

Tuula Orvokki Jalonen, Ph.D.

Work Address:

St. George's University
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Education and training:

University of Turku	B.Sc.	Major: Biochemistry
University of Turku	M.Sc.	Major: Zoology
University of Turku	M.Phil.	Major: Zoology
University of Turku	Phil.Lic.	Major: Animal Physiology
University of Tampere	Ph.D.	Major: Medical Faculty/Physiology

Ph.D. thesis title: "Astrocytes and the Regulation of Brain Function: In vitro Studies on Ion Channels and Intracellular Calcium Changes in Rat Cortical Astrocytes"

Research and Teaching Experience:

1.8.2008-present	Associate Professor in Neuroscience, Department of Physiology and Neuroscience, St.George's University School of Medicine, Grenada, West Indies
1.1.2006-2008	Senior Lecturer and Acting Professor in Biochemistry and Chemical Biology, Department of Environmental and Biological Science and Nanoscience Center, University of Jyväskylä, Finland
1.8.2004-31.12.2005	Senior Scientist and Acting Professor in Biochemistry, Department of Environmental and Biological Science, University of Jyväskylä, Finland
1.1.2004- present	Docent of Cell Electrophysiology, University of Tampere, Institute of Medical Technology
1.4.2003-31.7.2004	Senior Scientist, Department of Environmental and Biological Science, University of Jyväskylä, Finland
2002-2003	Senior Scientist, Department of Physics, University of Jyväskylä, Finland

2002	Research Scientist, Molecular Medicine, Institute of Medical Technology, University of Tampere, Finland
2001	Research Scientist, Lead Discovery, AstraZeneca, Novum and Södertälje R&D, Sweden
1997-2001	Senior Scientist, Medical School and Institute of Medical Technology, University of Tampere, and Pirkanmaa Hospital District Unit, Tampere University Hospital, Tampere, Finland
1996-1997	Assistant Professor of Pharmacology and Neuroscience (secondary appointment), Albany Medical College, Albany, NY, USA
1995-1997	Adjunct Faculty to the Graduate Studies Program in the Department of Pathology and Laboratory Medicine, Albany Medical College, Albany, NY, USA
1993-1997	Assistant Professor of Research Surgery, Division of Neurosurgery (primary appointment) Albany Medical College, Albany, NY, USA
September 1991-1993	Research Instructor, Division of Neurosurgery, Albany Medical College, Albany, NY, USA
1988-1991	Scientist and Assistant Lecturer, Department of Biomedical Sciences, University of Tampere, Tampere, Finland
1984-1987	Research assistant, Department of Animal Physiology, University of Turku, Turku, Finland

Fields of research and collaborations:

- **Maturation of SH-SY5Y neuroblastoma cells; synaptic plasticity and neuronal networks:** Riina Sarkanen, CRC, Tampere University Medical Faculty and Dr. Marja-Leena Linne, Signal Processing Institute, Tampere Technical University, Finland
- **Cholesterol in cellular differentiation and survival:** Riina Sarkanen, CRC, Tampere University Medical Faculty; Dr. Kirsi Pakkanen, Taina Roiha, Reija Silvennoinen, Dept. Biological and Environmental Science, Division of Biochemistry and Chemical Biology, University of Jyväskylä, Finland
- **Mathematical modeling/simulation of neuronal cell excitability. Roles of neurotransmitters, chemokines, beta-amyloid and other ion channel modulators in neurodegenerative diseases:** Professor Pablo Caviedes, University of Chile, Santiago, Chile; Dr. Marja-Leena Linne, Signal Processing Institute, Tampere Technical University, Finland
- **Basic properties and functions of membrane receptors and ion channels** in CNS cells, (cerebellar granule cells, neuroblastoma, astroglia). Regulation and modulation of ion channels and receptors by drugs and toxic compounds
- **Virus-host interactions studied with neural cell lines:** Canine parvovirus infection in human SH-SY5Y neuroblastoma cells

Techniques:

- **Patch-clamp current/voltage-clamp electrophysiology laboratories in Finland, Sweden and USA** to study a) potassium channel activities and GABA, glycine and taurine regulated anion conductance in cerebellar granule cells, b) osmotically regulated large conductance anion channel in astrocytes, and c) nef, beta-amyloid and serotonin activated ion channels in astrocytes
- **Ca²⁺-imaging and fluorescence microscopy:** Calcium transients induced by beta-amyloid, glutamate and serotonin. Localization of lysosomes, viruses and cholesterol in cells
- **Cell culture:** Methods to study retinoic acid and cholesterol induced differentiation of neuroblastoma and astrocytoma cells
- **Molecular biology:** PCR studies of chemokines and chemokine receptors

Research awards, honours and major grants:

Kunniamaininta/with honours (September 1997): Ph.D. Thesis in Physiology, University of Tampere, Medical Faculty "Astrocytes and the Regulation of Brain Function: *In Vitro* Studies on Ion Channels and Intracellular Calcium Changes in Rat Cortical Astrocytes". ISBN 952-90-9085-4, Cityoffset Oy.

Grants:

2003-2005	Academy of Finland grant (AIM; with Koivo TKK, TTKK and IMT)
1998-2001	Medical Research Fund of Tampere University Hospital
1997,1999	Maud Kuistilan Muistosäätiö Research Grant
1997	University of Tampere Research Grant
1996	Wigger's Travel Award, 1 month visit NIH/NIA, Bethesda, MD, USA
1993-94	Biomedical Research Support Grant (BRSG, NIH to Albany Medical College)
1990	Swedish Medical Research Council
1988, 1989	Nordiska Forskarstipendier
1987	Emil Aaltonen Foundation
1986	The Finnish Education Ministry/Deutscher Akad. Austauschdienst

NIH Funding in U.S.A. (1991-1997):

- 30 % co-investigator in NINDS 1RO1 NS 19492-14 to -18, "Neurotransmitter Receptors on Astrocytes", 7/1/96-6/30/01, \$128 800, P.I. Dr. H.K. Kimelberg, Division of Neurosurgery, Albany Medical College. Project was focusing on transmitter receptors to be found in cultured astrocytes and in acutely isolated astrocytes.
- 20 % co-investigator in NIAD-R29-AI36668-01, "HIV induced alterations in cation transport", 7/1/94 - 7/31/96 and Consultant, 8/1/96 - 6/30/99, \$70 700, P.I. Dr. J.J. Kort, Department of Medicine, Albany Medical College. Project was designed to clarify the mechanisms by which HIV induces changes in ion transport across the cell plasma membrane, and affects the function of CD4+ lymphocytes, neurons and astroglial cells.

Other academic and professional merits and activities:

- **Member of the planning committee for the development of M.Sc. and Ph.D. courses in Physiology and Neuroscience at SGU, School of Medicine and Graduate Studies Programme, 2011-**

- **Member of a committee for planning new faculty mentoring** 2011- (with Dr. J. Rayner, Dr. Bill Blunt)
- **Member of a search committee for an assistant professor/associate professor position in Public Health**, 2010-2011(chair Dr. J. Rayner)
- **Participation in Health Fairs in Grenada** 2009- present, especially managing the paperwork for the Women in Medicine (WIM) program for breast cancer checks (supervised by Dr. F. McGill)
- **Chief Judge** and member of the organizing committee for **the Grenada Brain Bee Challenge**, St. George's, Grenada, 2008-2011. www.grenadabrainbee.com
- **Invited Guest Speaker for the launching of the Grenada Brain Bee Challenge**, St. George's University, 27th November 2008.
- **Invited reviewer for a docentship** of Ulla Pentikäinen, University of Jyväskylä, Finland, 2009
- **Opponent at Ph.D. thesis defence:** Nesar Akanda "Voltage-dependent anion channels (VDAC) in the plasma membrane induces apoptosis", 22.12.2006, Faculty of Health Sciences, University of Linköping, Sweden.
- Planning for **Neuroscience Journal club** together with Dr. K. Mandalaneni, SGU.
- Participation in **Let's Talk Teaching** seminars with presentations:
 - Is Teaching Neuroscience (and other topics) at SGU Comparable with US Standards? Thoughts after a Meeting on *Current Trends in Neuroscience Education* in Washington DC, 6th May 2011
 - How to write a Research Paper, 28.11.08
- Participation in Windref graduate seminars and seminars organized by Neuroscience, Women in Medicine or Clinical Skills, SGU.
- **Advisor** for students at the St.George's University School of Medicine since January 2009

Reviewing: Reviewing of scientific manuscripts, more recently e.g. for "Amino Acids", "Inflammation Research", "Journal of Biological Chemistry".

Memberships in scientific societies: Member of American Society for Neurochemistry (since 1990's), Biophysical Society (since 1990's), Society for Neuroscience (since 1990's), Brain Research Organization of Finland, FENS, IBRO.

Editing: Jalonen, T. and Siren, S. (Eds) (1990) Reports of the Seili Symposium on the Limits of Knowledge: Theories and Methods in Biosciences. Acta Universitatis Tamperensis, Ser B, Vol. 32, 1-47.

Organizer of international student courses:

Graduate School Course "Basics of Electrophysiology in Cell Biology and Biomedical Research", together with Marja-Leena Linne Dr.Tech., Institute of Medical Technology, University of Tampere, Finland, April 2002.

"Theory of Evolution: In Need of a New Synthesis?" Agricultural Research Institute of Helsinki University, Suitia, Finland, August 1991.

"Limits of Knowledge: Theories and Methods in Biosciences" Archipelago Research Institute, Seili, Finland, May 1988.

Participation in about hundred international and national scientific meetings on biophysics, cell biology, neurosciences and neurochemistry with invited talks and poster presentations.

Meeting participation while in Grenada since August 2008:

- **PredictAD Workshop: From patient Data to Personalised Healthcare in Alzheimer's Disease**, 15th June 2011, University of Eastern Finland, Kuopio, Finland.
- **2011 Annual Spring Conference of Neuroscience Departments and Programs** http://www.sfn.org/index.aspx?pagename=professionalDevelopment_ndpconference
MEETING DESCRIPTION: "Current Trends in Neuroscience Education: Training the Millennial Student" organized by the Society for Neuroscience, 25th March 2011, Washington DC, USA.
- **7th FENS Forum** of European Neuroscience, July 3-7 2010, Amsterdam, Holland
- **Society for Neuroscience annual meeting** 17th-21st October 2009, Chicago, IL, USA with a poster presentation and October 22-23 meetings with US colleagues.
- **Society for Neuroscience annual meeting** 15th-19th November 2008, Washington DC, USA with two poster presentations.

Practical experience in teaching:

* **Lecturer of 2nd term neuroscience and pre-med courses at St. George's University School of Medicine, Grenada, W.I.** **Courses:** Cellular Neuroscience, Movement Disorders and Complex Brain Function and Diseases, Pre-medical neuroscience CNS

* **Senior scientist, lecturer and acting professor** in biochemistry and chemical biology, University of Jyväskylä, 1.8.2004 -2008. Lectures given for all biochemistry basic courses and special M.Sc. courses in chemical biology, electrophysiology, biosensors and nanobiology. Student examinations (all levels), planning of curriculum change and annual curriculum, and participation in departmental administration.

***Group leader for the cell membrane biophysics research group** in the molecular recognition unit, University of Jyväskylä.

* **Docent of Cell Electrophysiology**, at the Institute of Medical Technology, University of Tampere since 1.1.2004.

* Accepted teaching demonstration for a senior assistant position, Physiology (evaluation: good), Medical Faculty, University of Tampere, 2000.

* Research instructor, lecturer and assistant professor in USA (Albany Medical College) with seminars, lectures and supervision of research for M.Sc. and medical students and neurosurgery residents.

* Multiple lectures, invited talks, courses, seminars and laboratory demonstrations given in Finland and abroad.

* Opponent for Ph.D. thesis defence (Sweden).

* Supervisor of Ph.D. students (Linne, Sarkanen, Toivari, Teppola), member of Ph.D. thesis committee (Pulkkinen). Supervisor of multiple M.Sc. and B.Sc. thesis works (details in teaching portfolio)

Supervision of students:

Tampere University of Technology:

Heidi Teppola (2008-), Ph.D. thesis work focused on MEA electrophysiology of neuronal cells.

Eeva Toivari (2008-), Ph.D. thesis work focused on mathematical models of beta-amyloid in Alzheimer's disease, 2007 onwards.

Marja-Leena Linne Ph.D (defence 8.10.2001) “Computational model for granule neuron excitability” (defence 8.10.2001) Institute of Signal Processing. Department of Medical Technology,

Mikko Lukkari (2002-2004) “Injection and patch clamp system integration”.

Sami Myllymaa; M.Sc.Engineering/Medical Technology, (March 2001); “Noise in patch-clamp electrophysiology”. Tampere University of Technology, Signal Processing Laboratory

Marja-Leena Linne M.Sc. thesis “An Electrophysiological patch-Clamp System” (1992).

University of Tampere, Medical Faculty and Institute of Medical Technology:

Riina Sarkanen. Ph.D., “Developing neural cell lines for electrical and metabolic studies of cellular networks”. Supported by the Biomaterials and Tissue Engineering Graduate School (BGS) 2003-2008. In the Ph.D. thesis committee of M.Sc.

Kati Pulkkinen, “Regulation of Nef-mediated signaling and its role in HIV infection”, TGSBB/IMT, since 2000. Ph.D. Thesis completed 5th February 2010 “*HIV-1 Nef protein and the Nef-associating kinase PAK2 in cell signalling*”.

M.Sc. thesis: Heidi Teppola, M.Sc. thesis work on optimizing cell cultures for MEA recordings (2006-2008). **Kaisa Hartikainen** medical student research practicals 1990-1991.

University of Jyväskylä, Department of Biological and Environmental Science:

M.Sc. degrees:

Marko M. Manninen (2008-2011) Properties of carbon nanotubes.

Reija Silvennoinen (2007-2008) Cholesterol in human SH-SY5Y neuroblastoma and U373-MG astrocytoma cells.

Taina Roiha (2006-2008) Development of neuronal properties in human SH-SY5Y neuroblastoma cells. Manganese toxicity on neuroblastoma and astroglioma cells

Jura Mikkola (2006-2008) Immortalized neuronal cells and Down syndrome.

Salla Virtanen (2006-2008) Optimizing growth of neuronal stem cells.

Suvi Aivio (2006-February 2007): Optimizing xeno-free culture media for human embryonic stem cells.

Jutta Siikanen Multiform neuron-like cells from SH-SY5Y cell line (finished January 2007; supervised together with Dr. Varpu Marjomäki).

Mikko Karjalainen (2004): Integrins and echovirus-induced changes in intracellular calcium, (together with prof. Jyrki Heino and Dr. Varpu Marjomäki).

Kati Pulkkinen (1999-2000): Expression of chemokines and their receptors in MS-patients lymphocytes. (together with prof. Markku Kulomaa)

B.Sc degrees:

Marko Manninen, physics (2006-2007) Current and voltage measurements from one cell to cellular networks, to be continued as M.Sc.thesis work 2007 onwards “Analysis of the current and voltage measurements from cells and cellular networks”

Iiona Nummela (2006): Microarray method and Single Nucleotide Polymorphism

Taina Roiha (2006): Manganism and the Effects of Manganese in the Central Nervous System

Reija Silvennoinen (2007). Neuromelanin of substantia nigra and its role in Parkinson’s disease

Jyväskylä Polytechnic Institute, Tuula Kerkkänen B.Sc. (Engineering in Laboratory Science) diploma thesis “Oil optical analysis for development of sensors (supervisor J. Leppä-aho, Ph.D.) 2002-2003.

AstraZeneca Södertälje R&D, Sweden, supervision of summer student **Charlotta Hägnan**, 2001.

Ten other undergraduate and postgraduate students, supervised in **USA** and **Finland** between 1990-2000.

LIST OF PUBLICATIONS

Journal Articles:

1. Toivari, E., Manninen, T., Nahata, A.K., **Jalonen, T.O.**, Linne, M.-L. (2011). Effects of Transmitters and Amyloid-Beta Peptide on Calcium Signals in Rat Cortical Astrocytes: Fura-2AM Measurements and Stochastic Model Simulations. *PLoS ONE*, 2011 Mar 29;6(3):e17914
2. Pakkanen, K., Kirjavainen, S., Mäkelä, AR., Rintanen, N., Oker-Blom, C., **Jalonen, T.O.**, Vuento, M. (2009). Parvovirus capsid disorders cholesterol-rich bilayers. *Biochemical and Biophysical Research Communications /BBRC*, Feb 6; 379(2):562-566.; epub 2008 Dec 30.
3. Manninen, M., Teppola, H., Linne, M.-L., Jalonen, T.O. (2008). Solutason virta- ja jännitemittaukset: yhdestä solusta soluverkkoihin. *Solubiologi* 26 (2):9-19 (in Finnish).
4. Roiha, T., Sarkanen, J.-R., Vasarvuori, A., Jalonen, T.O. (2008). Mangaanin vaikutus ihmisen SH-SY5Y neuroblastooma-soluihin. *Solubiologi* 26 (2):20-27 (in Finnish).
5. Sarkanen, J.-R., Nykky, J., Siikanen, J., Selinummi, J., Ylikomi, T. and **Jalonen, T.O.** (2007) Cholesterol supports the retinoic acid-induced synaptic vesicle formation in differentiating human SH-SY5Y neuroblastoma cells. *Journal of Neurochemistry* 102 (6), 1941-1952.
6. Selinummi, J., Sarkanen, J.-R., **Jalonen, T.O.**, Yli-Harja, O. (2007). Neuroblastooma-solujen erilaistumisen seuranta digitaalisen kuva-analyysin menetelmin. *Solubiologi* 25 (1):17-25 (in Finnish).
7. Roiha, T. and **Jalonen, T.O.** (2007). Mangaani ja keskushermoston sairaudet (in Finnish). *Solubiologi* 25 (1):41-45 (in Finnish).
8. Selinummi, J., Sarkanen, J.-R., Niemistö, A, Linne, M.-L., Ylikomi, T., Yli-Harja, O. and **Jalonen, T.O.** (2006) Quantification of vesicles in differentiating human SH-SY5Y neuroblastoma cells by automated image analysis. *Neurosci. Lett.* 396 (2), 102-107.
9. Linne, M.-L. and **Jalonen, T.O.** (2006). Properties and roles of BKCa channels in cultured cerebellar granule neuron: Experimental and simulation studies. *Neurocomputing* 69, 1014-1019.
10. Linne, M.-L., Manninen, T. and **Jalonen, T.O.** (2004). A Model Integrating the Cerebellar Granule Neuron Excitability and Calcium Signaling Pathways. *Neurocomputing*, 58-60, 569-574.
11. Pulkkinen, K., Luomala, M., Kuusisto, H., Lehtimäki, T., Saarela, M., **Jalonen, T.O.** and Elovaara, I. (2004). Increase in CCR5 $\Delta 32/\Delta 32$ genotype in multiple sclerosis. *Acta Neurologica Scandinavica*, 109 (5), 342-347.
12. Linne, M.-L. and **Jalonen, T.O.** (2003). Simulations of the cultured granule neuron excitability. *Neurocomputing*, 52-54, 583-590.
13. **Jalonen, T.O.**, Pulkkinen, K., Ukkonen, M., Saarela M. and Elovaara, I. (2002). Differential intracellular expression of CCR5 and chemokines in multiple sclerosis subtypes. *J. Neurology*, 249 (5) 576-583.
14. Kort, J.J. and **Jalonen, T.O.** (1998) The nef protein of the human immunodeficiency virus type 1 (HIV-1) inhibits a large-conductance potassium channel in human glial cells. *Neurosci. Lett.*, 251, 1-4.
15. **Jalonen, T.O.**, Margraf, R.R., Wielt, D.B., Charniga, C.J., Linne, M.-L. and Kimelberg, H.K. (1997). Serotonin induces 5-HT_{2A} receptor-mediated inward K⁺ and Ca²⁺ currents in rat cortical astrocytes. *Brain Res.* 758, 69-82.
16. Kimelberg, H.K., Cai, Z., Rastogi, P., Charniga, C.J., Goderie, S., Dave, V. and **Jalonen, T.O.** (1997). Transmitter-induced calcium responses differ in astrocytes acutely isolated from rat brain and in culture. *J. Neurochem.*, 68, 1088-1098.

17. **Jalonen, T.O.**, Charniga, C.J. and Wielt, D.B. (1997). Beta-amyloid peptide-induced morphological changes coincide with increased K⁺ and Cl⁻ channel activity in rat cortical astrocytes. *Brain Res.*, 746, 85-97.
18. Linne, M.-L., Oja, S.S., **Jalonen, T.O.** (1996). Simultaneous detection of action potential current waveforms and single ion channel openings in rat cerebellar granule cells. *Int. J. Neural Systems*, 7,377-384.
19. Linne M.-L., **Jalonen T.O.**, Saransaari P, Oja S.S. (1996).Taurine-induced single-channel currents in cultured rat cerebellar granule cells. *Adv Exp Med Biol*.403:455-62.
20. **Jalonen, T.** (1993) Single-channel characteristics of the large-conductance anion channel in rat cortical astrocytes in primary astrocyte cultures. *Glia*, 9, 227-237.
21. Kimelberg, H.K., Sankar, P., O'Connor, E., **Jalonen, T.** and Goderie, S.K. (1992) Functional Consequences of Astrocytic Swelling. *In: Progress in Brain Research*, A.C.H. Yu, L. Hertz, M.D. Norenberg, E. Sykova, and S.G. Waxman (Eds), Elsevier, Vol. 94: 57-68.
22. **Jalonen, T.**, Varga, V., Hartikainen, K., Janaky, R., Oja, S.S. (1991). Anion conductance blocked by divalent cations in cultured rat astrocytes. *Ann. N.Y. Acad. Sci.* 633:583-5.
23. **Jalonen, T.**, Johansson, S., Holopainen, I., Oja, S.S. and Århem, P. (1990) Single-channel and whole-cell currents in rat cerebellar granule cells. *Brain Res.* 535, 33-38.
24. **Jalonen, T.** and Holopainen, I. (1989) Properties of single potassium channels in cultured primary astrocytes. *Brain Res.* 484, 177-183.
25. **Jalonen, T.**, Johansson, S., Holopainen, I., Oja, S.S., Århem, P. (1989) A high-conductance multi-state anion channel in cultured rat astrocytes. *Acta Physiol Scand*.136(4):611-2.
26. **Jalonen, T.** and Åkerman, K.E.O. (1988) Single transient potassium channels in human neuroblastoma cells induced to differentiate in vitro. *Neurosci. Lett.* 86, 99-104.
27. Talo, A., **Jalonen T.O.** and Kohonen, J. (1983) Single channel ion currents in embryonic cells of the newt (*Triturus vulgaris*) isolated without enzymatic treatment. *Acta Physiol. Scand.* 119(3):299-301.

Book chapters and articles in peer-reviewed conference proceedings:

1. Mäkiraatikka, E., Nahata, A.K., **Jalonen, T.O.**, and Linne, M.-L. (2008) Calcium changes induced by amyloid- β -neurotransmitter interactions in astrocytes: Model formation. *Proceedings of the 5th International Workshop on Computational Systems Biology (WCSB2008)*, pp. 113–116, June 11-13, 2008, Leipzig, Germany.
2. Teppola, H., Sarkanen, J.-R., Selinummi, J., Pettinen, A., **Jalonen, T.O.**, Linne, M.-L. (2008) The effects of different MEA coating agents on growth and differentiation of human SH-SY5Y neuroblastoma cells. *Proceedings of the 6th International meeting on substrate-integrated microelectrode arrays (MEA-meeting)*, Reutlingen, Germany, July 8-11, 2008.
<http://www.nmi1.de/meameeting2008/>
3. Selinummi, J., Lehmußola, A., Sarkanen, J.-R., Nykky, J., **Jalonen, T. O.** and Yli-Harja, O. (2006) Automated analysis of Golgi apparatus dispersion in neuronal cell images, *In: Ruusuvoori, P. et al. (eds.). Proceedings of the 4th TICSP Workshop on Computational Systems Biology, WCSB 2006, Tampere, Finland, 12-13 June 2006. TICSP series*, 89-92.
4. Lukkari M, Karjalainen MI, Sarkanen R, Linne ML, **Jalonen TO**, Kallio PJ. (2004). Electrical detection of the contact between a microinjection pipette and cells. *Conf Proc IEEE Eng Med Biol Soc.*;4:2557-60.
5. Linne M.-L. and **Jalonen T.O.** (2002). Simulations of the cultured granule neuron excitability. Accepted to the *Proceedings of the 11th Annual Computational Neuroscience Meeting (CNS*02)*, Chicago, USA, 4 pages, July 21-25, 2002.

6. Linne, M.-L. and **Jalonen, T.O.** (2000). Mathematical model of a small neuron. EUSIPCO 2000 European Signal Processing Conference, Tampere, September 2000; CD-ROM Proceedings. Vol I (ISBN 952-15-0444-7), 4 pages, Eds; Moncef Gabbouj and Pauli Kuosmanen.
7. Linne, M.-L, Kuosmanen, P. and **Jalonen, T.O.** (2000). Single BK_{Ca} channels and modelling of the cerebellar granule cell excitability. Acta Universitatis Ouluensis, Medica D 584, 54-55.
8. Kimelberg, H.K., **Jalonen T.O.**, Aoki, C. and McCarthy, K. (1997). Transmitter receptor and uptake systems in astrocytes and their relation to behavior. In: Glial Cells and their Role in Behaviour. P.R. Laming, A. Reichenbach, E. Sykova, H. Bauer and G. Hatton (Eds). Cambridge University Press, U.K. Chapter 6, 107-129.
9. **Jalonen, T.O.** (1996) Mechanisms of glia-mediated cadmium and zinc neurotoxicity. In: The Role of Glia in Neurotoxicity, M. Aschner and H.K. Kimelberg (Eds.), CRC Press, Inc., U.S.A., pp. 221-244.
10. Kimelberg, H.K., **Jalonen, T.** and Walz, W. (1993) Regulation of the Brain Microenvironment: Transmitters and Ions. In: Astrocytes: Pharmacology and Function, S. Murphy (Ed.) Academic Press Inc., pp. 193-228.
11. Hartikainen, K., **Jalonen, T.** and Kaski, K. (1991) Patch-clamp studies of cultured olfactory bulb neurons. In: Artificial Neural Networks, (Eds) T. Kohonen, K. Mäkisara, O. Simula & J. Kangas.2:1415-1418
12. **Jalonen, T.** (1988) A rectifying potassium channel in human neuroblastoma cells. In: Electromagnetic Fields and Biomembranes, eds. M. Blank and M. Markov, Plenum Press, N.Y., USA, pp. 211-214.
13. **Jalonen, T.** and Åkerman, K.E. (1986) Single channel ion currents in the TPA-treated human neuroblastoma cells. Proceedings of the IV Meeting of Finnish Neurochemists, Turku. In: Meddelanden från Stiftelsens för Abo Akademi Forskningsinstitut, Nr 120, 49-50.

Other original publications:

1. **Ph.D. Thesis in Physiology, University of Tampere, Medical School** (September 1997, *kunniamaininta/with honours*) **Jalonen, Tuula O.** Astrocytes and the Regulation of Brain Function: *In Vitro* Studies on Ion Channels and Intracellular Calcium Changes in Rat Cortical Astrocytes. ISBN 952-90-9085-4, Cityoffset Oy.
2. **Jalonen, T.** (1990) How to Model the Brain Function? In: Artificial Intelligence and Philosophy. Philosophical Studies from the University of Tampere. E. Marjomaa (ed) 10, 119-129.
3. **Editing: Jalonen, T.** and Siren, S. (Eds) (1990) Reports of the Seili Symposium on the Limits of Knowledge: Theories and Methods in Biosciences. Acta Universitatis Tamperensis, Ser B, Vol. 32, 1-47.

In preparation:

1. H. Teppola, P. Ruusuvuori, **T.O. Jalonen**, R. Sarkanen, and M.-L. Linne (2011). Optimizing the growth of differentiated neuroblastoma cells on a microelectrode array plate. Manuscript to be submitted to Frontiers in Neuroengineering in 2011.
2. J.-R. Sarkanen, H. Teppola, , M.-L. Linne, T. Ylikomi and **T.O. Jalonen** (2011). Human adipose stem cells differentiate into glial cells and induce differentiation and synaptic vesicle formation in human SH-SY5Y neuroblastoma cells (*manuscript*)
3. Roiha, T., Sarkanen, J.-R. and **Jalonen, T.O.** (2011). Manganese-toxicity in the human SH-SY5Y neuroblastoma cells (*Manuscript*)

4. Silvennoinen, R., Pakkanen, K and **Jalonen, T.O.** (2011). Lovastatin and neuronal cancer cells (*Manuscript*)
5. Manninen, M.M. and **Jalonen, T.O.** (2011). Analysis of the activity of the BK ion channels in rat cortical astrocytes. (*Manuscript*)
6. Pulkkinen, K., Kleino, I. and **Jalonen T.O.** (2011). Fractalkine differentially affects the expression of HIV chemokine co-receptors in human neuroblastoma and astrocytoma cells. (Manuscript to be submitted to *Journal of Neuroimmunology*)
7. Nykky, J., Vuento M. and **Jalonen T.O.** (2011). The effects of the canine parvovirus entry on the non-differentiated and differentiated human SH-SY5Y neuroblastoma cells. (*Manuscript in preparation*)
8. Sarkanen, J.-R., Nykky, J., Roiha, T., Silvennoinen, R., Teppola H., Linne M.-L. and **Jalonen T.O.** (2011). Apoptosis in human SH-SY5Y neuroblastoma cells. (*Manuscript in preparation*)
9. Teppola, H., Pettinen, A., Selinummi, J., Sarkanen, J.-R., **Jalonen, T.O.** and Linne M.-L. (2011). Microelectrode array recordings from human neuroblastoma cells. (*Manuscript in preparation*)

Abstracts since 2007 (Additionally over 100 congress abstracts 1984-2007)

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