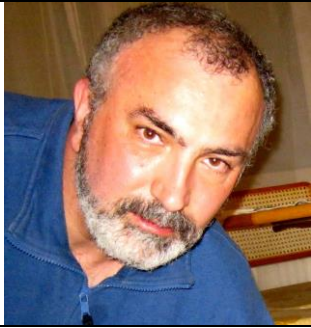


BIOGRAPHICAL SKETCH

	NAME Peter Molnar	POSITION TITLE Associate Professor
		molnarp65@gmail.com http://pmolnar.nhely.hu

I am an electrophysiologist, neurophysiologist, pharmacologist, tissue engineer. My primary interest was the study of the behavior, physiology and pathophysiology of neuronal and cardiac systems. I worked on engineered biological systems to develop high-throughput functional pharmacological screening methods and also novel *in vitro* functional disease models. In the last 10 years I was teaching a very wide selection of courses at a local university in Szombathely, Hungary.

INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Eötvös Lorand University Budapest, Hungary	B.S.	1984-1989	Physics, Biophysics
Eötvös Lorand University Budapest, Hungary	Dr. Univ..	1989-1992	Biophysics
University of Bristol		1992	3 months training
International School of Biophysics, Erice, Sicily		1995	Neurobiology Course
University of Pécs, Pécs, Hungary	Ph.D.	2009-2010	Neurobiology

Positions, Honors, and Activities.

Positions and Employment

1989 – 1992	Research Scientist, Richter Gedeon Co. Ltd., Dept. Biochemistry, Budapest, Hungary
1993 – 1995	Research Scientist, Project manager, Chinoin Co. Ltd., CNS Pharmacology, Budapest, Hungary
1996 – 2000	Research Associate, Duke University Medical Ctr., Dept. Pharmacology, Durham, NC, USA
2000 – 2003	Postdoctoral Fellow, Clemson University, Dept. Bioengineering, Clemson, SC, USA
2003 – 2004	Research Assistant Professor, Clemson University, Dept. Bioengineering, Clemson, SC, USA
2004 – 2009	Assistant Professor, Nanoscience Technology and Biomolecular Science, University of Central Florida, Orlando, FL
2008 – 2010	Assistant Professor, University of West Hungary, Dept. Zoology, Hungary
2012 – 2014	Adjunct Assistant Professor, Cornell University, Ithaca, New York
2010 – 2017	Associate Professor, University of West Hungary, Dept. Zoology, Hungary
2017 -	Associate Professor, ELTE, Savaria Campus, Dept. Biology

Selected Activities

1993 - 1995	Hungarian Neuroscience Society Member
1993 - 1995	ENA Member
1993 - 1995	ESN Member
1996 - 2001	New York Academy of Sciences Member

1997 - 2010 American Society for Neuroscience Member

Teaching activity:

tissue engineering
bioinstrumentation
neuroscience
toxicology
physiology
statistics
scientific writing
cell culture
cell biology
control biology
biophysics
bio informatics
biotechnology
computer simulations
micro photography

Selected Patents

WO9707116	Prolylendopeptidase inhibitors against neurodegenerative diseases, neuroprotection
WO9719934	Quinoxaline compounds inhibitors of glutamate receptor (NMDA glycine site), neuroprotection
US Patent 20,130,096,888	Model and Methods for Identifying Points of Action in Electrically Active Cells. J Hickman, P Molnar, F Sommerhage, J Hood, J Jenkins.
EP Patent 2,435,585	Methods of screening drugs for reversal of amyloid beta neurotoxicity. JJ Hickman, K Varghese, P Molnar
US9489474B2	Model and methods for identifying points of action in electrically active cells
US20160305927A1	Patterned cardiomyocyte culture on microelectrode array

Peer-reviewed publications (in chronological order).

1. Gaál L. and P. Molnár, "Effects of vinpocetine on noradrenergic neurons in rat locus coeruleus," *Eur. J. Pharmacol.* 187:537-539 (1990)
2. Gaál L. and P. Molnár, "A Turbo Pascal program for on line analysis of spontaneous neuronal unit activity," In: *Scientific Computing and Automation (Europe) 1990*, ed.: E. J. Karjalainen, Elsevier Science Publishers B.V., Amsterdam, 1990.
3. Molnár P. and L. Gaál, "Effect of different subtypes of cognition enhancers on long-term potentiation in the rat dentate gyrus in vivo," *Eur. J. Pharmacol.* 215:17-22 (1992)
4. Tarnawa I., P. Molnár, L. Gaál, and F. Andrási, "Inhibition of hippocampal field potentials by GYKI 52466 in vitro and in vivo," *Acta Physiol. Hungarica* 79:169-175 (1992)
5. Molnár P., L. Gaál, and Cs. Horváth, "The impairment of long-term potentiation in rats with medial septal lesion and its restoration by cognition enhancers," *Neurobiology* 2:255-266 (1994)
6. Maksay G., P. Molnár, and L. Gruber, "Common modes of action of g -butyrolactones and pentylenetetrazol on the convulsant and benzodiazepine sites and channel activity of the GABA receptor-ionophore complex," *Eur. J. Pharmacol. - Mol. Pharmacol.Sect.* 288:61-68 (1994)
7. Molnár P. and S.L. Erdő, "Vinpocetine is as potent as phenytoin in blocking voltage-gated sodium channels in rat cortical neurons," *Eur. J. Pharmacol.* 273:303-306 (1995)
8. Lakics V., P. Molnár, and S.L. Erdő, "Protection against veratridine toxicity in rat cortical neurons: relationship to sodium channel blockade," *Neuroreport* 7:89-92 (1995)

9. Maksay G., P. Molnár, and M. Simonyi, "Thermodynamics and kinetics of t-butylbicyclophosphorothionate binding differentiate convulsant and depressant barbiturate stereoisomers acting via GABAA ionophores," *Naunyn-Schmiedeberg's Archives of Pharmacology* 353:306-13 (1996)
10. Molnár P. and S.L. Erdő, "Differential effects of five glycine site antagonists on NMDA receptor desensitization," *Eur. J. Pharmacol.* 311:311-314 (1996)
11. Erdő S.L., P. Molnár, V. Lakics, J.Zs. Bence, and Zs. Tömösközi, "Vincamin and vincanol are potent blockers of voltage-gated Na channels," *Eur. J. Pharmacol.* 314:69-73 (1996)
12. Okazaki M., P. Molnar, and J. V. Nadler, "Recurrent mossy fiber pathway in the rat dentate gyrus: synaptic currents evoked in the presence and absence of seizure-induced growth," *J. Neurophysiol.* 81:1645-1660 (1999)
13. Molnar P. and J. V. Nadler, "Mossy fiber - granule cell synapses studied with whole cell patch clamp recording and laser photostimulation," *J. Neurophysiol.* 82:1883-1894 (1999)
14. Molnar P. and J. V. Nadler, "O-(CNB-caged) GABA selectively blocks inhibitory synaptic transmission in rat hippocampal slices," *Eur. J. Pharmacol* 391:255-262 (2000)
15. Molnar P. and J. V. Nadler, "Lack of effect of mossy fiber-released zinc on postsynaptic GABAA receptors in the pilocarpine model of epilepsy," *J. Neurophysiol.* 85:1932-40 (2001)
16. Molnar P. and J. V. Nadler, "Synaptically-released zinc inhibits N-methyl-D-aspartate receptor activation at recurrent mossy fiber synapses," *Brain Res.* 910:205-207 (2001)
17. Feng L., P. Molnar, and J. V. Nadler: Short-Term Frequency-Dependent Plasticity at Recurrent Mossy Fiber Synapses of the Epileptic Brain. *J. Neurosci.* 23. 5381-5390 (2003)
18. Das M., P. Molnar, H. Devaraj, M. Poeta and J. J. Hickman: Electrophysiological and morphological characterization of rat embryonic motoneurons in a defined system. *Biotechnology Progress* 19. 1756-1761 (2003)
19. Kang J.F., M. Poeta, L. Riedel, M. Das, C. Gregory, P. Molnar, J. Hickman, "Patterned Neuronal Networks for Robotics, Neurocomputing, Toxin Detection and Rehabilitation," *Proceeding of 24th Army Science Conference*, Nov. 29th, 2004
20. Das M., P. Molnar, C. Gregory, L. M. Riedel and J. J. Hickman: Long-term culture of embryonic rat cardiomyocytes on organosilane surface in serum-free media. *Biomaterials*, 25: 5643-47 (2004)
21. Natarajan, A., P. Molnar, K. Sieverdes, A. Jamshidi and J.J. Hickman: Multielectrode Recordings of Cardiac Action Potentials as a High Throughput Method to Evaluate Pesticide Toxicity. *In Vitro Toxicology*, 20 (3): 375-81 (2005)
22. Mohan, D.K., P. Molnar, and J. J. Hickman: Toxin detection based on action potential shape analysis using a realistic mathematical model of differentiated NG108-15 cells. *Biosensors and Bioelectronics*, 21 (9): 1804-11 (2006)
23. Das M., Bhargava N, Gregory C, Riedel L, Molnar P. and Hickman JJ. Adult Rat Spinal Cord Culture on an Organosilane Surface in a Novel Serum-Free Medium. *In Vitro – Animal*, 41 (10): 343-8 (2005)
24. Peng P.L., Zhong, X., Tu W., Soundarapandian, M.M., Molnar P., Zhu D., Lau L., Liu S. , Liu F. and Lu Y.M. ADAR2-Dependent RNA Editing of AMPA Receptor Subunit GluR2 Determines Vulnerability of Neurons in Forebrain Ischemia. *Neuron*, 49, 719-733 (2006)
25. Xu, T., C. Gregory, P. Molnar, S. Jalota, S. B. Bhaduri, T. Boland: Viability and Electrophysiology of Neural Cell Structures made by the Inkjet Printing. *Biomaterials*, 27. 3580-3588 (2006)
26. Das M., C. Gregory, P. Molnar, L. M. Riedel and J. J. Hickman: A Defined System to Allow Skeletal Muscle Differentiation and Subsequent Integration with Silicon Microstructures. *Biomaterials*. 27, 4374-80 (2006)
27. Molnar P., M. Kuchma, A. Natarajan, J.-F. Kang, N. Bhargava, M. Das and J. J. Hickman: Photolithographical patterning of single cells and cell assemblies on commercial multielectrode arrays. *Proceedings of the 5th International Meeting on Substrate-Integrated Micro Electrode Arrays*, Reutlingen, Germany (2006)
28. Molnar P., W. Wang, A. Natarajan, J. W. Rumsey and J. J. Hickman: Photolithographic Patterning of C2C12 Myotubes using Vitronectin as Growth Substrate in Serum-Free Medium. *Biotechnology Progress*, 23: 265-268 (2007)
30. Wilson K.A., P. Molnar and J. J. Hickman: Integration of functional myotubes with a Bio-MEMS device for non-invasive interrogation. *Lab on a Chip*, 7, 920-922 (2007)
31. Das, M., K. Wilson, P. Molnar, and J. J. Hickman: Differentiation of skeletal muscle and integration of myotubes with silicon microstructures using serum-free medium and a synthetic silane substrate. *Nature Protocols*, 2, 1795-1801. (2007)
32. Das, M., J. W. Rumsey, C. A. Gregory, N. Bhargava, J. F. Kang, P. Molnar, L. Riedel, X. Guo and J. J. Hickman: Embryonic motoneuron-skeletal muscle co-culture in a defined system. *Neuroscience*, 146. 481-488 (2007)

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37. Liu, J., J.W. Rumsey, M. Das, P. Molnar, C. Gregory, L. Riedel, et al., "Electrophysiological and immunocytochemical characterization of DRG neurons on an organosilane surface in serum-free medium," *In Vitro Cellular & Developmental Biology-Animal*. 44(5-6):162-168. (2008)
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46. Guo, X., K. Johe, P. Molnar, H. Davis és J. Hickman "Characterization of a human fetal spinal cord stem cell line, NSI-566RSC, and its induction to functional motoneurons." *J Tissue Eng Regen Med* 4(3): 181-93 (2010)
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55. Thakore, V., P Molnar, JJ Hickman: An Optimization-Based Study of Equivalent Circuit Models for Representing Recordings at the Neuron–Electrode Interface. *IEEE Transactions on Biomedical Engineering*, 59 (8), 2338-2347 (2012)
56. Aditya Reddy Kolli, Frank Sommerhage, Peter Molnar, Jonathan E Hood, Jerry J Jenkins, Faraz Hussain, Arup K Ghosh, Sumit Kumar Jha, James J Hickman: A computational metabolic model of the NG108-15 cell for high content drug screening with electrophysiological readout. *Proceedings of the ACM Conference on Bioinformatics, Computational Biology and Biomedicine* (2012)
57. Natarajan, A., TB DeMarse, P Molnar, JJ Hickman: Engineered In Vitro Feed-Forward Networks. *JBiotechnol Biomater* 3 153 (2013)
58. Darin Edwards, Maria Stancescu, Peter Molnar, James J Hickman: Two cell circuits of oriented adult hippocampal neurons on self-assembled monolayers for use in the study of neuronal communication in a defined system. *ACS Chemical Neuroscience* 4: 1174 (2013)
59. AS Smith, Christopher J Long, Bonnie J Berry, Christopher McAleer, Maria Stancescu, Peter Molnar, Paula G Miller, Mandy B Esch, Jean-Matthieu Prot, James J Hickman, Michael L Shuler: Microphysiological systems and low-cost microfluidic platform with analytics Stem cell research & therapy. 4: S9 (2013)
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62. Ildiko Schmidthoffer, László Szilák, Péter Molnár, Peter Csontos and Anna Skribanek: Drought Tolerance of European Barley (*Hordeum Vulgare* L.) Varieties. 64: 137-142 (2018)
63. Anupama Natarajan, Alec S. T. Smith, Bonnie Berry, Stephen Lambert, Peter Molnar, James J. Hickman: Temporal Characterization of Neuronal Migration Behavior on Chemically Patterned Neuronal Circuits in a Defined in Vitro Environment. *ACS Biomater. Sci. Eng.*4: 10 (2018)

Book chapters

1. **Molnar P.**, M. Kuchma, J. W. Rumsey, K. Wilson and Hickman, J.J.: Biosurface Engineering, Cell Patterning. *Encyclopedia of Medical Devices*, John Wiley & Sons, Inc. (2005)
2. **Molnar P.**, J. F. Kang, N. Bhargava, M. Das and J. J. Hickman: Synaptic Connectivity in Engineered Neuronal Networks. In: 'Patch Clamp Methods and Protocols', Humana Press 'Methods in Molecular Biology' series: in press (2007)
3. **Molnar P.**, and J. J. Hickman: Modeling of Action Potential Generation in NG108-15 Cells. In: 'Patch Clamp Methods and Protocols', Humana Press 'Methods in Molecular Biology' series: in press (2007)
4. Rolland, J. P., K. S. Lee, A. Mahmood, L. Fluck, J. Duarte, I. Kaya, A. Santhanam, P. Meemon, S. Murali, O. Ilegbusi, P. Kupelian, W. L. Warren, **P. Molnar**, J. J. Hickman and P. E. Kolattukudy. Collaborative Engineering: 3-D Optical Imaging and Gas Exchange Simulation of In-Vitro Alveolar Constructs. *Medicine Meets Virtual Reality 16 - parallel, combinatorial, convergent: NextMed by Design*. J. D. Westwood, R. S. Haluck, H. M. Hoffman et al. 132. (2008)
5. Murugan, R., S.S. Liao, S. Ramakrishna, **P. Molnar**, Z.M. Huang, M. Kotaki, K.P. Rao, and J.J. Hickman, *Skeletal Regenerative Nanobiomaterials*, in *Biomaterials for Bone Regenerative Medicine.*, TTP Publishers: Swiss/USA. (2009)

'Patch Clamp Methods and Protocols' for Humana Press 'Methods in Molecular Biology' series: Editor, (2007)

Professional Service:

- Reviewer for IEE Biomedical Engineering
- Reviewer for Biosensors and Bioelectronics
- Editor: Patch Clamp Methods for Humana Press 2006
- Reviewer for Technologiestichting STW Technology Foundation 2006