

# MATTHEW DONALD TAVES

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Research Associate, Cornell University

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## EDUCATION

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**PhD Zoology (2015)**

University of British Columbia, Vancouver BC

**BSc Biology (2008)**

McMaster University, Hamilton ON

## RESEARCH EXPERIENCE

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**Research Associate, 2021-present**

Cornell University, Dept of Neurobiology & Behavior, with Prof Benjamin Sandkam

**Postdoctoral Fellow, 2016-2021**

National Institutes of Health, Laboratory of Immune Cell Biology, with Dr Jonathan D Ashwell

**PhD Student, 2008-2015**

University of British Columbia, Depts of Zoology & Psychology, with Prof Kiran K Soma

**Undergraduate Thesis, 2007-08**

McMaster University, Dept of Psychology, Neuroscience & Behaviour, with Prof Sigal Balshine

## FUNDING

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Total 368,500 CAD

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

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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)	

## PUBLICATIONS

11 first-author, &gt;900 citations, h-index= 17

25. **Taves MD**, Ashwell JD. 2020. 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

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### Invited talks

- 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

- 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. *\*Runner up, best talk*
- 2008 Ontario Ecology and Ethology Colloquium, Guelph ON.
- 2008 Comparative Physiology & Biochemistry Workshop, Rice Lake ON.

### Contributed posters

- 2019 Frontiers in Chemistry & Biology Symposium, Bethesda MD.
- 2019 American Association of Immunologists, San Diego CA. *\*Abstract Travel Award*
- 2018 EMBO Nuclear Receptors Workshop, Kolymbari, Greece. *\*Abstract Travel Award*
- 2018 Molecular Biology in Single Cells Symposium, Bethesda MD.
- 2017 American Association of Immunologists, Washington DC. *\*Abstract Travel Award*
- 2017 Endocrine Society, Orlando FL.
- 2016 NIH Immunology Interest Group Workshop, Leesburg VA.
- 2015 Endocrine Society, San Diego CA. *\*Early Career Forum & Travel Award*
- 2015 Psychoneuroimmunology Research Society, Seattle WA.
- 2014 Endocrine Society, Chicago IL. *\*Abstract Travel Award, \*Presidential Poster Award*
- 2013 Endocrine Society, San Francisco CA. *\*Featured Poster Award*
- 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

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Biomolecules, British Journal of Pharmacology, Cell Death & Disease, Cells, Comparative Biochemistry and Physiology, Endocrine Connections, Endocrinology, Experimental Dermatology, Fish Physiology & Biochemistry, Frontiers in Immunology, General and Comparative Endocrinology, Hormones and Behavior, Immunology Letters, International Journal of Molecular Sciences, Comparative Biochemistry and Physiology B, Journal of Null Results in Biomedicine, Journal of Steroid Biochemistry and Molecular Biology, Neuropeptides, Physiology & Behavior, Steroids

(with *Jonathan Ashwell*;) Cell Death & Differentiation, EMBO Letters, Gastroenterology, Immunology, Molecular Cell, Nature Medicine, Science Advances

## EXTERNAL GRANT REVIEW

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| 2019 | National Science Foundation, USA.  |
| 2016 | Research Foundation Flanders (Fonds Wetenschappelijk Onderzoek, FWO), Belgium. |

## TEACHING & MENTORSHIP

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### Training

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| 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

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| 2020    | Guest Lecturer • Evolutionary Medicine, UBC <ul style="list-style-type: none"> <li>• Innate and adaptive immunity.</li> <li>• Cancer evolution.</li> </ul>                                  |
| 2019    | Guest Lecturer • Advanced Immunology graduate course, FAES <ul style="list-style-type: none"> <li>• T cell development.</li> </ul>  |
| 2019    | Teaching Assistant • Advanced Immunology graduate course, FAES <ul style="list-style-type: none"> <li>• Facilitated in-class and online discussions, wrote exams, graded papers.</li> </ul> |
| 2018    | Summer Intern Journal Club leader • NIH <ul style="list-style-type: none"> <li>• Stress physiology and its effects on the brain, microbiota, immune system, and cancer.</li> </ul>          |
| 2015    | Guest Lecturer • Experimental Psychology Laboratory, UBC <ul style="list-style-type: none"> <li>• How do stress hormones regulate immune development?</li> </ul>                            |
| 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

- 2020 PhD student, *Kaitlynn Donahue\**.
- 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 student, *Titissa Rahim\**.
- 2012-2013 Undergraduate thesis student, *Jennifer Losie\**.
- 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\**. \* co-author

## SERVICE

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- 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 conversational English tutoring program, McMaster.

## PROFESSIONAL MEMBERSHIP

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American Association of Immunologists  
American Society for Cell Biology  
Endocrine Society  
Psychoneuroimmunology Research Society  
Society for Behavioral Neuroendocrinology

## REFERENCES

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Jonathan D. Ashwell, Chief & Senior Investigator, Laboratory of Immune Cell Biology, NCI, NIH  
Postdoctoral supervisor  
jda@pop.nci.nih.gov +1 301 496 4931

Kiran K. Soma, Professor, Psychology, UBC  
PhD thesis supervisor  
ksoma@psych.ubc.ca +1 604 827 5820

Ninan Abraham, Professor, Microbiology & Immunology, UBC  
Graduate committee member & collaborator  
ninan@mail.ubc.ca +1 604 822 0122

Joanne Weinberg, Professor Emerita, Cellular & Physiological Sciences, UBC  
Graduate committee member & collaborator  
joanne.weinberg@ubc.ca +1 604 822 6214

Sigal Balshine, Professor, Psychology, Neuroscience, and Behaviour, McMaster  
Undergraduate thesis supervisor  
sigal@mcmaster.ca +1 905 525 9140

Teaching and volunteering references available upon request.