

Research Opportunities



PhD and MSc Projects available Department of Biology, University of Ottawa Trudeau Lab

I am looking for graduate students interested in (1) basic endocrine research and hormonal control of reproduction and development and (2) how these processes are disrupted by environmental contaminants. There are several exciting projects currently available. There are excellent opportunities to learn new technique and to collaborate with other groups and institutes in Ottawa, across Canada and internationally. There are compelling recent discoveries in the lab that lay the foundation for new projects. Your ideas and suggestions are welcomed and these projects need input and direction from dynamic candidates.

(1) Discovery of a new reproductive hormone

Pioneering studies from the lab have now established that the peptide secretoneurin (SN) is important for both neuroendocrine and paracrine regulation of reproduction. Novel transgenic and gene mutation zebrafish lines and extensive collaborations with other labs make this a cutting-edge project for someone up to the challenge. There are several PhD projects available. Please consult the following publications:

Mitchell K, Zhang WS, Lu C, et al. Targeted mutation of secretogranin-2 disrupts sexual behavior and reproduction in zebrafish. *Proc Natl Acad Sci U S A*. 2020;117(23):12772-12783. doi:10.1073/pnas.2002004117

Mitchell K, Mikwar M, Da Fonte D, et al. Secretoneurin is a secretogranin-2 derived hormonal peptide in vertebrate neuroendocrine systems. *Gen Comp Endocrinol*. 2020;299:113588. doi:10.1016/j.ygcen.2020.113588

(2) Within and transgenerational disruption of the stress response

Our work has shown that the brain is a major target for the actions of contaminants and that these disrupt normal development and reproduction. Such research has helped to shape the emerging field of “neuroendocrine disruption”. We are now examining the impacts of neuroactive substances on stress physiology in the zebrafish model using transgenic and transcriptomic approaches. This project will be in collaboration with Dr. Carol Yauk and is suitable for the MSc, with the possibilities of PhD fast-tracking. This position is available immediately and Specialization in Chemical and Environmental Toxicology is possible. Please consult the following publications:

Vera-Chang MN, St-Jacques AD, Gagné R, et al. Transgenerational hypocortisolism and behavioral disruption are induced by the antidepressant fluoxetine in male zebrafish *Danio rerio*. *Proc Natl Acad Sci U S A*. 2018;115(52):E12435-E12442. doi:10.1073/pnas.1811695115

Vera-Chang MN, Moon TW, Trudeau VL. Cortisol disruption and transgenerational alteration in the expression of stress-related genes in zebrafish larvae following fluoxetine exposure. *Toxicol Appl Pharmacol*. 2019;382:114742. doi:10.1016/j.taap.2019.114742

These positions are open until they are filled. Apply now for full consideration. Perhaps one of the projects could be the basis for a scholarship. Applications for these positions must consist of the following: (1) a letter expressing your interest; (2) an unofficial transcript; (3) names of three references; and (4) an example of your scientific writing. These should be sent by email to: Prof. Vance L. Trudeau, University Research Chair in Neuroendocrinology, Dept. of Biology, University of Ottawa (trudeauv@uottawa.ca). Informal inquiries on some of the project details are also welcomed

The University of Ottawa has great scholarship programs for both domestic and international students. If you have the equivalent of A minus (A-; GPA 8/10 in the uOttawa system) average your tuition may be covered. Check this out at <https://www.uottawa.ca/graduate-studies/students/awards/admission-scholarship>. Note also that there are other scholarship possibilities including Ontario Government Scholarships and NSERC CGS-M and CGS-D, depending on eligibility.

Other important University web links:

<https://science.uottawa.ca/en/programs-of-study/grad/BIO>

Information on V.L. Trudeau:

<https://science.uottawa.ca/biology/people/trudeau-vance>

<https://scholar.google.com/citations?user=i2YLKPgAAAAJ&hl=en>

<https://orcid.org/0000-0002-0845-9444>

A couple of media links on our work:

Project 1

<https://www.newstalk.com/podcasts/highlights-rom-moncrieff/new-sex-hormone-found-zebrafish>

<https://media.uottawa.ca/news/uottawa-researchers-discover-new-sex-hormone>

Project 2

<https://www.madinamerica.com/2019/04/effects-antidepressant-exposure-across-generations-interview-dr-vance-trudeau>

[in-fish-65193](https://www.pbs.org/wgbh/nova/article/prozac-may-transcend-generations/)

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