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PERSONAL INFORMATION

Name: Markéta Marvanová, Ph.D.

Birthdate: October 13, 1975

Citizenship: Czech, filing for permanent U.S. residency (I-485 in conjunction with I-130 on or shortly after January 10, 2005)

Foreign Languages: English

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EDUCATION

Ph.D. (pharmacology), University of Kuopio, A.I. Virtanen Institute for Molecular Sciences, Kuopio, Finland, Dissertation: "Genomic approaches to understand the effects of neuroprotective drugs and validity of nonhuman primate models of neurodegenerative diseases ", 2003.

Ph.D. (biochemistry), Charles University, Prague, Czech Republic, Dissertation: " *Caenorhabditis elegans*, microarrays and expressed sequence tags in genomic neuropharmacology ", 2003.

M.Sc. Pharmacy, Charles University in Prague, the Faculty of Pharmacy in Hradec Králové, Czech Republic, Master's Thesis: Physiological regulation of tyrosine hydroxylase: influence by atipamezole, 1999.

RESEARCH POSITIONS

Research fellow, Vanderbilt University, Anesthesiology Research Division, Nashville, Tennessee, January 2004-present

Doctoral student at the Laboratory of Functional Genomics and Bioinformatics, A.I. Virtanen Institute for Molecular Sciences of the University of Kuopio, Finland. Doc. Garry Wong, Ph.D. and Prof. Eero Castrén, Ph.D. supervised the doctoral studies, January 2001-December 2003.

Doctoral student at the Department of Biochemistry, Charles University, Prague, Czech Republic. Prof. Jaroslav Drsata supervised the doctoral studies, October 1999-December 2003.

Visiting researcher at the Laboratory of Function Genomics, Aventis Pharma, Vitry sur Seine, France, June-July 2001.

Doctoral student at the Laboratory of Molecular Pharmacology, A.I. Virtanen Institute for Molecular Sciences of the University of Kuopio, Finland. Doc. Garry Wong, Ph.D. and Doc. Eero Castrén, Ph.D. supervise the doctoral studies, January 2000-December 2000.

Visiting student under the Erasmus Program at the Department of Pharmacology and Toxicology in University of Kuopio, Finland. Training in northern blot hybridization and setting conditions for northern blotting analyses for the initial project about connection between enzyme glyceraldehyde-3-phosphate dehydrogenase (GAPDH) and its isoforms with neuronal age-induced apoptosis and apoptosis induced by the neurotoxic agents, October 1999-December 1999.

Visiting student under the Erasmus Program at the Department of Pharmacology and Toxicology of the University of Kuopio, Finland. Development of the experimental part of a Master's Thesis, "Physiological Regulation of Tyrosine Hydroxylase: Influence by Atipamezole", September 1998-December 1998.

TEACHING ACTIVITIES

Organizer/Guest lecturer, Functional Genomics Course, University of Kuopio, Kuopio, Finland, April 22-29, 2003. Lecture on Microarray Technology in Comparative Genomics.

Teacher of the Image Analysis and Data Capture of Microarrays Laboratory for the course, "Array Week 2003: Microarray Techniques and Applications", Kuopio, Finland, January 27-31, 2003.

Organizer/Guest lecturer, Array Week 2003: Microarray Techniques and Applications”, Kuopio, Finland, January 27-January 31, 2003. Lecture in Single nucleotide polymorphism (SNP) and DNA arrays for SNPs analysis.

Organizer/Guest lecturer, Function Genomics Course, University of Kuopio, Kuopio, Finland, April 25-May 7, 2002. Lectures in Comparative genomics and Expressed sequence tags (ESTs).

Teacher/director of Chip Track Laboratory of the NorFA course “Array Week 2002: Microarray Techniques and Applications”, Kuopio, Finland, January 27-February 1, 2002.

Guest lecturer, Model Organisms in Biomedical Research Course, August 21-30, 2002. Lectures in *C. elegans* and Nonhuman primates and their use in biomedical research.

AWARDS/HONORS

2004 Enhancing Award of Vanderbilt University (\$3,000)

2003 European Science Foundation (ESF) award for young scientists (\$240)

2003 Grant award from the Finnish Cultural Foundation (\$6,000)

2003 Grant award from the University of Kuopio (\$2800)

2002 European Science Foundation (ESF) fellowship for researchers (\$400), International Summer School, “From Genome to Life: Structural, Functional and Evolutionary Approaches”.

2001 Center for International Mobility (CIMO) scholarship for young researchers (\$4,173)

2000 International research competition “Prize for Pharmacy 2000 Aventis/Embassy of France (prix de Pharmacie 2000)”- Certificate of Merit

2000 NorFA grant, NorFA sponsored course "Nematodes - taxonomy, evolution, ecology", September 23-October 3, 2001.

2000 Center for International Mobility (CIMO) scholarship for young researchers (\$6, 259)

PUBLICATIONS

Markéta Marvanová, Charles Nichols, Garry Wong, and Richard Nass (2004). Pharmacogenetic analysis in a novel model of Parkinson's disease: Identification of genetic and chemical modulators of dopamine neuron degeneration in *C. elegans*, 34th annual meeting of Neuroscience, San Diego.

Markéta Marvanová, Merja Lakso, and Garry Wong (2004). Identification of Genes Regulated by Memantine and MK-801 in Adult Rat Brain by cDNA Microarray Analysis, *Neuropsychopharmacology* 29(6): 1070-1079.

Marvanová M., and Wong G (2003). Adenosine A_{2A} receptor mRNA expression is increased in rat striatum and nucleus accumbens after memantine administration, *Brain Res Mol Brain Res* 120(2): 193-196.

Markéta Marvanová, Markus Storvik, and Garry Wong (2003). Gene expression in addiction and human/nonhuman primates, Computer Scientific Center Report on Scientific Computing 2001-2003.

Markéta Marvanová, Jean Ménager, Erwan Bezard, Ronald E. Bontrop, Laurent Pradier, and Garry Wong (2003). Microarray analysis of nonhuman primates: validation of experimental models in neurological disorders, *FASEB J* 17(8): 929-931.

Törönen P., Storvik M., Lindén A.M., Kontkanen O., Marvanová M., Lakso M., Castrén E., Wong G. (2002). Expression profiling to understand actions of NMDA/glutamate receptor antagonists in rat brain, *Neurochem Res* 27(10), 1209-1220.

Marvanová M., Törönen P., Storvik M., Lakso M., Castrén E., and Wong G. (2002). Synexpression analysis of ESTs in the rat brain reveals distinct patterns and potential drug targets, *Brain Res Mol Brain Res* 104(2), 176-183.

Marvanová M., Lakso M, Pirhonen J., Nawa H., Wong G., Castrén E. (2001). The neuroprotective agent memantine induces brain-derived neurotrophic factor (BDNF) and trkB receptor expression in rat brain, *Mol Cell Neurosci* 18(3), 247-258.

ORAL PRESENTATIONS

Presentation to the West Coast Worm Meeting entitled: "Exploring the role of alpha-synuclein, parkin, and the dopamine transporter in DA neuron degeneration in *C. elegans* models of Parkinson's disease" Santa Barbara, CA, August 21-24, 2004.

Seminar for the Department of Anesthesiology entitled " *C. elegans* as an animal models to study Parkinson's disease", Vanderbilt University, Nashville, TN, June, 2004.

Seminar for the Institute of Entomology of Academy of Sciences entitled "DNA microarray technology in neurobiology", _eské Bud_jovice, Czech Republic, May 12, 2003.

Presentation to the 8th Annual A.I. Virtanen Institute Post-Graduate Symposium entitled "Microarray analysis of nonhuman primates: validation of experimental models in neurological disorders", Hotel Tahkovoari, Nilsiä, Finland, March 17-18, 2003.

Bioinformatics Seminar of University of Kuopio, entitled "Affymetrix microarrays as a platform for Cross-Species Gene expression", University of Kuopio, Finland, November 11, 2003.

Presentation for the International practical course, "APEX on DNA microarrays: applications in SNP analysis, mutation detection and DNA resequencing" entitled "Function genomics and bioinformatics tool to investigate genes involved in effect of non-competitive NMDA receptor antagonists", Tartu, Estonia, August 26-September 1, 2002.

Presentation to the International Summer School, "From Genome to Life" entitled "Comparative genomic analysis of nonhuman primates: validation of experimental models in neurological disorders" and "Synexpression analysis of ESTs in the rat brain reveals distinct patterns and potential drug targets", Cargése, Corsica, July 15-27, 2002.

Presentation to the 7th Annual A.I. Virtanen Institute Post-Graduate Symposium entitled "Synexpression analysis of ESTs in the rat brain reveals potential drug targets", Hotel Tahkovoari, Nilsiä, Finland, February 12-13, 2002.

Presentation to the 6th Annual A.I. Virtanen Institute Post-Graduate Symposium entitled "Involvement of BDNF and TrkB receptor isoforms in the pharmacological actions of memantine." February 22, 2001.

POSTER PAPERS

Marvanová M., Nichols C., Wong G., and Nass R. (2004). Pharmacogenetic analysis in a novel model of Parkinson's disease: Identification of genetic and chemical modulators of dopamine neuron degeneration in *C. elegans*, 34th annual meeting of Neuroscience, San Diego, October 23-28, 2004

Marvanová M., Fullard M., and Nass R. Heavy metals and a pesticide confer DA neuron cell death and amplify the neurodegeneration in *C. elegans* models for Parkinson's disease, West Coast Worm Meeting, Santa Barbara, CA, August 21-24, 2004

Marvanová M., Nichols C., Garrett M., and Nass R. Identification of novel compounds that protect DA neurons against 6-OHDA induced cell death, West Coast Worm Meeting, Santa Barbara, CA, August 21-24, 2004

Marvanová M., Lakso M., and Wong G. Expression profiling of memantine and MK-801 in adult rat brain by cDNA microarray technology, 1st European Conference of Functional Genomics and Disease, Prague, Czech Republic, May 14-17, 2003

Marvanová M., Ménager J., Bezard E., Bontrop R.E., Pradier L., and Wong G. Microarray analysis of nonhuman primates: validation of experimental models in neurological disorders, 1st European Conference of Functional Genomics and Disease, Prague, Czech Republic, May 14-17, 2003

Marvanová M., Lakso M., Wong G., Castrén E. Effect of Memantine on Brain-Derived Neurotrophic Factor (BDNF) Level in Adult Rat Brain, XIV International Congress on Parkinson's Disease, Helsinki, Finland, July 28–31, 2001

Marvanová M., Lakso M., Wong G., Castrén E. Effect of Memantine on Brain-Derived Neurotrophic Factor (BDNF) Level in Adult Rat Brain, XIV Helsinki University Congress of Drug Research, Helsinki, Finland, June 7-8, 2001

Marvanová M., Lakso M., Wong G., Castrén E. Effect of Memantine on Brain-Derived Neurotrophic Factor (BDNF) Level in Adult Rat Brain. 3rd Nordic-Baltic Symposium on Molecular Pharmacology of 7TM Receptors, Turku, Finland, August 24-26, 2000.

TECHNICAL AND LABORATORY EXPERIENCE

- Affymetrix technology and data analysis
- Animal handling (rodents, *C. elegans*)
- Bacterial cultures
- cDNA and oligonucleotide glass microarray technology
- Gene cloning
- Cell culture (genetic manipulations, pharmacological assays, generation of embryogenic primary cultures)
- Computer skills (Word, Excel, Power Point, Prism, Graphic programs)
- Expression data analysis (GeneSpring, J-Express, Cluster and TreeView)
- *In situ* hybridization histochemistry
- Microarray analysis (ScanArray, QuantArray, ArrayVision, ScanAnalyze)
- Northern Blot
- real time PCR
- RNAi in *C. elegans*
- Sequence analysis (sequence alignment, Blast algorithm) and oligo-probe designs
- Transgenic animal generation using gene gun and microinjections
- Western Blot

REFERENCES

Docent Garry Wong, Ph.D.

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Professor Richard M. Nass, Ph.D.

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