

**Personal Data**

Address: Center for Studies in Behavioural Neurobiology, Concordia University  
Montreal, Quebec, H4B 1R6, Canada  
Telephone: +1 514 848 2424 ext 2191  
Fax: +1 514 848 2817  
E-mail: peter.shizgal@concordia.ca  
www: <http://csbn.concordia.ca/Faculty/Shizgal/>  
Date of Birth: October 6, 1950  
Place of Birth: Montreal, Quebec, Canada

**Education**

1975 Ph.D. in Physiological Psychology, University of Pennsylvania  
1973 M.A. in Physiological Psychology, University of Pennsylvania  
1971 B.A. in Psychology (Honours), McGill University

**Work History**

2018- Distinguished Professor Emeritus, Department of Psychology, Concordia University  
2017-2018 Professor Emeritus, Department of Psychology, Concordia University  
1999-2001 Consultant, Massachusetts General Hospital Nuclear Magnetic Resonance Center  
1997-2003 Director, Center for Studies in Behavioural Neurobiology, Concordia University  
1985-2017 Professor, Department of Psychology, Concordia University  
1981-82 Visiting Associate Professor, Department of Neurobiology and Behavior, State University of New York at Stony Brook  
1979-85 Associate Professor, Department of Psychology, Concordia University  
1976-79 Assistant Professor, Department of Psychology, Concordia University  
1975 Lecturer, Department of Psychology, Concordia University

**Awards and Honours**

2011 prix Adrien Pinard (Société Québécoise pour la Recherche en Psychologie)  
2009 Concordia University Research Fellow Award  
2009 Concordia University Provost's Circle of Distinction  
2007 Fellow, American Association for the Advancement of Science  
2001-15 Concordia University Research Chair  
1994 NutraSweet Prize (for research in nutrition and feeding)  
1994 Fellow, American Psychological Society  
1986 Fellow, American Psychological Association  
1985 John W. O'Brien Distinguished Teaching Award  
1971-75 Bourse de stagiaire de recherche (maîtrise et doctorat) FCAR  
1971 First Class Honours in Psychology  
1970-71 McGill University Scholarship  
1967-68 McGill University Scholarship

---

## Manuscripts in Preparation

Pallikaras, V., Carter, F., Velázquez-Martinez, D.N., Arvanitogiannis, A., & Shizgal, P. Spatio-temporal integration of dopaminergic reward signals: behavioral measurement and psychophysical inference

## Manuscripts under Review

## Peer-Reviewed Papers

Pacheco-Gomez, B.L., Zepeda-Ruiz, W.A., Velazquez-Lopez, D., Shizgal, P., & Velazquez-Martinez, D.N. Discriminative properties of rewarding electrical brain stimulation.

*Physiology & Behavior*, 2025, **293**, 114863. <https://www.sciencedirect.com/science/article/pii/S0031938425000642>

Carter, F., Cossette, M-P., Trujillo Pisanty, I., Pallikaras, V., Breton, Y-A., Conover, K., Caplan, J., Solis, P., Voisard, J., Yaksich, A., & Shizgal, P. Does phasic dopamine release cause policy updates? *European Journal of Neuroscience*, 2024, **59**(6), 1260–1277. <https://doi.org/10.1111/ejn.16199>

Evangelista, C., Mehrez, N., Ewusi Boisvert, E., Brake, W.G., & Shizgal, P. The priming effect of rewarding brain stimulation in rats depends on both the cost and strength of reward but survives blockade of D2-like dopamine receptors. *European Journal of Neuroscience*, 2023, **58**(8), 3751–3784. <https://doi.org/10.1111/ejn.16142>

Pallikaras, V., and Shizgal, P. Dopamine and Beyond: Implications of Psychophysical Studies of Intracranial Self-Stimulation for the Treatment of Depression, *Brain Sciences*, 2022, 12(8), Article 1052. <https://www.mdpi.com/2076-3425/12/8/1052>

Pallikaras, V., and Shizgal, P. The Convergence Model of Brain Reward Circuitry: Implications for Relief of Treatment-Resistant Depression by Deep-Brain Stimulation of the Medial Forebrain Bundle. *Frontiers in Behavioral Neuroscience*, 2022, **16**, Article 851067. <https://www.frontiersin.org/article/10.3389/fnbeh.2022.851067>

Pallikaras, V., Carter, F., Velázquez-Martinez, D., Arvanitogiannis, A., & Shizgal, P. The trade-off between pulse duration and power in optical excitation of midbrain dopamine neurons approximates Bloch's law. *Behavioural Brain Research*, 2022, **419**. <https://doi.org/10.1016/j.bbr.2021.113702>

Trujillo-Pisanty, I., Conover, K., Solis, P., Palacios, D., & Shizgal, P. Dopamine neurons do not constitute an obligatory stage in the final common path for the evaluation and pursuit of brain stimulation reward. *PLOS ONE*, 2020, 15(6): e0226722. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0226722>

See: Schoenbaum G and Machado Costa K: Faculty Opinions Recommendation of [Trujillo-Pisanty I et al., PLoS ONE 2020 15(6):e0226722]. In Faculty Opinions, 04 Nov 2020; 10.3410/f.738090012.793579417

- Evangelista, C., Hantson, A., Shams, W. M., Almey, A., Al-qadri, Y., Gonzalez Cautela, B. V., Xiang Zhou, F., Duchemin, J., Habrich, A., Lorenc, V., Gagne, C. El Oufi, K., Shizgal, P., & Brake, W. The priming effect of food persists following blockade of dopamine receptors. *European Journal of Neuroscience*, 2019, **50**(9), 3416-3427. <https://onlinelibrary.wiley.com/doi/10.1111/ejn.14531>
- Ahilan, S., Solomon, R.B., Breton, Y-A., Conover, K., Niyogi, R., Shizgal, P. & Dayan, P. Learning to use past evidence in a sophisticated world model. *PLOS Computational Biology*, 2019, 15(6), e1007093. <https://doi.org/10.1371/journal.pcbi.1007093>
- Shams, W.M., Cossette, M.-P., Shizgal, P., & Brake, W. 17 $\beta$ -estradiol locally increases phasic dopamine release in the dorsal striatum. *Neuroscience Letters*, 2018, **665**, 29–32. DOI: <https://doi.org/10.1016/j.neulet.2017.11.039>.
- Solomon, R.B., Conover, K., & Shizgal, P. Valuation of opportunity costs by rats working for rewarding electrical brain stimulation, 2017, *PLoS ONE*, 12(8): e0182120. DOI: <https://doi.org/10.1371/journal.pone.0182120>.
- Hernandez, G., Cossette, M-P., Shizgal, P., & Rompré, P-P. Decreased dopamine release correlated with increased reward seeking: a case for NMDA receptor blockade-induced depolarization inactivation. *Frontiers in Behavioral Neuroscience*, 2016, **10**(161). DOI: [10.3389/fnbeh.2016.00161](https://doi.org/10.3389/fnbeh.2016.00161)
- Reynolds, L.M., Gifuni, A.D., McCrea, E.T., Shizgal, P., & Flores, C. dcc haploinsufficiency during development results in altered sensitivity to cocaine enhancement of reward seeking. *Behavioural Brain Research*, 2016, **298**, 27-31. DOI: [10.1016/j.bbr.2015.05.020](https://doi.org/10.1016/j.bbr.2015.05.020)
- Cossette, M-P., Conover, K., & Shizgal, P. The neural substrates for the rewarding and dopamine-releasing effects of medial forebrain bundle stimulation have partially discrepant frequency responses. *Behavioural Brain Research*, 2016, **297**, 345-358. DOI: [10.1016/j.bbr.2015.10.029](https://doi.org/10.1016/j.bbr.2015.10.029)
- Scardocho, T. Trujillo-Pisanty, I., Conover, K., Shizgal, P. & Clarke, P. B. S. Phasic dopamine release in the nucleus accumbens in relation to rat 50-kHz ultrasonic vocalizations. *Frontiers in Behavioral Neuroscience*, 2016, **9**(331),1-15. DOI: [10.3389/fnbeh.2015.00331](https://doi.org/10.3389/fnbeh.2015.00331)
- Solomon, R.B., Trujillo-Pisanty, I., Conover, K., & Shizgal, P. Psychophysical inference of frequency-following fidelity in the neural substrate for brain stimulation reward. *Behavioural Brain Research*, 2015, **292**, 327-341. DOI: [10.1016/j.bbr.2015.06.008](https://doi.org/10.1016/j.bbr.2015.06.008)
- Trujillo-Pisanty, I., Sanio, C., Chaudhri, N., & Shizgal, P. Robust optical fiber patch-cords for in vivo optogenetic experiments in rats. *MethodsX*, 2015, **2**, 263-271. DOI [10.1016/j.mex.2015.05.003](https://doi.org/10.1016/j.mex.2015.05.003)
- Niyogi, R.K., Shizgal, P. & Dayan, P. Some work and some play: Microscopic and macroscopic approaches to labor and leisure. *PLOS Computational Biology*, 2014, **10**(12):e1003894. DOI: [10.1371/journal.pcbi.1003894](https://doi.org/10.1371/journal.pcbi.1003894)
- Breton, Y-A., Conover, K., & Shizgal, P. The effect of probability discounting on reward seeking: a three-dimensional perspective. *Frontiers in Behavioral Neuroscience*, 2014, **8**(284), 1-13. DOI: [10.3389/fnbeh.2014.00284](https://doi.org/10.3389/fnbeh.2014.00284).

- 
- Trujillo-Pisanty, I., Conover, K., & Shizgal P. A new view of the effect of dopamine receptor antagonism on operant performance for rewarding brain stimulation. *Psychopharmacology*, 2014, **231**(7), 1351-1364. DOI: [10.1007/s00213-013-3328-x](http://dx.doi.org/10.1007/s00213-013-3328-x).
- Niyogi, R.K., Breton, Y-A., Solomon, R.B., Conover, K., Shizgal, P. & Dayan, P. Optimal indolence: How long to work and how long to play. *Journal of the Royal Society Interface*, 2013, **11**(91). <http://dx.doi.org/10.1098/rsif.2013.0969>.
- Breton, Y-A., Mullet, A., Conover, K., & Shizgal, P. Validation and extension of the reward-mountain model. *Frontiers in Behavioral Neuroscience*, 2013, **7**(125), 1-17. DOI: [10.3389/fnbeh.2013.00125](http://dx.doi.org/10.3389/fnbeh.2013.00125)
- Hernandez, G., Trujillo-Pisanty, I., Cossette, M-P., Conover, K., & Shizgal, P. Role of dopamine tone in the pursuit of brain stimulation reward. *Journal of Neuroscience*, 2012, **32**(32), 11032–11041. doi: 10.1523/JNEUROSCI.1051-12.2012
- Shizgal, P. Scarce means with alternative uses: Robbins' definition of economics and its extension to the behavioral and neurobiological study of animal decision making. *Frontiers in Decision Neuroscience*, 2012, **6**, article 20, 1-18. doi: 10.3389/fnins.2012.00020
- Trujillo-Pisanty, I., Hernandez, G., Moreau-Debord, I., Cossette, M.-P., Conover, K., Cheer, J.F., & Shizgal, P. Cannabinoid receptor blockade reduces the opportunity cost at which rats maintain operant performance for rewarding brain stimulation. *Journal of Neuroscience*, 2011, **31**(14), 5426–5435. DOI:10.1523/JNEUROSCI.0079-11.2011
- Hernandez, G., Breton, Y-A., Conover, K., & Shizgal, P. At what stage of neural processing does cocaine act to boost pursuit of rewards? *PLoS ONE*, 2010, **5**(11), 5:e15081. DOI:10.1371/journal.pone.0015081. (Evaluated for Faculty of 1000 Biology: <http://f1000.com/7323956>)
- Breton, Y-A, Marcus, J.C., & Shizgal, P. Rattus Psychologicus: Construction of preferences by self-stimulating rats, *Behavioural Brain Research*, 2009, **202**, 77–91. DOI: 10.1016/j.bbr.2009.03.019.
- Hernandez, G. & Shizgal, P. Dynamic changes in dopamine tone during self-stimulation of the ventral tegmental area in rats. *Behavioural Brain Research*, 2009, **198**(1), 91-97. DOI: 10.1016/j.bbr.2008.10.017
- Hernandez, G., Haines, E., & Shizgal, P. Potentiation of intracranial self-stimulation during prolonged subcutaneous infusion of cocaine. *Journal of Neuroscience Methods*, 2008, **175**(1), 79-87. <http://dx.doi.org/10.1016/j.jneumeth.2008.08.005>
- Arvanitogiannis, A. & Shizgal, P. The reinforcement mountain: allocation of behavior as a function of the rate and intensity of rewarding brain stimulation. *Behavioral Neuroscience*, 2008, **122**(5), 1126-1138. DOI: 10.1037/a0012679
- Hernandez, G., Rajabi, H., Stewart, J., Arvanitogiannis, A., & Shizgal, P. Dopamine tone increases similarly during predictable and unpredictable administration of rewarding brain stimulation at short inter-train intervals. *Behavioural Brain Research*, 2008, **188**(1), 227-232. <http://dx.doi.org/10.1016/j.bbr.2007.10.035>
- Hernandez, G., Haines, E., Rajabi, H., Stewart, J., Arvanitogiannis, A., & Shizgal, P. Predictable and unpredictable rewards produce similar changes in dopamine tone. *Behavioral Neuroscience*, 2007, **121**(5), 887-895. <http://dx.doi.org/10.1037/0735-7044.121.5.887>
-

- 
- Ludvig, E., Conover, K., & Shizgal, P. The effects of reinforcer magnitude on timing in rats, *Journal of the Experimental Analysis of Behavior*, 2007, **87**, 201-218. <http://dx.doi.org/10.1901/jeab.2007.38-06> (Selected article)
- Fulton, S., Woodside, B., & Shizgal, P. Potentiation of brain stimulation reward by weight loss: Evidence for functional heterogeneity in brain reward circuitry. *Behavioural Brain Research*, 2006, **174**, 56-63. <http://dx.doi.org/10.1016/j.bbr.2006.07.009>
- Hernandez, G., Hamdani, S., Rajabi, H., Stewart, J., Conover, K., Arvanitogiannis, A., & Shizgal, P. Prolonged rewarding stimulation of the rat medial forebrain bundle: neurochemical and behavioral consequences. *Behavioral Neuroscience*, 2006, **120**(4), 888-904. <http://dx.doi.org/10.1037/0735-7044.120.4.888> (Featured article: commentary on pp 992-994. Evaluated for *Faculty of 1000 Biology*: <http://www.f1000biology.com/article/id/1015688>)
- Conover, K., & Shizgal, P. Employing labor supply theory to measure the reward value of electrical brain stimulation. *Games and Economic Behavior*, 2005, **52**(2), 283-304. <http://dx.doi.org/10.1016/j.geb.2004.08.003>
- Fulton, S., Richard, D., Woodside, B., & Shizgal, P. Food restriction and leptin impact brain reward circuitry in lean and obese Zucker rats. *Behavioural Brain Research*, 2004, **155**, 319-329. <http://dx.doi.org/10.1016/j.bbr.2004.05.021>
- Sonnenschein, B., Conover, K., & Shizgal, P. Growth of brain stimulation reward as a function of duration and stimulation strength. *Behavioral Neuroscience*, 2003, **117**(5), 978-994. <http://dx.doi.org/10.1037/0735-7044.117.5.978>
- Shizgal, P., & Arvanitogiannis, A. Gambling on dopamine. *Science*, 2003, **299**, 1856-1858.
- Fulton, S., Richard, D., Woodside, B., & Shizgal, P. Interaction of CRH and energy balance in the modulation of brain stimulation reward., *Behavioral Neuroscience*, 2002, **116**(4), 651-659. <http://dx.doi.org/10.1037//0735-7044.116.4.651>
- Fulton, S., Woodside, B., & Shizgal, P. Does Neuropeptide Y contribute to the modulation of brain stimulation reward by chronic food restriction? *Behavioural Brain Research*, 2002, **134**(1-2), 157-164.
- Conover, K.L., Fulton, S., & Shizgal, P. Operant tempo varies with reinforcement rate: implications for measurement of reward efficacy. *Behavioural Processes*, 2001, **56**(2), 85-101.
- Breiter, H.C., Aharon, I., Kahneman, D., Dale, A., & Shizgal, P. Functional imaging of neural responses to expectancy and experience of monetary gains and losses. *Neuron*, 2001, **30**, 619-639. doi:10.1016/S0896-6273(01)00303-8
- Shizgal, P., Fulton, S., & Woodside, B. Brain reward circuitry and the regulation of energy balance. *International Journal of Obesity*, 2001, **25 Suppl. 5**, S17-S21.
- Fulton, S., Woodside, B., & Shizgal, P. Modulation of brain reward circuitry by leptin. *Science*, 2000, **287**, 125-128.
- Arvanitogiannis, A., Tzschentke, T.M., Riscaldino, L., Wise, R.A., & Shizgal, P. Fos expression following self-stimulation of the medial prefrontal cortex. *Behavioural Brain Research*, 2000, **107**(1-2), 123-132.
-

- 
- Arvanitogiannis, A., & Shizgal, P. Early onset of demyelination after N-methyl-D-aspartate lesions of the lateral hypothalamus. *Behavioural Brain Research*, 1999, **104**, 89-93.
- Arvanitogiannis, A., Riscaldino, L., & Shizgal, P. Effects of NMDA lesions of the medial basal forebrain on LH and VTA self-stimulation. *Physiology & Behavior*, 1999, **65**(4-5), 805-810.
- Arvanitogiannis, A., Flores, C., & Shizgal, P. Fos-like immunoreactivity in the caudal diencephalon and brainstem following lateral hypothalamic self-stimulation. *Behavioural Brain Research*, 1997, **88**(2), 275-279.
- Flores, C., Arvanitogiannis, A., & Shizgal, P. Fos-like immunoreactivity in forebrain regions following self-stimulation of the lateral hypothalamus and the ventral tegmental area. *Behavioural Brain Research*, 1997, **87**(2), 239-251.
- Shizgal, P. Neural basis of utility estimation. *Current Opinion in Neurobiology*, 1997, **7**(2), 198-208. (<http://www.sciencedirect.com/science/article/pii/S0959438897800086>)
- Shizgal, P. The Janus faces of addiction. *Behavioral and Brain Sciences*, 1996, **19**(4), 595-596.
- Woodside, B., Renaudin, A., & Shizgal, P. Administration of ovarian steroid hormones does not change the reward effectiveness of lateral hypothalamic stimulation in ovariectomized rats. *Psychobiology*, 1996, **24**, 202-210.
- Arvanitogiannis, A., Flores, C., Pfaus, J.G., & Shizgal, P. Increased ipsilateral expression of Fos following lateral hypothalamic self-stimulation. *Brain Research*, 1996, **720**, 148-154
- Shizgal, P., & Conover K. On the neural computation of utility. *Current Directions in Psychological Science*, 1996, **5**(2), 37-43. (<http://cdp.sagepub.com/content/5/2/37.full.pdf+html>)
- Arvanitogiannis, A., Waraczynski, M., & Shizgal, P. Effects of excitotoxic lesions of the basal forebrain on MFB self-stimulation. *Physiology & Behavior*, 1996, **59**(4-5), 795-806.
- Murray, B., & Shizgal, P. Behavioral measures of conduction velocity and refractory period for reward-relevant axons in the anterior LH and VTA. *Physiology & Behavior*, 1996, **59**(4/5), 643-652.
- Murray, B., & Shizgal, P. Physiological measures of conduction velocity and refractory period for putative reward-relevant MFB axons arising in the rostral MFB. *Physiology & Behavior*, 1996, **59**(3), 427-437.
- Murray, B., & Shizgal, P. Attenuation of medial forebrain bundle reward by anterior lateral hypothalamic lesions. *Behavioural Brain Research*, 1996, **75**, 33-47.
- Waraczynski, M., & Shizgal, P. Self-stimulation of the MFB following parabrachial lesions. *Physiology & Behavior*, 1995, **58**(3), 559-566.
- Shizgal, P., & Murray, B. The collision test: inference of axonal linkage and estimation of conduction velocity from behavioural or physiological effects of paired-pulse stimulation. *Neuroscience Protocols*, Elsevier Science Publishers, Amsterdam, 1994, 94-010-04, pp. 1-19.
- Murray, B., & Shizgal, P. Evidence implicating both slow- and fast-conducting fibers in the rewarding effect of medial forebrain bundle stimulation. *Behavioural Brain Research*, 1994, **63**, 47-60.
- Dib, B., Rompré, P.-P., Amir, S. & Shizgal, P. Thermogenesis in brown adipose tissue is activated by electrical stimulation of the rat dorsal raphe nucleus. *Brain Research*, 1994, **650**, 149-152.
-

- 
- Conover, K.L., & Shizgal, P. Competition and summation between rewarding effects of sucrose and lateral hypothalamic stimulation in the rat. *Behavioral Neuroscience*, 1994, **108**(3), 537-548.
- Conover, K.L., Woodside, B. & Shizgal, P. Effects of sodium depletion on competition and summation between rewarding effects of salt and lateral hypothalamic stimulation in the rat. *Behavioral Neuroscience*, 1994, **108**(3), 549-558.
- Conover, K.L., & Shizgal, P. Differential effects of postingestive feedback on the reward value of sucrose and lateral hypothalamic stimulation in the rat. *Behavioral Neuroscience*, 1994, **108**(3), 559-572.
- Forgie, M.L., & Shizgal, P. Mapping the substrate for brain stimulation reward by means of current-number trade-off functions. *Behavioral Neuroscience*, 1993, **107**(3), 506-524.
- Druhan, J.P., Levy, M., & Shizgal, P. Effects of varying reinforcement schedule, reward current, and pretrial priming stimulation on discrete-trial performance for brain stimulation reward. *Psychobiology*, 1993, **21**(1), 37-42.
- Waraczynski, M., Conover, K., & Shizgal, P. Rewarding effectiveness of caudal MFB stimulation is unaltered following DMH lesions. *Physiology & Behavior*, 1992, **52**(2), 211-218.
- Murray, B., & Shizgal, P. Anterolateral lesions of the medial forebrain bundle increase the frequency threshold for self-stimulation of the lateral hypothalamus and ventral tegmental area in the rat. *Psychobiology*, 1991, **19**(2), 135-146.
- Shizgal, P., Conover, K., & Schindler, D. Medial forebrain bundle units in the rat: dependence of refractory period estimates on pulse duration. *Behavioural Brain Research*, 1991, **42**, 151-160.
- Waraczynski, M., Ng Cheong Ton, M. & Shizgal, P. Failure of amygdaloid lesions to increase the threshold for self-stimulation of the lateral hypothalamus and ventral tegmental area. *Behavioural Brain Research*, 1990, **40**, 159-168.
- Kiss, I., & Shizgal, P. Compound action potentials recorded in the ventral tegmental area, substantia nigra, and periaqueductal gray following rewarding stimulation of the lateral hypothalamus in the rat. *Psychobiology*, 1990, **18**, 205-214.
- Kiss, I., & Shizgal, P. Improved artifact rejection and isolation of compound action potentials by means of digital subtraction. *Journal of Neuroscience Methods*, 1989, **30**, 219-229.
- Amir, S., Shizgal, P., & Rompré, P.-P. Glutamate injection into the suprachiasmatic nucleus stimulates brown fat thermogenesis in the rat. *Brain Research*, 1989, **498**, 140-144.
- Shizgal, P. Toward a cellular analysis of intracranial self-stimulation: Contributions of collision studies. *Neuroscience and Biobehavioral Reviews*, 1989, **13**, 81-90.
- Shizgal, P., Schindler, D., & Rompré, P.-P. Forebrain neurons driven by rewarding stimulation of the medial forebrain bundle in the rat: comparison of psychophysical and electrophysiological estimates of refractory periods. *Brain Research*, 1989, **499**, 234-248.
- Bielajew, C., & Shizgal, P. Evidence implicating descending fibers in self-stimulation of the medial forebrain bundle. *The Journal of Neuroscience*, 1986, **6**(4), 919-929.
- Rompré, P.-P., & Shizgal, P. Electrophysiological characteristics of neurons in forebrain regions implicated in self-stimulation of the medial forebrain bundle in the rat. *Brain Research*, 1986, **364**, 338-349.
-

- 
- Macmillan, C.J., Simantirakis, P., & Shizgal, P. Self-stimulation of the lateral hypothalamus and ventrolateral tegmentum: Excitability characteristics of the directly stimulated substrates. *Physiology & Behavior*, 1985, **35**, 711-723.
- Schenk, S., Prince, C., & Shizgal, P. Spatio-temporal integration in the substrate for self-stimulation of the prefrontal cortex. *Physiology & Behavior*, 1985, **35**, 303-306.
- Schenk, S., & Shizgal, P. The substrates for self-stimulation of the lateral hypothalamus and medial prefrontal cortex: A comparison of strength- duration characteristics. *Physiology & Behavior*, 1985, **34**, 943-949.
- Bielajew, C., Lapointe, M., Kiss, I., & Shizgal, P. Absolute and relative refractory periods of the substrates for lateral hypothalamic and ventral midbrain self-stimulation. *Physiology & Behavior*, 1982, **28**, 125-132.
- Bielajew, C., & Shizgal, P. Behaviorally derived measures of conduction velocity in the substrate for rewarding medial forebrain bundle stimulation. *Brain Research*, 1982, **237**, 107-119.
- Blair, R., Switzman, L., Sinyor, D., Chazin, W., Cytryniak, H., Rogan, F., Shizgal, P., & Amit, Z. Lithium and ion chelators mimicked morphine in the production of explosive motor behavior. *Behavioral & Neural Biology*, 1982, **35**, 408-416.
- Schenk, S., & Shizgal, P. The substrates for lateral hypothalamic and medial pre-frontal cortex self-stimulation have different refractory periods and show poor spatial summation. *Physiology & Behavior*, 1982, **28**, 133-138.
- Bielajew C., Jordan, C., Ferme-Enright, J., & Shizgal, P. Refractory periods and anatomical linkage of the substrates for lateral hypothalamic and periaqueductal gray self-stimulation. *Physiology & Behavior*, 1981, **27**, 95-104.
- Gallistel, C.R., Shizgal, P., & Yeomans, J.S. A portrait of the substrate for self-stimulation. *Psychological Review*, 1981, **88**, 228-273.
- Schenk, S., Coupal, A., Williams, T., & Shizgal, P. A within subject comparison of the effects of morphine on the lateral hypothalamic and central gray self-stimulation. *Pharmacology Biochemistry & Behavior*, 1981, **15**, 37-41.
- Bielajew, C., & Shizgal, P. Dissociation of the substrates for medial forebrain bundle self-stimulation and stimulation-escape using a two-electrode stimulation technique. *Physiology & Behavior*, 1980, **25**, 707-711.
- Blair, R., Cytryniak, H., Shizgal, P., & Amit, Z. Heroin, but not levorphanol, produces explosive motor behavior in naloxone-treated rats. *Psychopharmacology*, 1980, **69**, 313-314.
- Schenk, S., Williams, T., Coupal, A., & Shizgal, P. A comparison between the effects of morphine on the rewarding and aversive properties of lateral hypothalamic and central gray stimulation. *Physiological Psychology*, 1980, **8**(3), 372-378.
- Shizgal, P., Bielajew, C., Corbett, D., Skelton, R., & Yeomans, J. Behavioral methods for inferring anatomical linkage between rewarding brain stimulation sites. *Journal of Comparative & Physiological Psychology*, 1980, **94**, 227-237.
- Skelton, R.W., & Shizgal, P. Parametric analysis of ON- and OFF-responding for hypothalamic stimulation. *Physiology & Behavior*, 1980, **25**, 699-706.
- Amir, S., Blair, R., Shizgal, P., & Amit, Z. Dual mechanisms mediating opiate effects? *Science*, 1979, **205**, 424-425.
-

- Blair, R., Cytryniak, H., Shizgal, P., & Amit, Z. Naloxone's antagonism of rigidity but not explosive motor behavior: Possible evidence for two types of mechanisms underlying the actions of opiates and opioids. *Behavioral Biology*, 1978, **24**, 24-31.
- Blair, R., Liran, J., Cytryniak, H., Shizgal, P., & Amit, Z. Explosive motor behavior, rigidity and periaqueductal gray lesions. *Neuropharmacology*, 1978, **17**, 205-209.
- Shizgal, P., Sklar, L.S., Brown, Z.W., & Amit, Z. Differential motor effects of intraventricular infusion of morphine and etonitazene. *Pharmacology, Biochemistry & Behavior*, 1977, **6**, 17-20.
- Shizgal, P., & Matthews, G. Electrical stimulation of the rat diencephalon: Differential effects of interrupted stimulation on ON- and OFF-responding. *Brain Research*, 1977, **129**, 319-333.
- Amit, Z., Corcoran, M.E., Charness, M.E., & Shizgal, P. Intake of diazepam and hashish by alcohol preferring rats deprived of alcohol. *Physiology & Behavior*, 1973, **10**, 523-527.

## Book Chapters

- Shizgal, P. & Hernandez, G. Intracranial self-stimulation. In Ian P. Stolerman & Lawrence H. Price, Editors-in-Chief, [\*Encyclopedia of Psychopharmacology, 2nd edition\*](#), 2015, pp 838-845, Springer Berlin Heidelberg, ISBN: 978-3-642-36171-5, 978-3-642-36172-2.
- Shizgal, P. Brain stimulation reward. [\*International Encyclopedia of Social & Behavioral Sciences, 2nd edition\*](#), James D. Wright, editor-in-chief, 2015, pp 841–846, Elsevier, ISBN: 9780080970868.
- Shizgal, P. & Hyman, S. P. Homeostasis, motivation, and addictive states. In E.R. Kandel, J.H. Schwartz, T.M. Jessell, S. Siegelbaum, & J. Hudspeth, Eds., *Principles of Neural Science, 5th Edition*, 2012, pp 1095-1115, McGraw-Hill, ISBN-10: 0071390111.
- Shizgal, P. & Hernandez, G. Intracranial self-stimulation. In Ian P. Stolerman, Editor-in-Chief, *Encyclopedia of Psychopharmacology*, Part 9, pp. 653-660, Springer-Verlag, Berlin, Heidelberg, 2010, ISBN: 978-3-540-68698-9, DOI: 10.1007/978-3-540-68706-1\_66
- Kringelbach, M. L., Berridge, K. C., Aldridge, J. W., Shizgal, P., Frijda, N., Cabanac, M., Gottfried, J. A., Schoenbaum, G., Petrovic, P., Small, D.M., Dickinson, A., Komisaruk, B., Green, A., Leknes, S. (2010). Short Answers to Fundamental Questions about Pleasure. In M. L. Kringelbach & K. C. Berridge, Eds., *Pleasures of the Brain*, pp. 7–23. Oxford University Press. ISBN: 978-0-19-533102-8
- Shizgal, P. Urgency. In D. Sander & K.R. Scherer, Eds., *The Oxford Companion to Emotion and the Affective Sciences*, Oxford University Press, 2009, pg 400. ISBN: 978-0-19-871219-0 0-19-871219-7
- Shizgal, P. Reward decision-making. In L.R. Squire, Editor-in-Chief, *Encyclopedia of Neuroscience*, Oxford: Academic Press, 2009, Vol. 8, pp 313-318. DOI: 10.1016/B978-008045046-9.01534-5
- Shizgal, P. Neural mechanisms of reward. In D.W. Stephens, J.S. Brown & R.C. Ydenberg, Eds: *Foraging*, Chicago: University of Chicago Press, 2007, 79-86.
- Fulton, S., Woodside, B. & Shizgal, P. Energy balance and reward. In G. Medeiros-Neto, A. Halpern, C. Bouchard, Eds: *Progress in Obesity Research: 9*, London: John Libbey, 2003, 818-821.

- Shizgal, P. Brain stimulation reward. In N.J. Smelser & P.B. Baltes, Eds., *International Encyclopedia of the Social and Behavioral Sciences*, Elsevier Science, 2001, 1358-1362.
- Shizgal, P. Motivation. *MIT Encyclopedia of the Cognitive Sciences*, Cambridge, Massachusetts: The MIT Press, 1999, pp 566-568.
- Shizgal, P. On the neural computation of utility: implications from studies of brain stimulation reward. In D. Kahneman, E. Diener & N. Schwarz, Eds., *Well-Being: The Foundations of Hedonic Psychology*, New York: Russell Sage Foundation, 1999, pp 502-526.  
([http://csbn.concordia.ca/Faculty/Shizgal/manuscripts/KDS\\_chapter/text.htm](http://csbn.concordia.ca/Faculty/Shizgal/manuscripts/KDS_chapter/text.htm))
- Shizgal, P., & Murray, B. Neuronal basis of intracranial self-stimulation. In: J.M. Liebman and S.J. Cooper (Eds.), *The Neuropharmacological Basis of Reward*. Oxford: Oxford University Press, 1989, pp. 106-163.
- Shizgal, P., Bielajew, C., & Rompré, P.-P. Quantitative characteristics of the directly stimulated neurons subserving self-stimulation of the medial forebrain bundle: Psychophysical inference and electrophysiological measurement. In: M.L. Commons, R.M. Church, J.R. Stellar and A.R. Wagner (Eds.), *Quantitative Analyses of Behavior: Biological Determinants of Behavior. Volume VII*. Hillsdale, N.J.: Lawrence Erlbaum Associates, 1988, pp. 59-85.
- Shizgal, P., Kiss, I., & Bielajew, C. Psychophysical and electrophysiological studies of the substrate for brain stimulation reward. In B.G. Hoebel and D. Novin (Eds.), *The Neural Basis of Feeding and Reward*. Brunswick, ME: Haer Institute, 1982, pp. 419-429.

## Ph.D. Thesis

Electrical brain stimulation in the rat: Differentiation of temporal integration characteristics in the substrates for the rewarding and aversive effects. University of Pennsylvania, 1975. <https://repository.upenn.edu/edissertations/2153/>

## Invited Talks

- Shizgal, P., Carter, F., & Pallikaras, V. Beyond model-free reinforcement learning: representation of task structure by rats working for rewarding optical stimulation of dopamine neurons. Montreal, May 22, 2022.
- Does phasic dopamine signalling play a causal role in reinforcement learning?, Department of Physiology, McGill University, March 8, 2019.
- Heretical thoughts about the role of dopamine neurons in the quest for reward, Bindra Lecture, Department of Psychology, McGill University, March 2, 2018.
- Heretical thoughts about the role of phasic dopamine signaling in learning, Bindra seminar, Department of Psychology, McGill University, March 2, 2018.
- Working for reward, waiting for reward. What's the difference? D@M (Montreal Decision-Neuroscience group), September 27, 2017.
- What is the role of dopamine in intracranial self-stimulation, and why does this matter? Dopamine workshop, Gatsby Computational Neuroscience Unit, University College London, September 29, 2016. (Organizer: Kyo Iigaya)

- 
- What does operant performance for optical stimulation of midbrain dopamine neurons reveal about the causal role of reward-prediction errors in learning and decision making? *Groupe de Recherche Sur le Système Nerveux Central Symposium: La neuroscience de la prise de décision / The Neuroscience of Decision-Making*. Université de Montréal, Montréal, QC, May 2, 2016
- On the causal role of phasic dopamine signaling. Gatsby Computational Neuroscience Unit, University College London, London, UK, Feb. 23, 2016. (Organizers: Peter Dayan & Kyo Igaya)
- Psychophysics, neurobiology, and modeling of reward seeking. Max Planck Centre for Computational Psychiatry and Aging, University College London. London, UK, Feb. 22, 2016. (Organizers: Robb Rutledge & Ray Dolan)
- What does operant performance for optical stimulation of midbrain dopamine neurons reveal about the causal role of reward-prediction errors in learning and decision making? *Center for Information and Neural Networks, 3rd Conference on computational decision making*, Osaka, Japan, Feb. 3, 2016. (Organizer: Masahiko Haruno)
- On the role of midbrain dopamine neurons in learning and reward: a tribute to Randy Gallistel. Conference to commemorate the retirement of Randy Gallistel and Rochel Gelman, Rutgers University, New Brunswick, NJ, April 17, 2015.
- How to mix work and leisure: some challenges for neuroeconomics from the study of reward seeking in rats. International Workshop on Neuroeconomics: *Recent Advances and Future Directions*. Erice, Sicily, Italy, June 16, 2014. (Organizers: Dario Maestriepieri, Camillo Padoa-Schioppa, & Aldo Rustichini)
- The neural foundations of decision making: contributions from the study of brain stimulation reward. Ottawa-Carleton Behavioural Neuroscience Specialization & School of Psychology, University of Ottawa, March 30, 2012. (Organizer: Claude Messier)
- The neural foundations of decision making: contributions from the study of brain stimulation reward. Department of Neurobiology and Behavior, Stony Brook University, December 8, 2011. (Organizer: Gary G. Matthews)
- On the role of optogenetics in the study of brain reward circuitry. Stuber Laboratory, Neuroscience Center, University of North Carolina School of Medicine, November 3, 2011. (Organizer: Garret Stuber)
- The neural computation of utility: contributions from the study of brain stimulation reward. Centre for Theoretical Neuroscience, University of Waterloo, October 25, 2011. (Organizer: Matthijs van der Meer)
- The neural foundations of decision making: some contributions from the study of brain reward circuitry in rodents. Department of Economics & Laboratory for Social and Neural Systems Research, University of Zürich, Zürich, Switzerland, October 13, 2011. (Organizer: Philippe Tobler)
- The neural computation of utility: contributions from the study of brain stimulation reward. Gatsby Computational Neuroscience Unit, University college London, London, UK, October 11, 2011. (Organizer: Peter Dayan)
-

- 
- Les corrélats BOLD aux états hédoniques: le cas de l'alliesthésie thermique. L'Unité de neuroimagerie fonctionnelle, Centre de recherche de l'institut universitaire de gériatrie de Montréal, Université de Montréal, Montreal, April 7, 2011. (Organizers: Julien Doyon and Oury Monchi)
- Les aventures d'un psychologue en neuroscience et en neuroéconomie. Acceptance speech upon winning the 2011 "prix Adrien Pinard," *Société Québécoise pour la Recherche en Psychologie*, Québec, March 19, 2011.
- Neural and computational determinants of reward pursuit. International conference on Uncovering the Brain's Role in Food and Obesity, *McGill World Platform for Health and Economic Convergence*, Montreal, March 18, 2011. (Organizer: Alain Dagher and Laurette Dubé)
- Panel on Homeostatic, Hedonic, and Neuroeconomic Markers, workshop on Environment Responsiveness Endophenotypes and Environmental Nutrition Motivation Balance, *McGill World Platform for Health and Economic Convergence*, Montreal, March 17, 2011. (Organizer: Alain Dagher and Laurette Dubé)
- Valuation of opportunity cost and reward strength by laboratory rats. Workshop on Neuroeconomics, Center for Game Theory in Economics, Stony Brook University, Stony Brook, NY, July 21, 2010. (Organizer: Aldo Rustichini)
- How does the brain compute utility? Contributions from experiments on brain stimulation reward. Committee on Computational Neuroscience & Department of Psychiatry, University of Chicago, Chicago, IL, May 18, 2010. (Organizer: Paul Vezina)
- The role of dopamine in the pursuit of reward: new insights from modeling and the study of intracranial self-stimulation. Princeton Neuroscience Institute, Princeton University, Princeton, NJ, April 22, 2010. (Organizer: Matt Botvinick)
- The role of dopamine in the pursuit of reward: new insights from modeling and the study of intracranial self-stimulation. Department of Chemistry, University of North Carolina, Chapel Hill, NC, January 22, 2010. (Organizers: Mark Wightman and Regina Carelli)
- The role of dopamine in the pursuit of reward: new insights from modeling and the study of intracranial self-stimulation. Duke Center for Neuroeconomic Studies, Duke University, Durham, NC, January 21, 2010. (Organizers: Scott Huettel and Michael Platt)
- The role of dopamine in the pursuit of reward: new insights from modeling and the study of intracranial self-stimulation. Department of Psychiatry & Behavioral Neuroscience, University of Chicago, Chicago, IL, October 16, 2009. (Organizer: Paul Vezina)
- The role of dopamine in the pursuit of reward. Brain, Mind & Society Seminar, California Institute of Technology, Pasadena, CA, May 14, 2009. (Organizer: Antonio Rangel)
- The heedless pursuit of reward by laboratory rats: implications for the psychology and neurobiology of decision making. Annual meeting of the Society of Behavioral Medicine, Montréal, QC, April 24, 2009. (Organizer: Michael Diefenbach)
- The role of dopamine in the pursuit of brain stimulation reward. National Institute on Drug Abuse, Baltimore, MD, April 22, 2009. (Organizer: Eliot Gardner)
- The role of dopamine tone in the pursuit of rewards. Department of Anatomy and Neurobiology, University of Maryland School of Medicine, Baltimore, MD, March 17, 2009. (Organizer: Joseph Cheer)
-

- 
- The role of dopamine tone in the pursuit of rewards. Dominic P. Purpura Department of Neuroscience, Albert Einstein College of Medicine, New York, NY, February 25, 2009. (Organizer: Saleem Nicola)
- The role of dopamine tone in behavioural-allocation decisions: insights from the study of intracranial self-stimulation. Annual meeting of the Canadian Physiological Society, Mont-Sainte-Anne, QC, February 5, 2009. (Organizer: Martin Paré)
- The role of dopamine tone in the pursuit of rewards. Douglas Mental Health University Institute, McGill University, Montréal, QC, November 24, 2008. (Organizer: Cecilia Flores)
- Behavioral choice theory and the quest to link neural circuitry to core processes underlying decision making. Annual meeting of the Society for Neuroeconomics, Park City, UT, September 25-28, 2008. (Organizer: Elke Weber)
- The role of dopamine tone in the allocation of behavior to the pursuit of rewards. Howard Hughes Medical Institute / Janelia Farm Research Campus conference: Neural circuits and decision making in rodents, Ashburn, VA, USA, April 7, 2008. (Organizers: Alla Karpova and Zach Mainen)
- The role of dopamine tone in the pursuit of rewards. Dopamine Journal Club, McGill University, Montréal, QC, February 20, 2008. (Organizer: Prof. Paul Clarke)
- Le rôle de la dopamine dans la quête des récompenses. Neuroscience Seminar Series, Département de physiologie, l'Université de Montréal, Montréal, QC, January 18, 2008. (Organizer: Prof. John Kalaska)
- The role of dopamine tone in the pursuit of rewards. Queen's University, Centre for Neuroscience Studies, Kingston, ON, December 19, 2007. (Organizer: Prof. Michael Dorris)
- The role of dopamine tone in the allocation of behavior to the pursuit of rewards. Albany Medical College, Center for Neuropharmacology and Neuroscience, Albany, NY, December 12, 2007. (Organizer: Prof. Joseph Cheer)
- The role of tonic dopamine signaling in the computation of payoff. Stony Brook University, Department of Neurobiology and Behavior, Stony Brook, NY, May 3, 2007. (Organizer: Prof. Gary Matthews)
- With a little help from my friends: Questions for students of motor control concerning striatal contributions to the selection, pursuit, and realization of goals. Concordia University, Center for Studies in Behavioral Neurobiology, Workshop entitled: "Dopaminergic modulation of motor and motivational functions of the striatum: Common principles?," March 16, 2007. (Organizers: Profs. Richard Courtemanche and Wayne Brake)
- Un modèle qui relie le comportement aux intensités et coûts des récompenses: un outil pour déceler le rôle de la dopamine dans la quête des récompenses? Université de Montréal, Séminaires en Neurosciences Computationnelle et Neuroinformatique, November 28, 2006. (Organizer: François Rivest).
- Perspective statement as invited issue expert at the McGill 2006 Health Challenge Think Tank - To accelerate the prevention of childhood obesity: Forging a societal plan that works; Module IV, Taking into account what really drives individuals: free will, bounded rationality, impulses, and happiness. Oct. 27, 2006. (Organizer: Prof. Laurette Dubé).
-

- 
- The role of tonic dopamine signaling in computing payoff. Stanford University, Stanford Workshop on Neuroeconomics and the Neural Basis of Decision Making, Palo Alto, CA, May 12, 2006. (Organizers: Profs. Antonio Rangel and Brian Knutson).
- Phasic and tonic signaling by dopamine neurons: differential roles in reward? Douglas Hospital Research Centre workshop on “Dopamine and its role in learning, motivation and psychiatric disorders,” McGill University, Montréal, Dec. 2, 2005. (Organizers: Cecilia Flores and Rhida Joober)
- Multiple influences on instrumental action: reward-growth functions, response costs, and dopamine tone. Gatsby Computational Neuroscience Unit Workshop on Motivation and Action, University College London, London, UK, June 21, 2005. (Organizers: Yael Niv, Nathaniel Daw & Peter Dayan)
- Modulation of brain reward circuitry by changes in energy balance. John B. Pierce Laboratory, Yale University School of Medicine, May 2, 2005. (Organizer: Dana Small)
- Neural correlates of thermal comfort and discomfort. McConnell Brain Imaging Centre, Montréal Neurological Institute, McGill University, Apr. 18, 2005. (Organizer: Alain Dagher)
- Brain reward circuitry and decision-making in rats. Department of Ecology and Evolutionary Biology, Princeton University, Princeton, NJ, Mar. 28, 2005. (Organizer: Simon Levin)
- How do rats evaluate temporally extended experiences? Decision Research, Eugene, Oregon, Mar. 17, 2004. (Organizers: Ellen Peters & Paul Slovic)
- Anticipation and experience of gains, losses, pleasure, and displeasure: functional imaging of hemodynamic correlates. Third Tucson International Workshop on Decision-Making, Tucson, AZ, Feb. 7, 2003. (Organizer: Prof. Massimo Piattelli-Palmarini)
- Neural mechanisms and correlates of evaluation and decision. McDonnell Foundation study panel on affect, learning, and decision making, New York, NY, Dec. 5, 2002. (Organizer: Prof. Elizabeth Phelps)
- Employing labor supply theory to measure the reward value of electrical brain stimulation (with Kent Conover). First Conference on Neuroscience and Economics, University of Minnesota, Minneapolis, MI, Oct. 25, 2002. (Organizers: Profs. John Dikhaut & Aldo Rustichini)
- What can research on brain reward circuitry tell us about the mechanics of happiness? Conference on Happiness, Centre for Economic Performance, London School of Economics and Political Science, London, UK, Sept. 5, 2002. (Organizers: Prof. Lord Richard Layard, Prof. Richard Freeman)
- Modulation of brain reward circuitry by changes in energy balance. University of Pittsburgh, Department of Neuroscience, Pittsburgh, PA, June 18, 2002. (Organizer: Mauricio Delgado)
- Intertemporal choice in rats: preference reversals and progressive insensitivity to duration. Carnegie Mellon University, Department of Social & Decision Sciences, Pittsburgh, PA, June 18, 2002. (Organizer: George Loewenstein)
- Anticipation and experience of gains and losses: psychological principles and functional neuroimaging. University of Toronto, Department of Psychology, Toronto, Ontario, April 17, 2002. (Organizer: Jerry Hogan)
-

- 
- Anticipation and experience of gains and losses: psychological principles and functional neuroimaging. Concordia University, Department of Psychology, Montreal, Quebec, Sept. 13, 2001. (Organizer: Andrew Chapman)
- Hemodynamic correlates of the anticipation and experience of monetary gains and losses. Department of Psychology, Princeton University, Princeton, NJ, March 30, 2001. (Organizer: Prof. Jonathan Cohen)
- Modulation of brain reward circuitry by energy balance. Departments of Psychology and Molecular Biology, Princeton University, Princeton, NJ, March 29, 2001. (Organizer: Prof. Jonathan Cohen)
- Brain reward circuitry in rats and humans. Rutgers University, Center for Cognitive Science, March 27, 2001. (Organizer: Prof. C.R. Gallistel)
- Studies of brain reward circuitry in rats and humans. McGill University, Department of Educational and Counselling Psychology, Montreal, Quebec, January 30, 2001. (Organizer: Jennifer Felsher)
- Brain reward circuitry in rats and humans. Stanford University, Department of Neurobiology, Palo Alto, CA, November 30, 2000. (Organizer: Prof. William Newsome)
- Brain reward circuitry and the regulation of energy balance. Conference entitled "*The Ponderostat: from behavior to neural substrates, A symposium organized by the D. B. Brown Research Chair on Obesity.*" Quebec, QC, November 17, 2000. (Organizer, Prof. Denis Richard)
- Interaction of brain reward circuitry with gustatory stimuli, physiological challenges, and hormonal signals. Baylor College of Medicine, Division of Neuroscience, Houston, Texas, April 13, 2000. (Organizer: Prof. Read Montague)
- Neural computation of utility. Neurology Grand Rounds, Montreal Neurological Institute, Montreal, Quebec, June 18, 1999. (Organizer: Dr. Richard Roberts)
- Neural computation of utility. Division of Humanities and Social Sciences, California Institute of Technology, Pasadena, California, February 23, 1999. (Organizer: Prof. Colin Camerer)
- Temporal integration and duration neglect in the evaluation of rewarding brain stimulation by laboratory rats. (Co-author: Bonnie Sonnenschein). Annual meeting of the Society for Judgment and Decision Making, Dallas, Texas, November 23, 1998. (Organizer: Prof. Dan Ariely)
- Uni- and multi-dimensional concomitants of pleasure: Implications of research on brain reward mechanisms. Annual conference of the Associate for Consumer Research, Montréal, Québec, October 2, 1998. (Organizers: Jordan Le Bel and Prof. Laurette Dubé)
- Toward a neurobiological theory of preference: implications from the study of brain reward mechanisms. Summer meeting of the MacArthur Foundation Network on Economic Environments and the Evolution of Individual Preferences and Social Norms; Stanford University, Palo Alto, CA; August 2, 1998. (Organizers: Profs. Herbert Gintis and Robert Boyd)
- Neural computation of utility: towards a neurobiological theory of pleasure, payoff, and choice. Laboratoire de neuroscience de la cognition, Département de psychologie, Université du Québec à Montréal, QC, February 13, 1998. (Organizer: Prof. Claude Braun)
-

- 
- New directions in the psychology of reward. CSBN & Department of Psychology colloquium series, Concordia University, Montreal, QC, November 27, 1997. (Organizer: Prof. J. Stewart)
- Toward a neurobehavioral theory of utility. Presented at the Neurobehavioral Economics Conference, Carnegie Mellon University, Pittsburgh, PA, May 30, 1997. (Organizers: Profs. George Loewenstein and Colin Camerer)
- Summary and review of "Pleasure, pain, desire & dread: some biopsychological pieces and relations," by Kent Berridge. Presented at a conference entitled: Understanding Quality of Life: Scientific Perspectives on Enjoyment and Suffering, Princeton, New Jersey, November 1, 1996. (Organizers: Profs. Daniel Kahneman, Ed Diener, and Norbert Schwartz).
- What is it? What is it worth? Processing of quality and value in the chemical senses. Gordon Conference on the Chemical Senses, Newport, Rhode Island, August 21, 1996. (Organizer: Dr. Alan Spector).
- Neural computation of utility. 104th Convention of the American Psychological Association, Toronto, Ontario, August 11, 1996. (Organizer: Drs. Warren Meck and Christina Williams).
- Le calcul de l'utilité chez le rat: modèles mathématiques, psychologiques, et neurobiologiques. "Club comportement," Laval University, Québec, May 29, 1996. (Organizer: Dr. Michel Cabanac).
- Decisions, decisions, decisions: on the neural computation of utility and the selection of goals in the rat. University of Michigan, Department of Psychology, Ann Arbor, Michigan, April 2, 1996. (Organizer: Dr. Jill Becker).
- Decisions, decisions, decisions: on the neural computation of utility and the selection of goals in the rat. University of Lethbridge, Department of Psychology, Lethbridge, Alberta, February 28, 1996. (Organizer: Dr. Bryan Kolb).
- Neural computation of currency functions. Concordia University, Department of Biology, Montréal, February 2, 1996. (Organizers: Drs. Luc-Alain Giraldeau and Jim Grant).
- Current status of the descending-path hypothesis. Canadian Society for Brain, Behaviour, and Cognitive Science, Halifax, Nova Scotia, June 24, 1995. (Organizer: Dr. Shinshu Nakajima).
- Reward, choice, neural circuits, and common currency. Plenary talk, CSBN Fest '95, Concordia University, Montréal, May 12, 1995, (Organizer: Dr. James Pfaus).
- Behavioural and neural mechanisms of goal selection: Implications of brain stimulation experiments. Douglas Hospital Research Centre, McGill University, Montréal, April 10, 1995, (Organizer: Dr. Christina Gianoulakis).
- Quelques réflexions sur les mécanismes neuraux d'évaluation gustative. Acceptance speech for the 1994 NutraSweet Prize, Paris, France, November 3, 1994.
- Zaps and spritzes, regulation and reward: Studies of the neural mechanisms underlying goal selection in rats. Northeastern University, Department of Psychology, Boston, Massachusetts, February 23, 1994, (Organizer: Dr. James Stellar).
- Une monnaie commune pour l'évaluation des stimuli gustatifs et de la stimulation électrique de l'hypothalamus? Laval University, Physiology Department, Québec, Québec April 23, 1992, (Organizers: Drs. Michel Cabanac and Denis Richard).
-

- 
- A common currency for evaluating tastants and brain stimulation. McMaster University, Psychology Department, Hamilton Ontario, March 6, 1992 (Organizer: Dr. Harvey Weingarten).
- In search of the neural substrate for brain stimulation reward: Where, why and how? New York University, Center for Neural Science, New York, N.Y. April 19, 1991, (Organizer: Dr. A. Movshon).
- Motivation: A Round Table. Derek van der Kooy, moderator. *Canadian Spring Conference on Behavior and Brain*, Banff, Alberta, April 13-16, 1989.
- In search of the neural substrate for brain stimulation reward: Where, why and how? University of Ottawa, School of Psychology, Ottawa, Ontario March 2, 1989 (Organizer: Dr. G. Fouriez).
- L'étude anatomique et électrophysiologique des mécanismes responsables de l'autostimulation intracérébrale: Développements récents. Université de Montréal, Groupe de recherche en neuropsychologie, Montréal, Québec, February 17, 1989 (Organizer: Dr. M. Lassonde).
- Toward a cellular analysis of brain stimulation reward: Contributions of collision studies. Invited address at *The Neural Basis of Reward and Reinforcement: A Conference in Honour of Peter M. Milner*, Ste. Adele, Quebec, November 11-13, 1988.
- Tracing reward pathways in the rat brain: A psychophysical and electrophysiological approach. Dalhousie University, Department of Psychology, Halifax, Nova Scotia, March 4, 1988 (Organizer: Dr. S. Nakajima).
- Neural mechanisms of reward in the rat: A psychophysical and electrophysiological analysis. University of Toronto, Department of Psychology, Toronto, Ontario, January 20, 1988 (Organizer: R. Shaw).
- Psychophysical inference of the direction of orthodromic impulse flow: A progress report. Memorial University, Department of Psychology, St John's, Newfoundland, February 13, 1987 (Organizer: Dr. D. Corbett).
- Toward the identification of reward pathways in the rat brain. Memorial University, School of Medicine, St John's, Newfoundland, February 12, 1987 (Organizer: Dr. B. Adamec).
- Neural mechanisms of reward: A psychophysical and electrophysiological analysis. Invited Fellow's address, Division 6, *American Psychological Association*, Washington, D.C., August 1986.
- Neural mechanisms of reward in the rat. McGill University, Physiology Department, Montréal, Québec, January 30, 1986 (organizers: Dr. G. Mandl and Dr. D. Guitton).
- Towards finding the neural substrate for brain stimulation reward. Douglas Hospital Research Center, McGill University, Montréal, Québec, April 29, 1985 (organizer: Dr. R. Quirion).
- Behavioral and electrophysiological methods for identifying reward related neurons. Concordia University, Biology Department Colloquium, Montréal, Québec, March 8, 1985 (organizer: Dr. J. Kornblatt).
- Reverse engineering of the rat: Towards finding the neural substrate for brain stimulation reward. McMaster University, Psychology Department Colloquium, Hamilton, Ontario, November 29, 1984. (organizer: Dr. H. Weingarten).
-

Vers l'identification des neurones responsables de l'autostimulation chez le rat. Université de Montréal, Neuropsychology Group, Montréal, Québec, November 23, 1984. (organizer: Dr. F. Lepore).

Quantitative characteristics of the substrate for brain stimulation reward: Psychophysical inference and electrophysiological measurement. *Seventh Symposium on Quantitative Analyses of Behavior at Harvard: Biological Determinants of Reinforcement and Memory*, Cambridge, Massachusetts, June 8, 1984. (Co-authors: P.-P. Rompré, I. Kiss, & C. Bielajew).

Psychophysical and electrophysiological methods for identifying reward related neurons. *Winter Conference on Brain Research*, Steamboat Springs, Colorado, 1984.

Psychophysical and electrophysiological studies of brain stimulation reward. University of Western Ontario, Physiological Psychology Group, London, Ontario, March 18, 1982. (organizer: Dr. G.J. Mogenson).

Psychophysical and electrophysiological studies of brain stimulation reward. Queen's University, Psychology Department Colloquium, Kingston, Ontario, March 11, 1982. (organizer: Dr. R. Beninger).

State University of New York at Stony Brook, Department of Neurobiology and Behavior Colloquium, Stony Brook, New York, December 7, 1981.

University of Pennsylvania, Psychology Department Colloquium, Philadelphia, Pennsylvania, December 1, 1981.

Psychophysical and electrophysiological studies of the substrate for brain stimulation reward. *Society for Neuroscience Satellite symposium: The Neural Basis of Feeding and Reward*, Los Angeles, California, 1981.

Behavioral and physiological studies of the substrate for brain stimulation reward implicate descending, myelinated, medial forebrain bundle fibres. *Eastern Psychological Association*, New York, 1981.

McGill University, Psychology Department Colloquium, February 13, 1981.

University of Toronto, Physiological Psychology Group, March 5, 1979.

McGill University, Physiological Psychology Group, February 13, 1979.

University of Toronto, Physiological Psychology Group, 1977.

Concordia University, Department of Psychology, 1975.

## Student Supervision

I have supervised, or am currently supervising or co-supervising the research of 5 postdoctoral fellows, 14 PhD students, 24 MA students, and 52 undergraduates.

## Professional Activities

From 1997-2003, I was Director of Concordia's Center for Studies in Behavioural Neurobiology. I have served as a member and Chair of the Psychology Grant Selection Committee of the Natural Sciences and Engineering Research Council of Canada and have also served on grant and scholarship evaluation committees of the "Fonds FCAR" (Quebec). I am a former member of the scientific committee of the Quebec Brain-Imaging Network (RBIQ). Among my past activities at the university level are membership in committees dealing with research policy, research centers, enhancement of teaching, computing, and honorary degrees.