

MATTHEW DONALD TAVES

Research Associate, Cornell University

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APPOINTMENTS & EDUCATION

2021-present	Research Associate Cornell University, Ithaca, NY, USA Laboratory of Prof Ben A Sandkam, Dept of Neurobiology & Behavior
2016-2021	Postdoctoral Fellow National Cancer Institute, NIH, Bethesda, MD, USA Laboratory of Dr Jonathan D Ashwell, Center for Cancer Research
2008-2015	PhD Zoology University of British Columbia, Vancouver, BC, Canada Laboratory of Prof Kiran K Soma, Dept of Psychology, Neuroscience Program
2003-08	BSc Biology McMaster University, Hamilton, ON, Canada Laboratory of Prof Sigal Balshine, Dept of Psychology, Neuroscience, & Behavior

FUNDING

Total 368,500 CAD

2022	Cornell Genomics Innovation Seed Grant	20,000 USD USD
2016	CIHR Postdoctoral Fellowship (\$15,000 declined)	150,000 CAD
2013	UBC Four Year Doctoral Fellowship (3 yrs/\$60,000 declined)	80,000
2010	CIHR Banting & Best Canada Graduate Scholarship, Doctoral Award	105,000
2009	UBC University Graduate Fellowship – declined	16,000
2009	CIHR Canada Graduate Scholarship, Master's Award	17,500

AWARDS

Total 21,965 CAD + 3280 USD

2019	NIH Fellows Award for Research Excellence	1,500 USD
2017, 2019	American Association of Immunologists Travel Awards	1,250
2018	EMBO Nuclear Receptors Symposium Travel Award	530
2009, 2015	UBC Graduate Travel Scholarships	1,300 CAD
2014, 2015	Endocrine Society Travel Awards	1,630
2014	Endocrine Society Presidential Poster Award	
2008-13	UBC Faculty of Science Graduate Tuition & Research Awards	15,750
2010	SICB Charlotte Mangum Student Support Award	285
2008	UBC Graduate Entrance Scholarship	400
2008	Canadian Psychological Association Research Certificate of Excellence	
2003, 06, 07	McMaster University Scholarships	2,600
2004, 2005	McMaster Joyce Wignall Awards (varsity fencing team, community service)	

Published

29. **Taves MD**, Donahue KM, Bian J, Cam M, Ashwell JD. Aire drives steroid hormone biosynthesis by medullary thymic epithelial cells. *Science Immunology* (accepted).
28. **Taves MD**, Otsuka S, Taylor MA, Donahue KM, Meyer T, Cam M, Ashwell JD. Glucocorticoid regeneration by tumor cells promotes growth by enhancing local Treg function and immunosuppression. *Journal of Clinical Investigation* (accepted).
27. **Taves MD**, Ashwell JD. 2022. Effects of sex steroids on thymic epithelium and thymocyte development. *Frontiers in Immunology* 13:975858.
26. Russell B, Hrelja KM, Adams WK, Zeeb FD, **Taves MD**, Kaur S, Soma KK, Winstanley CA. 2022. Differential effects of lipopolysaccharide on cognition, corticosterone and cytokines in socially-housed vs isolated male rats. *Behavioural Brain Research* 433:114000.
25. **Taves MD**, Ashwell JD. 2021. Glucocorticoids in T cell development, differentiation, and function. *Nature Reviews Immunology* 21:233-243.
24. **Taves MD**, Ashwell JD. 2020. Using chromatin-nuclear receptor interactions to quantitate endocrine, paracrine, and autocrine signaling. *Nuclear Receptor Signaling* 17:1-6.
23. Mittelstadt PR, **Taves MD**, Ashwell JD. 2019. Glucocorticoids oppose thymocyte negative selection by inhibiting Helios and Nur77. *Journal of Immunology* 203:2163-2170.
22. **Taves MD**, Mittelstadt PR, Presman DM, Hager GL, Ashwell JD. 2019. Single-cell resolution and quantitation of targeted glucocorticoid delivery in the thymus. *Cell Reports* 26:3629-3642.
21. Mittelstadt PR, **Taves MD**, Ashwell JD. 2018. *De novo* glucocorticoid synthesis by thymic epithelial cells regulates antigen-specific thymocyte selection. *Journal of Immunology* 200:1988-1994.
20. Bodnar TS, **Taves MD**, Lavigne KM, Woodward TS, Soma KK, Weinberg J. 2017. Differential activation of endocrine-immune networks by arthritis challenge: Insights from colony-specific responses. *Scientific Reports* 7:698.
19. Scheer SS, Medina TS, Murison A, **Taves MD**, Antignano F, Chenery A, Soma KK, Perona-Wright G, Lupien M, Arrowsmith CH, De Carvalho DD, Zaph C. 2017. Early life antibiotic treatment enhances the pathogenicity of CD4+ T cells during intestinal inflammation. *Journal of Leukocyte Biology* 101:893-900.
18. **Taves MD**, Hamden JE, Soma KK, 2017. Local glucocorticoid production in lymphoid organs of mice and birds: functions in lymphocyte development. *Hormones and Behavior* 88:4-14.

17. **Taves MD**, Plumb AW, Korol AM, Van Der Gugten JG, Holmes DT, Abraham N, Soma KK. 2016. Lymphoid organs of neonatal and adult mice preferentially produce active glucocorticoids from metabolites, not precursors. *Brain, Behavior, and Immunity* 57:271-281.
16. Vashchenko G, Das S, Moon KM, Rogalski JC, **Taves MD**, Soma KK, Van Petegem F, Foster LJ, Hammond GL. 2016. Identification of avian corticosteroid-binding globulin (SerpinA6) reveals the molecular basis of evolutionary adaptations in SerpinA6 structure and function as a steroid-binding protein. *Journal of Biological Chemistry* 291:11300-11312.
15. **Taves MD**, Losie JA, Rahim T, Schmidt KL, Sandkam BA, Ma C, Silversides F, Soma KK. 2016. High cortisol levels in lymphoid organs of the developing zebra finch but not Japanese quail or chicken. *Developmental & Comparative Immunology* 54:116-125.
14. Bodnar TS, Hill LA, **Taves MD**, Yu W, Soma KK, Hammond GL, Weinberg J. 2015. Colony specific differences in endocrine and immune responses to an inflammatory challenge in female Sprague-Dawley rats. *Endocrinology* 156:4604-4617.
13. Ferris JK, Tse MT, Hamson DK, **Taves MD**, Ma C, McGuire N, Arckens L, Bentley GE, Galea LAM, Floresco SB, Soma KK. 2015. Neuronal gonadotropin-releasing hormone (GnRH) and astrocytic gonadotropin inhibitory hormone (GnIH) immunoreactivity in the adult rat hippocampus. *Journal of Neuroendocrinology* 27:772-786.
12. **Taves MD**, Plumb AW, Sandkam BA, Ma C, Van Der Gugten JG, Holmes DT, Close DA, Abraham N, Soma KK. 2015. Steroid profiling reveals widespread local regulation of glucocorticoids during mouse development. *Endocrinology* 156:511-522.
11. Ferland JMN, Zeeb FD, Yu K, Kaur S, **Taves MD**, Winstanley CA. 2014. Greater sensitivity to novelty in rats is associated with increased motor impulsivity following repeated exposure to a stimulating environment: implications for the etiology of impulse control deficits. *European Journal of Neuroscience* 40:3746-3756.
10. Kriengwatana B, Wada H, Schmidt KL, **Taves MD**, Soma KK, MacDougall-Shackleton SA. 2014. Effects of nutritional stress during different developmental periods on song and the hypothalamic-pituitary-adrenal axis in zebra finches. *Hormones and Behavior* 65:285-293.
9. Overk CR, Perez SE, Ma C, **Taves MD**, Soma KK, Mufson EJ. 2013. Sex steroid levels and AD-like pathology in 3xTgAD mice. *Journal of Neuroendocrinology* 25:131-144.
8. Maddison CJ, Anderson RA, Prior NH, **Taves MD**, Soma KK. 2012. Soft song during aggressive interactions: seasonal changes and endocrine correlates in song sparrows. *Hormones and Behavior* 62:455-463.
7. Marentette JR, Tong S, Wang G, Sopinka NM, **Taves MD**, Koops M, Balshine S. 2012. Behavior as biomarker? Laboratory versus field movement in round goby (*Neogobius melanostomus*) from highly contaminated habitats. *Ecotoxicology* 21:1003-1012.
6. Marentette JR, Tong S, Wang G, Sopinka NM, **Taves MD**, Koops M, Balshine S. 2011. Laboratory and field evidence of sex-biased movement in the invasive round goby. *Behavioral Ecology and Sociobiology* 65:2239-2249.

5. **Taves MD**, Ma C, Heimovics SA, Saldanha CJ, Soma KK. 2011. Measurement of steroids in brain: methodological considerations. *Frontiers in Endocrinology* 2:39.
4. **Taves MD**, Gomez-Sanchez CE, Soma KK. 2011. Extra-adrenal glucocorticoids and mineralocorticoids: evidence for local synthesis, regulation, and function. *American Journal of Physiology – Endocrinology and Metabolism* 301:E11-E24.
3. **Taves MD**, Schmidt KL, Ruhr IM, Kapusta K, Prior NH, Soma KK. 2010. Steroid concentrations in plasma, whole blood, and brain: Effects of saline perfusion to remove blood contamination from brain. *PLoS ONE* 5:e15727.
2. Brummelte S, Schmidt KL, **Taves MD**, Soma KK, Galea LAM. 2010. Elevated corticosterone levels in stomach milk, serum, and brain of male and female offspring after maternal corticosterone treatment in the rat. *Developmental Neurobiology* 70:714-725.
1. **Taves MD**, Desjardins JK, Mishra S, Balshine S. 2009. Androgens and dominance: sex-specific patterns in a highly social fish (*Neolamprologus pulcher*). *General and Comparative Endocrinology* 161:202-207.

PRESENTATIONS

Invited talks

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| 2020 | National Institutes of Health, Bethesda, MD. Host: Dr Ferenc Livak. |
| 2019 | University of Maryland, Dept of Psychology, College Park MD. Host: Prof Gregory Ball. |
| 2018 | University of Rijeka, Dept of Biotechnology, Rijeka Croatia. Host: Prof Ivana Munitic. |
| 2012 | International Symposium on Avian Endocrinology, Gifu Japan. Host: Prof Katherine Buchanan. |

Contributed talks

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| 2019 | American Association of Immunologists, San Diego CA. | |
| 2017 | American Association of Immunologists, Washington DC. | |
| 2014 | Life Sciences Institute Research Day, Vancouver BC. | |
| 2013 | Endocrine Society, San Francisco CA. | |
| 2013 | Life Sciences Institute Research Day, Vancouver BC. | |
| 2010 | Zoology Graduate Symposium, UBC, Vancouver BC. | <i>*Runner up, best talk</i> |
| 2008 | Ontario Ecology and Ethology Colloquium, Guelph ON. | |
| 2008 | Comparative Physiology & Biochemistry Workshop, Rice Lake ON. | |

Contributed posters

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| 2023 | Endocrine Society, Chicago IL. |
| 2022 | Society for Behavioral Neuroendocrinology, Atlanta GA. |

2019	Frontiers in Chemistry & Biology Symposium, Bethesda MD.	
2019	American Association of Immunologists, San Diego CA.	<i>*Abstract Travel Award</i>
2018	EMBO Nuclear Receptors Workshop, Kolybari, Greece.	<i>*Abstract Travel Award</i>
2018	Molecular Biology in Single Cells Symposium, Bethesda MD.	
2017	American Association of Immunologists, Washington DC.	<i>*Abstract Travel Award</i>
2017	Endocrine Society, Orlando FL.	
2016	NIH Immunology Interest Group Workshop, Leesburg VA.	
2015	Endocrine Society, San Diego CA.	<i>*Early Career Forum & Travel Award</i>
2015	Psychoneuroimmunology Research Society, Seattle WA.	
2014	Endocrine Society, Chicago IL.	<i>*Abstract Travel Award, *Presidential Poster Award</i>
2013	Endocrine Society, San Francisco CA.	<i>*Featured Poster Award</i>
2011	Psychoneuroimmunology Research Society, Chicago IL.	
2010	Society for Behavioral Neuroendocrinology, Toronto ON.	
2010	Society for Integrative and Comparative Biology, Seattle WA.	
2009	Society for Neuroscience, Chicago IL.	
2009	Canadian Society for Immunology, Whistler BC.	

JOURNAL PEER-REVIEW

Biochemical Pharmacology	Journal of Experimental Medicine
Biomolecules	Journal of Null Results in Biomedicine
British Journal of Pharmacology	Journal of Steroid Biochemistry & Molecular Biology
Cell Death & Disease	Neuropeptides
Cells	Physiology & Behavior
Comparative Biochemistry and Physiology	Scientific Reports
Endocrine Connections	STAR Methods
Endocrinology	Steroids
Experimental Dermatology	<i>With J. D. Ashwell:</i>
Fish Physiology & Biochemistry	Cell Death & Differentiation
Frontiers in Endocrinology	EMBO Letters
Frontiers in Immunology	Gastroenterology
General and Comparative Endocrinology	Immunology
Histochemistry and Cell Biology	Molecular Cell
Hormones and Behavior	Nature Medicine
Immunology Letters	Science Advances
International Journal of Molecular Sciences	

GRANT REVIEW

- 2023 Cornell Genomics Innovation Seed Grants, USA.
- 2019 National Science Foundation, USA.
- 2016 Research Foundation Flanders (Fonds Wetenschappelijk Onderzoek, FWO), Belgium.

TEACHING & MENTORSHIP

Training

- 2018 Scientists Teaching Science course, Foundation for Advanced Education in the Sciences (FAES).
- 2017 Science Leadership & Management skills workshop, NIH.
- 2013-14 Biology Teaching Assistant Professional Development certificate program, UBC.
- 2008 Peer Mentoring in Biology course, McMaster.

Teaching

- 2020 Guest Lecturer • Evolutionary Medicine, UBC
 • Innate and adaptive immunity.
 • Cancer evolution.
- 2019 Guest Lecturer • Advanced Immunology graduate course, FAES
 • T cell development.
- 2019 Teaching Assistant • Advanced Immunology graduate course, FAES
 • Facilitated in-class and online discussions, wrote exams, graded papers.
- 2018 Summer Intern Journal Club leader • NIH
 • Stress physiology and its effects on the brain, microbiota, immune system, and cancer.
- 2015 Guest Lecturer • Experimental Psychology Laboratory, UBC
 • How do stress hormones regulate immune development?
- 2013-14 Teaching Assistant • Introductory Genetics I & II, UBC.
 • Led small-class discussions, prepared & graded weekly quizzes, prepared & graded exams.
- 2009-13 Guest Lecturer • Principles of Animal Behaviour, UBC
 • Behavioural immunity.
 • Stress & development.
 • Hormones and dominance hierarchies.
- 2008-09 Teaching Assistant • Animal Physiology Laboratory, UBC
 • Weekly 3-hour labs on hematology, neurophysiology, metabolism, muscle physiology.
 • Marked lab reports, final papers, and exams.
- 2008 Course Design • Biodiversity, Evolution, and Humanity, McMaster
 • Created laboratory on phylogenetic analysis with freely available online tools.

- Developed course rubric.

2008 Teaching Assistant • Introductory Biology, McMaster
 • Wrote course rubric, led small-group discussions, prepared & graded weekly assignments.

Mentoring

* co-author

2022-present Undergraduate research assistants student *Eric Li, Phillip Zhuang*.
 2020-present PhD student, *Kaitlynn Donahue**.
 2022-23 Undergraduate research assistants, *Jeremiah Gorman, Alanna Moskowitz, Sasha Smalls, Kristin Tsay*.
 2021-23 Undergraduate project student, *Neel Mehta*.
 2019-20 Postbaccalaureate fellow, *Michaela Taylor**.
 2017-20 High school intern & undergraduate research assistant, *Bhuvana Pandalai*.
 2014-15 Undergraduate research assistant, *Anastasia Korol**.
 2013-14 Undergraduate thesis student, *Madison Grist*.
 2013 Undergraduate research assistant, *David Liu*.
 2012-2013 Undergraduate thesis students, *Jennifer Losie*, Titissa Rahim**.
 2011-12 Undergraduate thesis student, *Eva Harris*.
 2010 B.C. Institute of Technology co-op student, *Anthony Hsieh*.
 2009-10 Undergraduate thesis student, *Selena Huang*.
 2009 Undergraduate research assistant, *Darryl Wan*.
 2008-09 Undergraduate thesis student, *Ilan Ruhr**.

SERVICE

2021-2023 Cornell Write-A-Researcher program, Ithaca NY.
 2020 NIH Fellows Award for Research Excellence judge, Bethesda MD.
 2018, 2019 NIH Graduate student symposium poster judge, Bethesda MD.
 2017-19 NIH Postbac symposium poster judge, Bethesda MD.
 2018 NIH Summer Intern journal club leader, Bethesda MD.
 2017-18 NIH Fellows Editorial Board, Bethesda MD.
 2015 ImmunoBC conference organizing team, Vancouver BC.
 2014, 2015 Day of Immunology elementary school program, UBC.

2013-14 Science Writing Volunteer Tutor, UBC Writing Centre.
2009-12 Senior mentor, Science Tri-Mentoring program, UBC.
2006-07 Speakeasy English tutoring program, McMaster.

PROFESSIONAL MEMBERSHIP

American Association of Immunologists
British Society for Neuroendocrinology
Endocrine Society
Psychoneuroimmunology Research Society
Society for Behavioral Neuroendocrinology

REFERENCES

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Sigal Balshine, Professor, Psychology, Neuroscience, and Behaviour, McMaster
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Teaching and volunteering references available upon request.