

**CURRICULUM VITAE**  
**Martin Kavaliers**

**Personal Data**

**Name:** Martin Kavaliers

**Citizenship:** Canada, United Kingdom

**Business Address:**

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The University of Western Ontario  
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**Academic and Professional Appointments**

Post-Doctoral Fellow	Department of Zoology and Entomology Colorado State University	1979-1981
University Research Fellow and Assistant Professor	Department of Zoology University of Western Ontario,	1981-1985
Assistant Professor	Department of Psychology University of Alberta	1985-1986
Director, Pain Research Unit Assistant Professor	Departments of Oral Biology and Psychology, University of Western Ontario	1986- 1988
Associate Professor	Departments of Oral Biology and Psychology, University of Western Ontario	1988-1991
Professor and Chair	Department of Oral Biology University of Western Ontario	1991-1994
Professor	Department of Psychology University of Western Ontario	1994 -
Adjunct Professor	Department of Psychology University of Guelph	2016 –
Visiting Professor	The Rockefeller University	2003; 2009
Visiting professor	University of Cagliari	2009 - 2010

## **Academic Background**

B.Sc. Biochemistry	Sir George Williams University	1972
M.Sc. Biology	Sir George Williams University	1974
Ph.D. Zoology	University of Alberta (Sup.-D.M. Ross)	1978

## **Scholarships and Fellowships**

Quebec Government Scholarship	1974
NSERC University Research Fellowship	1980 -1990

## **Areas of Research**

Neurobiology of Social Behavior (Aggression, Mate Choice, Feeding, Predation)  
 Parasites, Infections, Odors and Behaviour  
 Biological Defense Mechanisms, Risk Taking  
 Sex Differences in Behavior  
 Biological Effects of Magnetic Fields

## **Teaching**

### **Philosophy and Goals**

My undergraduate and graduate teaching experience and interests are of a wide ranging nature reflecting backgrounds in zoology, psychology, neuroscience and pharmacology. My teaching philosophy and goals are to foster the spirit of free inquiry and critical interpretation of ideas by students. This places an emphasis on student's learning, providing them with skills that will allow them to master any information environment. This will instill the ability to assemble information, analyze and critically think about it.

### **Experience**

#### **Undergraduate Courses**

Introductory Psychology  
 Comparative Psychology and Animal Behavior  
 Introduction to Learning  
 Motivation and Emotion  
 Introductory Biology  
 Comparative Animal Physiology  
 Behavioral Pharmacology

#### **Graduate Courses**

Psychobiology  
 Regulation of Feeding  
 Olfaction and Chemical Senses  
 Biological Rhythms  
 Topics in Learning and Behavior  
 Fish Physiology  
 Topics in Emotions

## **Student Supervision** (since 1986)

### Undergraduate

Honors Students: 40 (Psychology, Physiology and Zoology)  
 Summer Students: 24

### Graduate

Thesis examiner	M.Sc. 28	Thesis committee	M.Sc. 23
	Ph.D. 21		Ph.D. 18

Visiting Students Ph.D. 2

### Current Thesis Supervision

Ph. D. : Caylen Cloutier - Infection and learning

M.Sc.: Kai Wang - Optimism Bias and Early Infection

M.Sc.: Jason Ward; Nathalie Boulet; Julie Deelman, Danna Zevy; Deanne Wah

### Immediate Past Thesis Supervision

M.Sc. Nathalie Boulet (2016)	- Oxytocin and conditioned disgust
Ph.D. : Kelley Foley (2013)	- Pre-natal infection and behaviour
M.Sc. Amber Good (2013)	- Low Dose LiCL effects on feeding behavior
M.Sc Stacey Holbrook (2013)	- Propionic acid and neuroinflammation
M.Sc. Alina Zaltzman (2012)	- Prenatal infection and anxiety in male and female rats
M.Sc. Jesica Benzaquen (2010)	- Propionic acid and place avoidance
M.Sc. Melissa Chan (2010)	- Latent inhibition and taste reactivity

### Teaching Related Service

1990-1998	Core member of and Faculty of Dentistry representative to Neuroscience program
1991	Participant in Louisiana Stimulus for Education and Research
1994-1995	Selection committee for Faculty of Dentistry summer research students
1996-1997	Graduate exchange student supervision
1998	Member advisory board International School of Biophysics “Neuronal Coding of Perceptual Systems” Ischia (Naples), Italy
2001-2004	Co-supervisor Parasitology MS.c student, McGill University
2009	Member International Brain Research organization Asia-Pacific Regional Associate School –Hormones, Brain and Behaviour, Penang Island, Malaysia

**Administrative Service** (since 1986)University

1986-1990 Member, University Council on Animal Care  
 1990-1998 Member, Health Sciences Research Committee  
 1992-1994 University Research Board  
 1991-1995 Member Promotion and Tenure Committee, Faculty of Medicine  
 1992-1998 University Research Board  
 1996-1998 Member, Review Board for Health Sciences Research Involving Human Subjects  
 1991- Co-Director, Bioelectromagnetics Western  
 1992- University Council on Animal Care

Faculty

1986-1988 Director, Pain Research Unit (Dentistry)  
 1986-1990 Member, Animal Care Committee (Dentistry)  
 1988-1994 Member, Executive Committee (Dentistry)  
 1988-1998 Member, Appointments and Tenure Committee (Dentistry)  
 1992-1998 Member, Undergraduate Student Research Committee (Dentistry)

Departmental (Divisional, Dentistry)

1988-1994 Chairman, Division of Oral Biology

Departmental (Psychology)

1998 - Animal Care Committee  
 2001- 2002 Chair, Behavioural and Cognitive Neuroscience Area

## Related Administrative Activity:

1990 Submission and subsequent funding of a proposal to the Quality Academic and Administrative fund for two additional faculty positions in Oral Biology  
 1991- Directing and co-ordinating research functions of Bioelectromagnetics Western

**Other Service** (since 1986)

1990- Collaboration and consultation with Occupational Health and Safety  
 1990- Public presentations on health and magnetic fields (8 to date)  
 1991- Advisory Committee Environmental Law Center (Edmonton, Alberta)  
 1992- Advisory Committee London City Council on Health and Safety  
 1997- Organization and Presentation of Public Forum on Magnetic Fields (Electricity, Society and Health)

### Research-Related Service

- 1990- Presentation of information to media on biological effects of magnetic fields  
 1990- Editorial Board of the Journal Life Sciences  
 1993- Advisory Committee of the  
 National High Magnetic Fields Laboratory (Tallahassee, Florida)  
 1994-1998 Membership Committee, International Behavioral Neuroscience Society  
 1993-2003 Animal Care Committee Member, Animal Behaviour Society  
 1993-2000 Animal Use Committee, Member, International Behavioral Neuroscience Society  
 1998-2000 Chair, Animal Use Committee, International Behavioral Neuroscience Society  
 2003- Membership Committee, International Behavioral Neuroscience Society  
 2015- Editorial Board, Behavioral Neuroscience

### Symposium Organization

- 1987 Behavioral Biology of Nociception - Satellite Symposium of the  
 Society for Neuroscience, New Orleans, Louisiana  
 1991 Current Research on the Biological Effects of Magnetic Fields,  
 Inaugural Symposium of Bioelectromagnetics Western, London, Ontario  
 1993 Electromagnetic Fields and Occupational Health,  
 Second Symposium of Bioelectromagnetics Western, London, Ontario  
 1995 Alzheimer's and Immune System Function: An Association With  
 Electromagnetic Field exposure, Symposium Federation of American Societies  
 for Experimental Biology, Atlanta.  
 1997 Magnetic Fields: Recent Advances in Diagnosis and Therapy  
 1998 International School of Biophysics, Neuronal Coding of Perceptual Systems  
 1999 Measuring Anxiety in Animal Models - Satellite Symposium of the  
 Society for Neuroscience, Miami Beach, Florida  
 2008 Vertebrate Models of Social Behavior, Symposium , International Behavioral  
 Neuroscience Society, Nassau, Bahamas

### Societies

Animal Behaviour Society  
 Society for Neuroscience  
 Society for Behavioral Neuroendocrinology  
 International Behavioral Neuroscience Society  
 International Behavioural and Neural Genetics Society

### Grant Application Appraisal

Medical Research Council of Canada  
 Natural Sciences and Engineering Research Council of Canada  
 Ontario Mental Health Foundation; Killam Foundation  
 National Science Foundation, U.S.A.; National Institute of Health, U.S.A  
 National Institute of Mental Health, U. S. A.; American Institute of Biological Sciences

## Grants and Contracts

<u>Type</u>	<u>Agency</u>	<u>Years</u>	<u>Amounts</u>
Individual	NSERC (res.)	1981-1984	\$ 30,500
Individual	NSERC (equip.)	1981-1982	\$ 7,500
Group	NSERC (equip)	1982	\$ 40,000
Group	NSERC (equip)	1983	\$ 30,000
Individual	NSERC (res.)	1983-1986	\$ 62,000
Individual	NSERC (res.)	1986-1988	\$110,105
Individual	NSERC (equip)	1987	\$ 13,538
Group (F. Prato, P.I.)	MRC (res)	1987-1989	\$110,064
Group (F. Prato, P.I.)	NHRDP (res)	1988-1990	\$ 79,717
Group	UWO (renn.)	1989-1990	\$ 5,000
Group (F. Prato, P. I.)	MRC (res)	1989-1990	\$ 25,819
Individual	NSERC (res)	1988-1991	\$136,659
Individual	NSERC (equip)	1990	\$ 9,950
Group (F. Prato, P. I.)	UpJohn	1990-1991	\$ 36,134
Group	ADF (univ)	1991-1992	\$ 20,000
Group	UWO (renn)	1991-1992	\$ 5,000
Individual	NSERC (res)	1991-1993	\$120,000
Group (D. Colwell P.I.)	Alberta Agric.	1992-1994	\$ 60,000
Individual	NSERC (res)	1994-1996	\$105,000
Individual	UWO (equip)	1994	\$ 7,000
Group	UWO (res. )	1996	\$ 12,500
Group	UWO (renn.)	1996	\$ 10,000
Individual	NSERC (res)	1997-2001	\$144,000
Group	NSERC (equip)	1997	\$ 9,870
Group (F. Prato P. I.)	MRC (res)	1997-2000	\$208,395
Individual	NSERC (equip)	1999	\$ 24,493
Group (E. Hampson, P. I.)	NSERC (facilities)	1999	\$ 30,000
Group (F. Prato, P. I.)	CIHR (res)	2001-2006	\$264,086
Individual	NSERC (res)	2001-2006	\$220,000
Individual	NSERC (equip)	2001	\$ 7,800
Group (E. Hampson, P.I)	NSERC (fac)	2003- 2007	\$135,000
Group	NSERC (equip)	2003	\$ 27,140
Group (K.P. Ossenkopp, P.I.)	NSERC (equip)	2004	\$ 11, 730
Individual	NSERC (disc)	2006 -2016	\$345,000
Group (M. Kavaliers P.I.)	NSERC (equip)	2006	\$ 33,000
Group (E. Hampson, P.I.)	NSERC (Fac)	2009-20013	\$170,000

## Patents

### 1. Electrotherapy device using low frequency magnetic pulses

Inventors: A.W. Thomas, F.S. Prato; M. Kavaliers and M. A. Persinger

Patent Number: US 6,234,953 BI (United States Patent); Date of Patent: May 22, 2000.

## **Publications**

### **Refereed Journals**

267. Deleemans, J. M., Wang, K., Ossenkopp, K.-P., Kavaliers, M. and Tenk, C. M. Effects of an oxytocin agonist and antagonist on Lipopolysaccharide elicited anxiety and immune responses in male mice. Brain Behaviour and Immunity (submitted).
266. Kavaliers, M., Matta, R., and Choleris, E. (2016). Mate-choice copying, social information processing and the roles of oxytocin. Neuroscience & Biobehavioral Reviews (submitted)
265. Kavaliers, M., Choleris E. (2016). Out-group threat responses, in group bias and nonapeptide involvement are conserved across vertebrates. American Naturalist (submitted, under revision).
264. Boulet, N., Cloutier, C. J., Ossenkopp, K.-P. and Kavaliers, M. (2016) Oxytocin, social factors and the expression of conditioned disgust (anticipatory nausea) in male rats. Behavioural Pharmacology, in press.
263. Boulet, N., Cloutier C. J., Ossenkopp K.-P., Kavaliers, M. (2016). Social factors modulate conditioned disgust in male rats. Royal Society Open Science (submitted, under revision),
262. Cloutier, C. J., Kavaliers, M., Ossenkopp, K.-P. (2016). A sex difference in the expression of conditioned disgust behaviors (anticipatory nausea) to a context previously paired with the toxic effects of LiCl in the rat: A toxin dose-response examination. Behavioural Brain Research (submitted).
261. Cloutier, C. J., Kavaliers, M., Ossenkopp, K.-P. (2016), Rodent sex differences in disgust behaviors (anticipatory nausea) conditioned to a context associated with the effects of the toxin LiCl: Inhibition of conditioning following immune stimulation with lipopolysaccharide. Pharmacology Biochemistry Behavior (in press).
260. Ervin, K. J., Lymer, J., Clipperton-Allen, A. E., Matta, R., Kavaliers, M., Choleris, E. (2015). Estrogen involvement in social behaviour in rodents: Rapid and long-term actions. Hormones and Behavior 74: 53-76.
259. Banasikowski, T. J., Cloutier, C. J., Ossenkopp, K.-P., Kavaliers, M. (2015). Repeated exposure of male mice to low doses of lipopolysaccharide: dose and time dependent development of behavioural sensitization and tolerance in an automated light-dark anxiety test. Behavioural Brain Research 286: 241-248.
258. Foley, K. A., McFabe D.F., Kavaliers, M., Ossenkopp, K.-P. (2015). Sexually dimorphic effects of prenatal exposure to lipopolysaccharide and postnatal exposure to propionic acid, on acoustic startle response and prepulse inhibition in adolescent rats: relevance to autism spectrum disorders. Behavioural Brain Research 278: 244-256.
257. Kavaliers, M., Colwell, D. D. Cloutier, C. J., Ossenkopp, K.-P., Choleris, E. (2014). Pathogen threat and unfamiliar males rapidly bias the social responses of female mice. Animal Behaviour 97: 105-111.

256. Foley K. A., MacFabe DF, Vaz A, Ossenkopp. K.-P., Kavaliers, M. (2014) Sexually dimorphic effects of prenatal exposure to propionic acid and lipopolysaccharide, on social behavior in neonatal, adolescent and adult rats: implications for autism spectrum disorders. International Journal of Developmental Neuroscience 39: 68-78
255. Foley, K. A., Kavaliers, M., MacFabe D. F., Ossenkopp, K.-P. (2014). Pre- and neonatal exposure to lipopolysaccharide, or the enteric metabolite, propionic acid, alters development and behavior in adolescent rats in a sexually dimorphic manner. PLOS One 9(1): e87072. Doi: 10.1371/journal.pone.0087072
254. Choleris, E., Cazzin, L., Kavaliers, Lymer, J., Amor, T, Lu, R. M., Valsechi, P. (2013) Acute corticosterone sexually dimorphically facilitates social learning and inhibits feeding in mice. Neuropharmacology 75: 191-200.
253. Good, A. N., Kavaliers, M., Ossenkopp, K.-P. (2013) Modelling the effects of low toxin levels in food on feeding: Dose dependent reduction of fluid intake by low levels of lithium chloride. Toxicology Letters 221: 191-196.
252. Kavaliers, M., Choleris, E. (2013) Neurobiological aspects of the effects of anticipation of interaction with a female on male cognitive performance. Archives of Sexual Behavior 42: 331-333.
251. Tenk. C.M., Kavaliers, M., Ossenkopp, K-P. (2013) Neonatal treatment with lipopolysaccharide differentially affects adult anxiety responses in the light-dark test and taste neophobia test in male and female rats. International Journal of Developmental Neuroscience 31: 171-180
250. Chan, Y. T., Cross-Mellor, S. K., Kavaliers, M., Ossenkopp, K.-P. (2013) Impairment of lithium-induced conditioned gaping responses (anticipatory nausea) following immune system stimulation with lipopolysaccharide (LPS) occurs in both LPS tolerant and LPS non-tolerant rats. Brain Behavior and Immunity 27: 123 -132.
249. Kavaliers, M., Choleris, E. (2013). Neurobiological correlates of sociality, mate choice and learning. Trends in Ecology and Evolution 28: 4-5.
248. Cloutier, C. J., Kavaliers, M., Ossenkopp, K.-P. (2012). Lipopolysaccharide inhibits the simultaneous establishment of LiCl-Induced anticipatory nausea and intravascular conditioned taste avoidance in the rat. Behavioural Brain Research 232: 278-286.
247. Kavaliers, M., Clipperton-Allen, A. E., Cragg, C. L., Gustaffson, J-A., Muglia, L. J., Choleris, E. (2012). Male risk taking, female odors and the role of estrogen receptors. Physiology and Behavior 107: 751-761.
246. Cloutier, C. J., Rodowa. M.-S., Cross-Mellor, S. K., Chan, M. Y. T., Kavaliers, M., Ossenkopp, K.-P. (2012) Inhibition of LiCl-induced conditioning of anticipatory nausea in rats following immune system stimulation: comparing the immunogens lipopolysaccharide, muramyl dipeptide, and polyinosinic polycytidylic acid. Physiology and Behavior 106: 243-251.



245. Choleris, E., Clipperton-Allen, A. E., Phan, A., Valsecchi, P., Kavaliers, M. (2012) Estrogenic involvement in social learning, social recognition and pathogen avoidance. Frontiers in Neuroendocrinology 33: 140-159.
244. Choleris, E., McCarthy, M. M., Kavaliers, M. (2012) Sex in the brain: Donald Wells Pfaff and motivation from genes to molecules to behavior. Hormones and Behavior 61: 1-3.
243. Gabor, C.S., Phan, A., Clipperton-Allen, A. E., Kavaliers, M., Choleris, E. (2012) Interplay of oxytocin, vasopressin and sex hormones in the regulation of social recognition. Behavioral Neuroscience 126: 97-109.
242. Ossenkopp, K.-P., Foley, K. A., Gibson, J., Fudge, M. A., Kavaliers, M., Cain, D. P., MacFabe, D. F. (2012). Systemic treatment with the enteric bacterial fermentation product, propionic acid, produces both conditioned taste avoidance and conditioned place aversion in rats. Behavioural Brain Research 227: 134-141.
241. Kavaliers, M., Choleris, E. (2011). Sociality, pathogen avoidance, and the neuropeptides oxytocin and vasopressin. Psychological Science 22:1367-1374.
240. Cloutier, C. J., Cross-Mellor, S. K., Kavaliers, M., Ossenkopp, K.-P. (2011) Simultaneous conditioning of “gaping” and taste cues in the rodent model of anticipatory nausea. Neuroscience Letters 502: 76-79.
239. Ossenkopp, K.-P., Biagi, E., Cloutier, C. J., Chan, M.Y. T., Kavaliers, M. (2011) Acute corticosterone increases conditioned spontaneous orofacial behaviors but fails to influence dose related LiCl-induced conditioned “gaping” responses in a rodent model of anticipatory nausea. European Journal of Pharmacology 660: 358- 362.
238. Fudge, M. A., Kavaliers, M., Baird, J.-P., Ossenkopp, K.-P. (2009) Tamoxifen produces conditioned taste reactivity in male rats: analysis of microstructural licking patterns. Hormones and Behavior 56: 322-331.
237. Choleris, E., Clipperton, A. E., Phan, A., Kavaliers, M. (2009) Neuroendocrinology of social information processing in rats and mice. Frontiers in Neuroendocrinology 30: 422-459.
236. Lockey, A. J., Kavaliers, M., Ossenkopp, K.-P. (2009) Lipopolysaccharide reduces tactile startle response magnitude but not prepulse inhibition in rats: a dose-response examination. Pharmacology Biochemistry and Behavior, 93: 47-53.
235. Fudge, M. A., Kavaliers, M., Baird, J.-P., Ossenkopp, K.-P. (2009) Tamoxifen and raloxifene produce conditioned taste avoidance in female rats: a microstructural analysis of licking patterns. Life Sciences 84: 282-289.
234. Chan, M. Y. T., Cross-Mellor, S. K., Kavaliers, M., Ossenkopp, K.-P. (2009) Lipopolysaccharide (LPS) blocks the acquisition of LiCl-induced gaping in a rodent model of anticipatory nausea. Neuroscience Letters 450: 301-305.

233. Lockey, A. J., Kavaliers, M., Ossenkopp, K.-P. (2009) Lipopolysaccharide produces dose-dependent reductions of the acoustic startle response without impairing prepulse inhibition in male rats. Brain Behavior and Immunity 23: 101-107
232. Choleris, E., Clipprton, A. E., Phan, A., Kavaliers, M. (2008). Estrogen receptor beta agonists in neurobehavioral investigations. Current Opinion in Drug Development 9: 760-773
231. Pfaff, D. P., Kavaliers, M., Choleris E. (2008) Mechanisms underlying an ability to behave ethically. The American Journal of Bioethics 8: 10-19.
230. Pfaff, D. W., Kavaliers, M., Choleris, E. (2008) Response to peer commentaries on mechanisms underlying and ability to behave ethically – neuroscience addresses ethical behaviors: transitioning from philosophical dialogues to testable scientific theories of brain and behavior. The American Journal of Bioethics 8: W1 – W5.
229. Kavaliers, M., Devidze, N., Choleris, E., Fudge, M., Gustafsson, J.-A., Korach, K. S., Pfaff, D. W., Ogawa, S. (2008). Estrogen receptors  $\alpha$  and  $\beta$  mediate different aspects of the facilitatory effects of female cues on male risk taking. Psychoneuroendocrinology 33, 634-642.
228. Tenk, C. M., Kavaliers, M., Ossenkopp, K.-P. (2008). Sexually dimorphic effects of neonatal immune system activation with lipopolysaccharide on the behavioural responses to a homotypic adult immune challenge. International Journal of Developmental Neuroscience 26: 331-338.
227. Choleris, E., Devidze, E., Kavaliers, M. Pfaff, D. W. (2008). Steroidal/Neuropeptide interactions in hypothalamus and amygdala relate to social anxiety. Progress in Brain Research 170: 291-301.
226. MacFabe, D. F., Rodriguez-Capote, K., Hoffman, J. E., Franklin, A. E., Mohammad-Asef, Y., Boon, F., Cain, D. P., Kavaliers, M., Possmayer, F., Ossenkopp, K.-P. (2008) A novel rodent model of autism: Intraventricular infusions of propionic acid increases locomotor activity and induce neuroinflammation and oxidative stress in discrete regions of adult rat brain, American Journal of Biotechnology and Biochemistry 4: 146-166..
225. Agmo, A., Choleris, E., Kavaliers, M., Pfaff, D. W., Ogawa, S. (2008) Social and sexual incentive properties of estrogen receptor  $\alpha$ , estrogen receptor  $\beta$ , or oxytocin knockout mice. Genes Brain and Behavior 7: 70-77.
224. Del Seppia, C., Ghione, S., Luschi, P., Ossenkopp, K.-P., Choleris, E., Kavaliers, M. (2007) Pain perception and electromagnetic fields: a review. Neuroscience and Biobehavioral Reviews 31: 619-642.
223. Franklin, A. E., Engeland CG, Kavaliers, M.Ossenkopp, K.-P. (2007) The rate of behavioral tolerance development to repeated lipopolysaccharide treatments depends upon the time of injection during the light-dark cycle: a multivariate examination of locomotor activity. Behavioural Brain Research 180: 161-173.
222. Tenk, C. M., Foley, A., Kavaliers, M.,Ossenkopp, K.-P. (2007) Neonatal immune activation with lipopolysaccharide increases behavioural sensitization to the dopamine agonist, quinpirole, in adult female but not male rats. Brain Behavior and Immunity 21: 935-945.

221. Shelley, D. N., Choleris, E., Kavaliers, M., Pfaff, D. M. (2007) Mechanisms underlying sexual and affiliative behaviours of mice: relation to generalized CNS arousal. Social Cognitive and Affective Neuroscience 1: 260-270.
220. MacFabe, D. F., Cain, D.P. Franklin, A. E., Rodriguez-Capote, K., Franklin, A. E., Hoffman, J. E., Boon, F., Taylor, R.A., Kavaliers, M., Ossenkopp, K.-P. (2007) Neurobiological effects of intraventricular propionic acid in rats: possible role of short chain fatty acids in the pathogenesis and characteristics of autism spectrum disorders. Behavioural Brain Research 176 149-169.
219. Tenk, C. M., Kavaliers, M., Ossenkopp, K.-P. (2006) Acute effects of corticosterone on lithium-induced conditioned place aversion in rats: assessment with an automated activity and place preference conditioning procedure. Life Sciences 79: 1069-1070.
218. Engeland, C. G., Kavaliers, M., Ossenkopp, K.-P. (2006) Influence of the estrous cycle on tolerance development to LPS-induced sickness behaviors in rats. Psychoneuroendocrinology 31: 510-525.
217. Choleris, E., Ogawa, S., Kavaliers, M., Gustafsson, J.-A., Korach, K. S., Muglia, J., Pfaff, D. W. (2006). Involvement of estrogen receptor  $\alpha$ ,  $\beta$  and oxytocin in social discrimination: a detailed behavioral analysis with knockout female mice. Genes Brain and Behavior 5: 528-539.
216. Fudge, M. A., Kavaliers, M., Ossenkopp, K.-P. (2006) Allopregnanolone produces hyperphagia by reducing neophobia without altering food palatability. European Neurosychopharmacology 16: 272-280.
215. Kavaliers, M., Choleris, E., Agmo, A., Braun, W.J., Colwell, D. D., Muglia, L. J., Ogawa, S., Pfaff, D. W. (2006) Inadvertent social information and the avoidance of parasitized male mice: A role for oxytocin. Proceedings of the National Academy of Science, USA. 103: 4293-4298.
214. Foley, K. A., Fudge, M. A., Kavaliers, M., Ossenkopp, K.-P. (2006) Quinpirole-induced behavioral sensitization is enhanced by prior scheduled exposure to sucrose: A multivariate examination of locomotor activity. Behavioural Brain Research 167: 49-56.
213. Kavaliers, M., Choleris, E., Pfaff, D. W. (2005) Recognition and avoidance of the odors of parasitized conspecifics and predators: differential genomic correlates. Neuroscience and Biobehavioral Reviews 29: 1347-1359.
212. Kavaliers, M., Choleris, E., Pfaff, D. W. (2005) Genes, odours and the recognition of parasitized individuals by rodents. Trends in Parasitology 21: 423-429.
211. Ossenkopp, K.-P., Anderson, S., Engeland, C. G., Kavaliers, M. (2005) Influence of photoperiod and sex on locomotor behavior of meadow voles (*Microtus pennsylvanicus*) in an automated light-dark 'anxiety' test. Psychoneuroendocrinology 30: 869-879.
210. Kavaliers, M., Choleris, E., Agmo, A., Muglia, J. L., Ogawa, S., Pfaff, D. W. (2005) Involvement of the oxytocin gene in the recognition and avoidance of parasitized males by female mice. Animal Behaviour 70: 693-702.

209. Tenk, C. M., Kavaliers, M., Ossenkopp, K.-P. (2005) Conditioned place aversions and activity effects of lithium chloride treatment in rats: a dose-response multivariate assessment. European Journal of Pharmacology 515: 117 - 127.
208. Kavaliers, M., Colwell, D. D., Choleris, E. (2005) Kinship, familiarity and dominance modulate social learning about “micropredators” (biting flies) in deer mice Behavioral Ecology and Sociobiology 58: 60-71.
207. Cross-Mellor, S. K., Kavaliers, M., Ossenkopp, K.-P. (2005) The effects of lipopolysaccharide and lithium chloride on the ingestion of a bitter-sweet taste: Comparing intake and palatability. Brain Behavior and Immunity 19: 564-573.
206. Cross-Mellor, S. K., Kavaliers, M., Ossenkopp, K.-P. (2004) Comparing immune activation (lipopolysaccharide) and toxin (lithium chloride) induced gustatory conditioning: lipopolysaccharide produces conditioned taste avoidance but not aversion in rats. Behavioral Brain Research 148: 11-19.
205. Shupak, N. M., Hensel, J. M., Cross-Mellor, S. K., Kavaliers, M., Prato, F. S., Thomas, A. W. (2004) Analgesic and behavioral effects of a 100  $\mu$ T specific pulsed extremely low frequency magnetic field on control and morphine treated CF-1 mice. Neuroscience Letters 354: 30-33.
204. Choleris, E., Kavaliers, M., Pfaff, D. W. (2004) Functional genomics of social recognition. Journal of Neuroendocrinology 16: 383-389.
203. Kavaliers, M., Agmo, A., Choleris, E., Gustafsson, J.-A., Korach, K.S., Muglia L.J., Pfaff, D. W., Ogawa, S. (2004) Oxytocin and estrogen receptor  $\alpha$  and  $\beta$  knockout mice provide discriminably different odor cues in behavioral assay. Genes Brain and Behavior 3: 189-195.
202. Kavaliers, M., Choleris, E., Agmo, A., Pfaff, D. W. (2004) Olfactory mediated parasite recognition and avoidance: linking genes to behavior. Hormones and Behavior 46: 272 -283.
201. Cross-Mellor, S. K., Hoshoooley, J. S., Kavaliers, M., Ossenkopp, K.-P. (2004) Immune activation paired with intraoral sucrose conditions oral rejection. Neuroreport 15: 2287 – 2291.
200. Kavaliers, M., Colwell, D. D., Choleris, E., Braun, J. W. (2003). Brief exposure to the odour of a parasitized male alters the subsequent mate odour responses of female mice. Animal Behaviour 65: 59-68.
199. Kavaliers, M., Colwell, D. D., Choleris, E. (2003) Learning to cope with biting flies: individually and socially acquired corticosterone and avoidance responses. Hormones and Behavior 43: 99-107.
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**Presentations (over 200 presentations at conferences – only current listed listed)**

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## **Invited Presentations**

Neuropeptide/Steroidal Interactions and the Avoidance of Pathogen Threat: Implications for Disgust. Workshop on “The evolution of disgust- from oral to moral: insights from and for emotion theory, morality, intergroup relations and psychopathology. Center for Interdisciplinary Research (ZiF), Bielefeld, Germany, 2012.

Social Learning of Fear to Natural Threats; An Oxytocin-Estrogen Interplay. International Behavioral and Neural Genetics Society, Symposium on Social Learning of One Another’s Emotion State: Neural and Neurochemical Mediation, Rome, Italy, 2011.

Odors, Parasites and Mate Responses, International Behavioral Neuroscience Society, Symposium on Sex, Fear and Pheromones: Biology of Semicheicals. Steamboat Springs, Colorado, 2011

Olfaction, Parasites and Behavior, International Brain Research Organization (IBRO) regional Associate School, Penang Island, Malaysia, 2009

Neurobiology of Social Recognition and Parasite Avoidance. International Behavioral Neuroscience Society, Nassau, The Bahamas, 2009

Estrogen Receptor Genes and Their Involvement in Social Behaviors, Advance in Neurobiology Conference, Napoli, Italy, 2007.

Neurosteroids and Feeding. The Endocrine Society, Toronto, Ontario, 2007.

Behavioral Characteristics and Stress-induced Neuroendocrine Responses of Oxytocin Knockout Mice, The Endocrine Society, Chicago, 2006

Functional Genomics and the Recognition of Parasitized Individuals. Canadian Society of Zoologists, Annual Meeting. Acadia University, Wolfville, Nova Scotia, 2004.

Recognition and Avoidance of Parasitized Individuals: Linking Genes to Behavior, Satellite Symposium on Defensive Behavior, International Behavioral Neuroscience Society, Key West, Florida, 2004.

Parasites and Behavior. Workshop on Sexual and Immune Dimorphism in Parasitic Diseases of Mammalian Hosts: Prevalence, Mechanisms and Consequences, Cuernavaca, Mexico 2003.

Pain inhibition: Ethological Correlates and Biomedical Implications. International School of Ethology, Ethology and Biomedical Research, Ettore Majorana Foundation Centre for Scientific Culture, Erice, Sicily, Italy, 1998.

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Alzheimer's and immune system function: an association with electromagnetic field exposure. Organizer, Symposium, Federation of American Societies for Experimental Biology, Atlanta, Georgia, 1995.

A healthy body and a healthy mind? The relationship between cognitive function and physical illness. Partnership for Child Development, Broadway, Worchestershire, England, 1995.

Functional consequences of aggression and the role of parasites. Plenary Address, 24th International Ethological Conference, Honolulu, Hawaii, 1995.

Opioid systems and the biological effects of magnetic fields. Keynote Address, Bioelectromagnetics Society, 15th Annual Meeting, Los Angeles, 1993.

Sex differences in persistent pain: neuronal mechanisms. Controversies in Neuroscience V: Persistent Pain, Portland, Oregon, 1994.

Electricity: Friend and Foe, International Electrical Engineering Association, London, Ontario, 1993.

Current Research on the Biological Effects of Magnetic Fields. Inaugural Symposium of Bioelectromagnetics Western. Symposium Organizer, Participant and Moderator, University of Western Ontario, 1992.

Opioid and related neuropeptides in fishes. NATO Advanced Study Institute on Rhythms in Fishes, Lennoxville, Quebec, 1991.

Behavioral Pharmacology of FMRFamide-Related Peptides. Symposium on Anti-opiate peptides as mediators of opioid tolerance dependence, Committee on Problems of Drug Dependence, 52nd Annual Meeting, Richmond, Virginia, 1990.

Magnetic Fields, opioid systems and day-night rhythms of analgesia. Symposium on Electromagnetic Fields and Circadian Rhythmicity. Institute for Circadian Physiology, Harvard University, Boston, Mass., 1989.

Opioid Modulation of Nociception and Analgesia in the Land Snail, *Cepaea nemoralis*. International Symposium on Comparative Pharmacology of Neuropeptides. Konstanz, Germany, 1989.

Invertebrates in Biomedical Research. American Association for Laboratory Animal Science, Detroit, Michigan, 1988.

Evolutionary and comparative aspects of nociception. Behavioral biology of nociception (Satellite Symposium, Society for Neurosciences), New Orleans, Louisiana, 1987.

Behavioral Neuromodulators, Cellular, Comparative and Evolutionary Patterns. Symposium American Society of Zoologists and the Animal Behavior Society, New Orleans, Louisiana, 1987.

Invertebrate systems and opioid induced feeding. Federation of American Societies for Experimental Biology, American Institute of Nutrition, St. Louis, Missouri, 1986

Drug investigations with slugs and snails: Similarities to and implications for mammalian studies. Canadian Laboratory Animal Scientist Association, Toronto, Ontario, 1985.

Explorations in nuclear magnetic resonance imaging, potential risks of MRI. St. Joseph's Hospital and Research Institute Symposium, London, Ontario, 1985.



Reduction of endogenous and exogenous opiate-mediated feeding by FMRFamide. Mechanisms of Appetite & Obesity, (Satellite of Society for Neurosciences), San Antonio, Texas, 1985.

PLG and FMRFamide: endogenous peptides affecting the analgesic consequences of defeat. Invited American College of Neuropsychopharmacology, Maui, Hawaii, 1985.

Opioid peptides, the pineal gland and rhythmic behavior. American Fisheries Society, Milwaukee, 1984.

### **Invited Colloquia**

Social Information, parasites and Behavior, Department of Experimental Biology, University of Cagliari, Sardinia, Italy, 2010.

Olfaction, parasites and behaviour, Department of Experimental Biology. University of Cagliari, Sardinia, Italy, 2010.

The Smell of Danger: Odors, Parasites and Predators, Department of Psychology, University of Nebraska, Omaha, Nebraska, 2008.

Infection Avoidance: From Genes to Behavior. Department of Psychology, Wilfred Laurier University, Waterloo, 2007

The Smell of Danger: Odors, Parasites and Predators, Centre for the Study of Animal Welfare, University of Guelph, Guelph, Canada, 2006.

Neurobehavioral Aspects of Parasite Recognition and Avoidance. Department of Biology, University of Tromsø, Tromsø, Norway, 2005

Learning to Recognize and Cope with Parasites: Linking Genes to Behavior. Department of Psychiatry. Mt. Sinai School of Medicine, New York, 2005.

Genes, Oxytocin, Stress, Olfaction and Life. The Rockefeller University, New York, 2003

Learning to Cope with Parasites: Implications for learning, Pain responses, Mate Selection and Sex Differences. Department of Psychology, Queen's College, City University of New York, New York, 2003

Learning to Cope With Parasites, Bloomberg School of Public Health. Johns Hopkins University, Baltimore, 2003.

Parasites and Mate Responses. Department of Zoology, University of Guelph, Guelph, Ontario, 2002.

Parasites and Behavior: An Ethopharmacological Perspective. Department of Biology, Colorado State University, Fort Collins, Colorado, 2000.

Learning to Cope with Biting Flies. Institute of Human Physiology, University of Siena, Siena, Italy, 2000.

Predators, parasites and behavior: an ethopharmacological perspective. Alberta Heritage Trust for Medical Research, Department of Psychology, University of Lethbridge, 1996.

Actions of opioids in snails and the effects of magnetic fields. J. L. Pettis Memorial Veterans Administration Center, Loma Linda, California, 1996.

Predators, parasites and behavior: an ethopharmacological perspective. Department of Psychology, University of California, Berkeley, California, 1995.

Behavioral effects of magnetic fields, 2nd Annual Bioelectromagnetics Western Symposium, London, Ontario, 1993.

Endogenous opioids and animal behavior. Agriculture Canada Research Station, Lethbridge, 1992

Comparative aspects of opioid modulation of behavior. Participant in Louisiana Stimulus for Education and Research (LASER) series: Presentations at: Dept. of Biology, Southeast Louisiana University; Dept. Biology, University of New Orleans; Dept. Zoology and Physiology, Louisiana State University, 1991.

Opioids and Invertebrate Behaviour. Kolloquium Verhaltensbiologie, Swiss Institute of Technology, Zurich, Switzerland, 1989.

Biological Rhythms in Fish. Department of Environmental, Organismal and Population Biology, University of Colorado, Boulder, Colorado, 1989.

Biological Effects of Magnetic Fields: Involvement of opioid systems. Department of Environmental, Organismal and Population Biology, University of Colorado, Boulder, Colorado, 1989

Slugs and Snails and Opiate Tales. Department of Biological Sciences, University of Wisconsin at Milwaukee, Milwaukee, Wisconsin, 1988.

Slugs and snails and opiate tales. Department of Biology, Wake-Forest University, Winston-Salem, North Carolina, 1987.

Behavioral Biology of Nociception: Comparative, developmental and sexual aspects. Co-organizer and Chairman. Satellite Symposium, Society for Neurosciences, New Orleans, Louisiana, 1987.

Biological effects of magnetic fields: involvement of endogenous opioid systems. Department of Psychology, University of Lethbridge, Alberta, 1986.

Pharmacological investigations with slugs and snails: Their implications for mammalian research. Invited participant. Canadian Association for Biological Safety, London, Ontario, 1985.

Opioids and rhythmic behavior of fish. Department of Biology, University of Maine, Orno, Maine, 1985.