

Current as of: March 17, 2008

Joel Christopher Watts

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Email: joel.watts@utoronto.ca

Birthdate: June 17, 1980

Birthplace: Brockville, Ontario, Canada

Education and Training

Undergraduate:

September 1999 – May 2003

Honours B.Sc. in Scholar's Electives Biochemistry

University of Western Ontario, London, Canada

Thesis: "Characterization of the ATP Synthase *b* Subunit from *Thermotoga maritima*"

Supervisor: Dr. Stanley D. Dunn

PhD:

September 2003 - April 2008

Centre for Research in Neurodegenerative Diseases, Department of Laboratory Medicine and Pathobiology, University of Toronto, Canada

Thesis: "Characterization of Shadoo and DPPX: Two Proteins of Potential Relevance to Prion Biology"

Supervisor: Dr. David Westaway

Co-supervisor: Dr. Gerold Schmitt-Ulms

Post-doctoral:

April 2008 -

University of California San Francisco, Institute for Neurodegenerative Diseases, San Francisco, California, U.S.A.

Supervisor: Dr. Stanley B. Prusiner

Honours and Awards

Undergraduate:

2002-2003 University of Western Ontario Gold Medal in Honours Scholar's Electives

- 2002-2003 Biochemistry 483 Award (Top undergraduate research project)
- 2002-2003 AstraZeneca Scholarship
- 2001-2003 Robert and Ruth Lumsden Scholarship in Science
- 2000-2003 Andrew and Sarah Hamilton Scholarship
- 2000-2001 University of Western Ontario Faculty Association Scholarship
- 2000-2001 William Wyatt No. 3 Scholarship
- 1999-2003 University of Western Ontario Entrance Scholarship
- 1999-2003 Faculty of Science Dean's Honour List
- Graduate:*
- 2008 Laboratory Medicine and Pathobiology Graduate Student Research Day—
poster prize
- 2006 PrioNet Canada (Networks of Centres of Excellence) AGM—1st place in
poster competition
- 2006 Laboratory Medicine and Pathobiology Research Day—Farber award
poster prize
- 2005-2007 Natural Sciences and Engineering Research Council of Canada post-
graduate research scholarship (NSERC PGSD2)
- 2003-2005 Natural Sciences and Engineering Research Council of Canada post-
graduate research scholarship (NSERC PGSA)

Professional Activities

- 2006-2008 Vice-chair of PrioNet Canada (Networks of Centres of Excellence)
Students and Young Professionals Association (SYPA).

Research Interests

- Molecular pathobiology of prion diseases
- Physiology of cellular prion proteins
- Mechanisms of spontaneous prion formation and sporadic CJD
- Structural biology of prions
- Molecular biology of protein folding diseases (Alzheimer's disease, Parkinson's disease)

Research Achievements*1) Manuscripts in Refereed Journals*

1. Drisaldi, B., Coomaraswamy J., Mastrangelo, P., Strome, B., Yang, J., Watts, J.C., Chishti, M.A., Marvi, M., Windl, O., Ahrens, R., Major, F., Sy, M.-S., Kretzschmar, H., Fraser, P.E., Mount, H.T.J., and Westaway, D. "Genetic mapping of activity determinants within cellular prion proteins: N-terminal modules in PrP^C offset pro-apoptotic activity of the Doppel helix B/B' region", (2004) **Journal of Biological Chemistry** 279: 55443-55454.

2. Watts, J.C., Drisaldi, B., Ng, V., Yang, J., Strome, B., Horne, P., Sy, M.-S., Yoong, L., Young, R., Mastrangelo, P., Bergeron, C., Fraser, P.E., Carlson, G.A., Mount, H.T.J., Schmitt-Ulms, G., and Westaway, D. "The CNS glycoprotein Shadoo has PrP^C-like protective properties and displays reduced levels in prion infections", (2007) **EMBO Journal** 26(17): 4038-50.

3. Bai, Y., Markham, K., Chen, F., Weerasekera, R., Watts, J.C., Horne, P., Wakutani, Y., Matthews, P., Fraser, P.E., Westaway, D., St. George-Hyslop, P., and Schmitt-Ulms, G. "The in vivo brain interactome of the amyloid precursor protein." (2008) **Molecular and Cellular Proteomics** 7(1): 15-34.

4. Bi, Y., Watts, J.C., Bamford, P.K., Briere, L.K., and Dunn, S.D. "Probing the functional tolerance of the *b* subunit of *Escherichia coli* ATP synthase for sequence manipulation through a chimera approach." (2008) **Biochimica et Biophysica Acta – Bioenergetics**, *in press*.

2) Reviews and non-refereed manuscripts

1. Watts, J.C. Variant CJD Backgrounder for Beef Information Centre of Canada (2005).

2. Watts, J.C., Balachandran, A., and Westaway, D. "The expanding universe of prion diseases". (2006) **PLoS Pathogens**, 2(3) e26. (peer-reviewed)

3. Watts, J.C. and Westaway, D. "The prion protein family: Diversity, rivalry, and dysfunction." (2007) **Biochimica et Biophysica Acta – Molecular Basis of Disease**, 1772(6): 654-672. (peer-reviewed)

3) Abstracts and Conference Presentations

1. Abstract: Watts, J.C., Bi, Y., Shilton, B.H., and Dunn, S.D. (2003) "Characterization of the ATP synthase *b* subunit from *Thermotoga maritima*". 19th International Congress of Biochemistry and Molecular Biology. *Note*: Conference cancelled due to SARS concerns.

2. Poster: Watts, J.C., Yang, J., Horne, P., Schmitt-Ulms, G., and Westaway, D. "DPPX is a cell-surface PrP-interacting protein". 2nd International Symposium on The New Prion Biology: Basic Science, Diagnosis, and Therapy. Venice, Italy. April 7-9, 2005.

3. Poster: Watts, J.C., Yang, J., Horne, P., Schmitt-Ulms, G., and Westaway, D. "DPPX is a cell-surface PrP-interacting protein". Cold Spring Harbour/Wellcome Trust conference on Prion Biology. Hinxton, United Kingdom. September 7-11, 2005.
4. Poster: Watts, J.C., Drisaldi, B., Strome, B., Yang, J., Horne, P., Fraser, P.E., Mount, H.T.J., Schmitt-Ulms, G., and Westaway, D. "The novel mammalian prion protein Shadoo and PrP^C have overlapping activities". PrionNet Canada AGM. Vancouver, B.C. June 6-8, 2006.
5. Poster: Watts, J.C., Drisaldi, B., Strome, B., Yang, J., Horne, P., Fraser, P.E., Mount, H.T.J., Schmitt-Ulms, G., and Westaway, D. "Shadoo is a novel mammalian protein exhibiting partial redundancy with PrP^C". The 10th International Conference on Alzheimer's Disease and Related Disorders. Madrid, Spain. July 16-20, 2006.
6. Oral Presentation: Watts, J.C., Drisaldi, B., Yang, J., Strome, B., Horne, P., Fraser, P.E., Mount, H.T.J., Schmitt-Ulms, G., and Westaway, D. "The novel CNS protein Shadoo and PrP^C share functional homology". Neuroprion Prion 2006 Conference. Torino, Italy. October 3-6, 2006.
7. Oral Presentation: Watts, J.C., Drisaldi, B., Ng, V., Horne, P., Yang, J., Strome, B., Fraser, P.E., Mount, H.T.J., Schmitt-Ulms, G., and Westaway, D. "The novel CNS prion protein Shadoo and PrP^C share functional homology". PrP^{Canada} 2007 Conference. Calgary, Alberta. February 18-21, 2007.
8. Poster: Watts, J.C., Ng, V., Horne, P., Schmitt-Ulms, G., Fraser, P.E., and Westaway, D. "Biochemical properties of wild type Shadoo protein from mice." Neuroprion Prion 2007 Conference. Edinburgh, Scotland. September 26-28, 2007.
9. Poster: Watts, J.C., Quejada, M., Horne, P., Yang, J., Strome, B., Schmitt-Ulms, G., and Westaway, D. "Identification of a common interacting partner for PrP^C, Doppel, and Shadoo." PrP^{Canada} 2008 Conference. Toronto, Ontario. February 3-5, 2008.

Presentations

1. Selected oral presentation: Department of Laboratory Medicine and Pathobiology graduate student research day, University of Toronto. "DPPX is a novel cell-surface PrP-interacting protein." March 8, 2005.
2. Selected oral presentation: Toronto Western Research Institute research day, University of Toronto. "DPPX is a novel cell-surface PrP-interacting protein." May 31, 2005.
3. Invited talk: Toronto Prion Meeting, University of Toronto. "The novel mammalian prion protein Shadoo shares functional homology with PrP^C." September 5, 2006.