M, Jermendy G. Effects of genetic vs. environmental factors on cardiovascular autonomic function: a twin study. *Diabetic medicine* 2011; 28:1241–1248.

Vastagh I, **Horvath T**, Garamvölgyi Z, Rosta K, Folyovich A, Rigó J Jr., Kollai M, Bereczki D, Somogyi A. Preserved structural and functional characteristics of common carotid artery in properly treated normoglycemic women with gestational diabetes mellitus. *Acta Physiologica Hungarica* 2011; 98:294–304.

László A, Pinter A, **Horvath T**, Kádár K, Temesvári A, Kollai M, Studinger P. Impaired carotid artery elastic function in patients with tetralogy of Fallot. *Heart and vessels* 2011; 26:542–548.

Osztovits J, Horvath E, Tax J, Csihi L, **Horvath T**, Littvay L, Toth T, Abonyi M, Lakatos PL, Kollai M, Feher J, Szalay F, Blum HE. Reversible autonomic dysfunction during antiviral treatment in patients with chronic hepatitis C virus infection: Anti-HCV therapy and autonomic function. *Hepatitis monthly* 2011; 11:114–118.

Jermendy G, **Horvath T**, Littvay L, Steinbach R, Jermendy AL, Tarnoki AD, Tarnoki DL, Metneki J, Osztovits J. Effect of genetic and environmental influences on cardiometabolic risk factors: a twin study. *Cardiovascular diabetology* 2011; 10:96.

Vastagh I, **Horvath T**, Nagy G, Varga T, Juhász E, Juhász V, Kollai M, Bereczki D, Somogyi A. Evolution and predictors of morphological and functional arterial changes in the course of type 1 diabetes mellitus. *Diabetes/metabolism research and reviews* 2010; 26:646–655.

Osztovits J, **Horvath T**, Abonyi M, Toth T, Visnyei Z, Bekö G, Csák T, Lakatos PL, Littvay L, Feher J, Kempler P, Kollai M, Szalay F. Chronic hepatitis C virus infection associated with autonomic dysfunction. *Liver International* 2009; 29:1473–1478.

Visontai Z, **Horvath T**, Kollai M, Holló G. Decreased cardiovagal regulation in exfoliation syndrome. *Journal of glaucoma* 2008; 17:133–138.

Last update: 21.01.2016