

## BIOGRAPHICAL SKETCH

NAME <p style="text-align: center;">Peter Herman</p>	POSITION TITLE <p style="text-align: center;">Associate Research Scientist, Yale University</p>		
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Semmelweis University of Medicine, Budapest, Hungary	M.D.	1994	medicine
Semmelweis University, Budapest, Hungary	Ph.D.	2002	physiology
Yale University, New Haven, CT	postdoctoral training	2003-2005	magnetic resonance and electrophysiology

### A. Positions and Honors

1992-1994	Research Student, Exp. Res. Dept. – II. Inst. of Physiol. Semmelweis University of Medicine (SUM)
1994-1997	Ph. D. Student, Experimental Research Department – II. Inst. of Physiol., SUM
1997-1998	Research Fellow, Experimental Research Department – II. Inst. of Physiol., SUM
1998-2006	Assistant Professor of Physiology, Inst. of Human Physiol. and Clinical Experimental Res., Semmelweis University
2002-2004	Post-doctoral Associate, Dept. of Diagnostic Radiology, Yale University
2006-	Associate Professor of Physiology, Inst. of Human Physiol. and Clinical Experimental Res., Semmelweis University
2006-	Associate Research Scientist, Dept. of Diagnostic Radiology, Yale University
2002	Award, 'Veritas et virtus' Foundation
2003	Bursary Award, International Society for Cerebral Blood Flow and Metabolism,
2000-	Member, Hungarian Physiological Society
2003-	International Society for Cerebral Blood Flow and Metabolism
2003-	International Society for Oxygen Transport to Tissue
2003-	International Society for Magnetic Resonance in Medicine
2003-2006	Biophysical Society
2006-	Society for Neuroscience

### B. Selected peer-reviewed publications (in chronological order)

- Herman P, Kocsis L, Eke A. (2009) Fractal characterization of complexity in dynamic signals: Application to cerebral hemodynamics. In: Dynamic Brain Imaging, Multi-Modal Methods and In Vivo Applications Ed.: Hyder F. Methods in Molecular Biology , Vol. 489. (In press)
- Sanganahalli BG, Bailey CJ, Herman P, Hyder F (2009) Tactile and non-tactile sensory paradigms for fMRI and neurophysiologic studies in rodents. In: Dynamic Brain Imaging, Multi-Modal Methods and In Vivo Applications Ed.: Hyder F. Methods in Molecular Biology , Vol. 489. (In press)
- Herman P, Sanganahalli BG, Hyder F (2008) Multimodal measurements of blood plasma and red blood cell volumes during functional brain activation J Cereb Blood Flow Metab. (In press)
- Englot DJ, Mishra AM, Mansuripur PK, Herman P, Hyder F, Blumenfeld H (2008) Remote effects of focal hippocampal seizures on the rat neocortex. J Neuroscience, 28(36) (In press)
- Portörő I, Kocsis L, Hermán P, Caccia D, Perrella M, Ronda L, Bruno S, Bettati S, Micalella C, Mozzarelli A, Varga A, Vas M, Lowe KC, Eke A. (2008) Towards a novel haemoglobin-based oxygen carrier: Euro-PEG-Hb, physico-chemical properties, vasoactivity and renal filtration. Biochim Biophys Acta.

- 2008 Mar 20. [Epub ahead of print]
- Sanganahalli BG, Herman P, Hyder F.(2008) Frequency-dependent tactile responses in rat brain measured by functional MRI. *NMR Biomed.* 21(4):410-416.
- Maandag NJ, Coman D, Sanganahalli BG, Herman P, Smith AJ, Blumenfeld H, Shulman RG, Hyder F.(2007) Energetics of neuronal signaling and fMRI activity. *Proc Natl Acad Sci U S A.* 104(51):20546-20551.
- Leszl-Ishiguro M, Horváth B, Johnson RA, Johnson FK, Lenzser G, Hermán P, Horváth EM, Benyó Z. (2007) Influence of the heme-oxygenase pathway on cerebrocortical blood flow. *Neuroreport.* 18(11):1193-1197.
- Kocsis L, Herman P, Eke A. (2006) The modified Beer-Lambert law revisited. *Phys Med Biol.* 51(5):N91-8.
- Kocsis L, Herman P, Eke A. (2006) Mathematical model for the estimation of hemodynamic and oxygenation variables by tissue spectroscopy. *J Theor Biol.* 241(2):262-275.
- Herman P, Eke A. (2006) Nonlinear analysis of blood cell flux fluctuations in the rat brain cortex during stepwise hypotension challenge. *J Cereb Blood Flow Metab.* 26(9):1189-1197
- Eke A, Hermán P, Hajnal M. (2006) Fractal and noisy CBV dynamics in humans: influence of age and gender. *J Cereb Blood Flow Metab.* 26(7):891-898.
- Herman P, Trubel HK, Hyder F. (2006) A multiparametric assessment of oxygen efflux from the brain. *J Cereb Blood Flow Metab.* 26:79-91
- Nersesyan H, Herman P, Erdogan E, Hyder F, Blumenfeld H. (2004) Relative changes in cerebral blood flow and neuronal activity in local microdomains during generalized seizures. *J Cereb Blood Flow Metab* 24:1057-1068
- Trubel H, Herman P, Kampmann C, Huth R, Maciejewski PK, Novotny E, Hyder F. (2004) A novel approach for selective brain cooling: implications for hypercapnia and seizure activity. *Intensive Care Med* 30:1829-1833
- Hermán, P., L. Kocsis, A. Eke (2002) Letter to the editor in response to "A re-investigation of the extended counting method for fractal analysis of the pial vasculature (Letter to the editor by Chung et al.)". *J. Cereb. Blood Flow and Metabol.* 22(3):361-365
- Eke, A., Hermán, P., Kocsis L., Kozák L.R. (2002) Fractal characterization of complexity in temporal physiological signals. *Physiol. Meas.* 23:R1-R38
- Lacza, Zs., Hermán, P, Görlach Ch., Hortobágyi, T., Sándor, P., Wahl M., Benyó, Z. (2001) NO Synthase blockade induces chaotic cerebral vasomotion via activation of thromboxane receptors. *Stroke.* 32:2609-2614.
- Hermán, P., L. Kocsis, A. Eke (2001) Fractal branching pattern in the pial vasculature in the cat. *J. Cereb. Blood Flow and Metabol.*, 21:741-754
- Eke, A., P. Hermán, J.B. Bassingthwaite, G.M. Raymond, D.B. Percival, M. Cannon, I. Balla, and C. Ikrényi. (2000) Physiological time series: distinguishing fractal noises from motions. *Pflügers Arch. – Eur. J. Physiol.*, 439: 403-415.
- Hermán, P. and A. Eke. (2000) Fractal analysis of physiological time series: method and pitfalls of application. *J Physiol (London)*, 526P.
- Eke, A. and P. Hermán. (1999) Fractal analysis of spontaneous fluctuations in human cerebral hemoglobin content and its oxygenation level recorded by NIRS. *Adv. in Exp. Med. Biol.*, 471:49-55.
- Eke, A., P. Herman, J.B. Bassingthwaite, G.M. Raymond, I. Balla, and C. Ikrényi. (1997) Temporal fluctuations in regional red blood cell flux in the rat brain cortex is a fractal process. *Adv. in Exp. Med. Biol.*, 428:703-709.

## C. Research Support

### Ongoing Research Support

P30 NS052519 (Hyder)

04/01/08-03/31/09

NIH

### **Core Center for Quantitative Neuroscience with Magnetic Resonance (QNMR)**

The goal is to develop state-of-the-art technologies for three technical cores (MRI, MRS, neurophysiology) and

provide data analysis infrastructure in a service core so that a more cooperative and interactive research environment is established for neuroscientists who are utilizing MR technology at Yale. The long-term objective is that QNMR will nurture new cross-disciplinary approaches in medicine, physiology, and neuroscience.  
Role: Investigator

**Completed Research Support in the Past Three Years**

None