

Curriculum Vitae
Jeremy C. McIntyre, Ph.D.

Current Address

Department of Neuroscience
 University of Florida
 PO Box 100244
 Gainesville, FL 326210.

jmcin@ufl.edu
 office 352-294-8266
 (cell) 352-213-2759

Education

- 1/2014-10/2015 Postdoctoral Associate, Department of Pharmacology and Therapeutics,
 University of Florida. Advisor: Jeffrey R. Martens, Ph.D.
- 11/2009-12/2013 Postdoctoral Fellow, Department of Pharmacology
 University of Michigan. Advisor: Jeffrey R. Martens, Ph.D.
- 2002-2009 Ph.D. Department of Physiology,
 University of Kentucky. Advisor: Timothy S. McClintock, Ph.D.
*Dissertation: Roles of EMX2 in odorant receptor gene expression and
 olfactory sensory neuron axon growth*
- 1998-2001 B.S. (Neuroscience) Bowling Green State University
 Undergraduate Research Assistant. J.P. Scott Center for Neuroscience,
 Mind, and Behavior.
 Advisors: Paul A. Moore, Ph.D., and Moira Van Staaden, Ph.D.

Faculty Appointments

- 11/1/2015 Assistant Professor, Department of Neuroscience- University of Florida

Honors and Awards

- 2014: Second place, Oral Presentations. University of Florida, Postdoc Research Symposium
 2012: Polak Young Investigator Award. Association for Chemoreception Sciences
 2011: Distinguished Postdoctoral Research Presentation Award. University of Michigan
 2009: Student Travel Award. Association for Chemoreception Sciences (AChemS XXXI)
 2006: Student Travel Award. Association for Chemoreception Sciences (AChemS XXVIII)
 2004: Student Travel Award. Association for Chemoreception Sciences (AChemS XXVI)
 2001: Graduated *Cum Laude* with University Honors and Departmental (Biology) Honors.
 Bowling Green State University
 2001: James D. Graham Memorial Scholarship. Department of Biology, Bowling Green State
 University
 2001: Suzanne K. Miller Undergraduate Research Assistantship. Department of Biology,
 Bowling Green State University
 2000: Suzanne K. Miller Undergraduate Research Assistantship. Department of Biology
 Bowling Green State University
 1999: Outstanding Poster Award, Sigma Xi Research Competition Bowling Green State
 University

FundingCurrent

2/14-11/15: 1K99DC013555
National Institutes of Health, NIDCD.
Gene therapeutic rescue of channelopathy induce anosmias
Role: Principal Investigator

12/15-11/18: R00DC013555
National Institutes of Health, NIDCD.
Gene therapeutic rescue of channelopathy induce anosmias
Role: Principal Investigator
Total Costs: \$249,000.00/yr

Completed

7/11-6/13: 1F32DC011990
National Institutes of Health, NIDCD.
Therapeutic rescue of an olfactory ciliopathy
Role: Principal Investigator

Fellowships

2009-2010 Institutional NRSA Recipient from Hearing, Balance, and Chemical Senses Training Grant. University of Michigan (NIH T32DC00011)

2003-2005 Graduate Traineeship, Cellular and Molecular Neuroscience of Sensory Systems. University of Kentucky (NIH T32DC00065)

PublicationsPrimary Publications

Williams CL, Uytingco CR, Zimmerman A, Green WW, Zhang L, **McIntyre JC**, Sheffield VC, and Martens JR. Gene Therapeutic Restoration of Olfactory Cilia and Odor Detection in Bardet-Biedl Syndrome (**In prep**)

Chen KS*, **McIntyre JC***, Lieberman AP, Martens JR, Patil PG. (2016) Human spinal autografts of olfactory epithelial stem cells recapitulate donor site histology, maintaining proliferative and differentiation capacity many years after transplantation. *Acta Neuropathologica* (**In Press**)

Joiner AM*, Green WW*, **McIntyre JC**, Allen B, Schwob JE, Martens JR. (2015) Primary Cilia on Horizontal Basal Cells Regulate Regeneration of the Olfactory Epithelium. *J Neurosci* 35(40):13761-72 <http://1.usa.gov/1MIJm2P>

McIntyre JC, Joiner AM, Zhang L, Iniguez-Lluhi J, Martens JR. (2015) SUMOylation regulates the ciliary localization of olfactory signaling proteins. *Journal of Cell Science*. jcs.164673
PMID: 25908845 PMCID: PMC4457158 <http://bit.ly/1bOU1bS>

Ryland KE, Svoboda LE, Vesely ED, **McIntyre JC**, Zhang L, Martens JR, Lawlor ER (2015) Polycomb-dependent repression of *KCNA5* (Kv1.5 channel) promotes cancer cell survival.

Oncogene. 34(35):4591-600. Epub 2014 Dec 1. doi 10.1038/onc.2014.384 PMID: 25435365
PMCID: PMC4451446

Williams CL, **McIntyre JC**, Norris S, Zhang L, Pei Q, Verhey K, Martens JR. (2014) Direct evidence for BBSome-associated IFT reveals unique transport properties of native mammalian cilia. *Nature Communications* **5**, Article number: 5813 DOI: 10.1038/ncomms6813
PMID: 25504142 PMCID: PMC4284812 bit.ly/1yStMVL

Schumacher-Bass SM, Vesely ED, Zhang L, Ryland KE, McEwen DP, Chan PJ, Frasier CR, **McIntyre JC**, Shaw RM MD, Martens JR. (2014) A Role for Myosin V Motor Proteins in the Selective Delivery of Kv Channel Isoforms to the Membrane Surface of Cardiac Myocytes. *Circ Research*. 114(6):982-92. PMID:24508725 PMCID: PMC4213814 <http://1.usa.gov/1zl6sFR>

McIntyre JC, Davis EE, Joiner A, Williams CL, Tsai I, Jenkins PM, McEwen DP, Zhang L, Escobado J, Thomas S, Szymanska K, Johnson CA, Beales PL, Green ED, Mullikin JC, NISC Comparative Sequencing Program, Sabo A, Muzny DM, Gibbs RA, Attie-Bitach T, Yoder BK, Reed, RR, Katsanis N, Martens JR. (2012) Gene therapy rescues cilia defects and restores olfactory function in a mammalian ciliopathy model. *Nature Medicine*: 18(9):1423-8. PMID: 22941275 PMCID: PMC3645984 <http://1.usa.gov/17pkN71>

This work was highlighted in several popular press articles

<http://www.uofmhealth.org/news/archive/201209/smell>

<http://www.nih.gov/researchmatters/october2012/10012012smell.htm>

<http://www.bbc.co.uk/news/health-19409154>

Rachel RA, May-Simera HL, Veleri S, Gotoh N, Choi BY, Murga-Zamalloa C, **McIntyre JC**, Marek J, Lopez I, Hackett AN, Brooks M, den Hollander AI, Beales PL, Li T, Jacobson SG, Sood R, Martens JR, Liu P, Friedman TB, Khanna H, Koenekoop RK, Kelley MW, Swaroop A. (2012) Combining Cep290 and Mkks ciliopathy alleles in mice rescues sensory defects and restores ciliogenesis. *J Clin Invest*. 122(4):1233-45 PMID: 22446187 PMCID: PMC3314468
<http://1.usa.gov/18kfDE8>

Fan S, Whiteman EL, Hurd TW, **McIntyre JC**, Dishinger JE, Liu CJ, Martens JR, Verhey KJ, Sajjan U, Margolis BL. (2011) Induction of Ran GTP drives ciliogenesis. *Mol Bio Cell*. 22(23):4539-4548. PMID: 21998203 PMCID: PMC3226473 <http://1.usa.gov/19TpKDF>

Jenkins PM, **McIntyre JC**, Zhang L, Anantharam A, Vesely ED, Arendt KL, Carruthers CJL, Kerppola TK, Iñiguez-Lluhí JA, Holz RW, Sutton MA, Martens JR. (2011) Subunit-Dependent Axonal Trafficking of Distinct Alpha Heteromeric Potassium Channel Complexes. *J Neurosci* 31(37):13224-13235. PMID 21917805 PMCID: PMC3415696 <http://1.usa.gov/19c0cNL>

McIntyre JC, Titlow W, McClintock TS. (2010) Axon growth and guidance genes identify nascent, immature, and mature olfactory sensory neurons. *J Neurosci Res* 88(15):3243-56 PMID: 20882566 <http://1.usa.gov/HI2i1E>

McIntyre JC, Bose SC, Stromberg AJ, McClintock TS. (2008) Emx2 stimulates odorant receptor gene expression. *Chemical Senses* 33(9): 825-837. PMID: 18854508 PMCID: PMC2580733 <http://1.usa.gov/1ai4p66>

Shetty RS, Bose SC, Nickell MD, **McIntyre JC**, Hardin DH, Harris AM, McClintock TS. (2005) Transcriptional changes during neuronal death and replacement in the olfactory epithelium. *Mol Cell Neurosci* 30(4): 583-600. PMID: 16456926

Yu T, **McIntyre JC**, Bose SC, Hardin D., Owen MC., McClintock TS. (2005) Differentially expressed transcripts from phenotypically identified olfactory sensory neurons. *J Comp Neurol* 483(3):251-262. PMID: 15682396

Bergman DA, Kozlowski CP, **McIntyre JC**, Huber R, Daws AG, Moore PA. (2003) Temporal dynamics and communication of winner-effects in the crayfish *Orconectes rusticus*. *Behaviour* 140:802-825.

Review Articles and Book Chapters:

McIntyre JC*, Hege M, Barberi N*. Trafficking of Ciliary G-Protein Couple Receptors. *Methods in Cell Biology, GPCRs In review* *co-corresponding authors

McIntyre JC and Martens JR. (**April 2016**) “Ciliary Trafficking of Transduction Molecules” in *Chemosensory Transduction: Detection of Odor, Taste and Other Chemostimuli*. Editors Frank Zufall and Steven Munger

McIntyre JC, Williams CL, Martens JR. (2013) Smelling the Roses and Seeing the Light: Gene therapy for Ciliopathies. *Trends in Biotechnology*: 6:355-63. PMID:23601268 PMCID: PMC3665744 <http://1.usa.gov/1cdr8Qa>

Symposium Organization:

06/2016 “Neuromodulation in Chemosensory Pathways” International Symposium on Olfaction and Taste, 17. Yokohama, Japan. Co-organized with Markus Rothermel

Abstracts

McIntyre JC (2016) Differential expression and localization of GPCRs to cilia of neurons in the olfactory bulb. *ACChemS* 38

Green WW, Uytingco CR, Smith KR, **McIntyre JC**, Martens JR. (2016) Gene Therapeutic Rescue of Olfactory Function: Beyond the Periphery. *ACChemS* 38

Uytingco C, Williams CL, Zimmerman A, Green WW, Zhang L, **McIntyre JC**, Sheffield Val, Martens JR. (2016) Gene Therapeutic Restoration of Olfactory Cilia and Odor Detection in Bardet-Biedl Syndrome

Green WG, **McIntyre JC**, Joiner AM, Williams CL, Martens JR. (2015) Arl13b Localization and function in Cilia in the Olfactory Epithelium. AChemS 37

Joiner AM, Green WG, **McIntyre JC**, Martens JR. (2015) Primary Cilia on Olfactory Horizontal Basal Cells Regulate OE Regeneration. AChemS 37

Corey EA, Ukhanov K, Bobkov YV, **McIntyre JC**, Martens JR, Ache BW. (2015) G protein-dependent activation of PI signaling by a mammalian olfactory receptor. AChemS 37

McIntyre JC, Martens JR. (2014) Restoration of Olfactory function using Gene therapy. AChemS 36

Williams CL, **McIntyre JC**, Martens JR. (2014) Gene Therapeutic restoration of olfaction in Bardet-Biedl Syndrome. AChemS 36

Joiner AM, **McIntyre JC**, Martens JR. (2014) The Role of Cilia in the Regulation of Olfactory Horizontal Basal Cells. AChemS 36

McIntyre JC, Martens JR. (2013) Gene therapy rescues cilia defects and restores olfactory function in a mammalian ciliopathy model. FASEB Summer Research Conference, The Biology of Cilia and Flagella

McIntyre JC, Martens JR. (2013) SUMOylation regulates ciliary localization of olfactory signaling proteins. AChemS 35,

McIntyre JC, Martens JR. (2012) Post-translational modifications regulating ciliary localization of olfactory signaling proteins. ISOT XVI, Stockholm, Sweden

McIntyre JC, Joiner A, Williams CL, Jenkins PM, McEwen DP, Escobado J, Yoder BK, Reed, RR, Katsanis N, Martens JR. (2012) Therapeutic gene rescue of an olfactory ciliopathy. ISOT XVI, Stockholm, Sweden

McIntyre JC, Joiner A, Williams CL, Jenkins PM, McEwen DP, Escobado J, Yoder BK, Reed, RR, Katsanis N, Martens JR. (2012) Therapeutic gene rescue of a mammalian ciliopathy induced anosmia. AChemS 34

Joiner AM, **McIntyre JC**, Martens JR. (2012) The Role of Primary cilia in the regenerative properties of olfactory basal stem Cells. AChemS 34.

Heron PM, **McIntyre JC**, McClintock TS. (2011) OSN overproduction caused by immature OSN-specific expression of the constitutively active G protein-coupled receptor, GPR12. *Chem Senses* 36: 831-846.

Kee HL, **McIntyre JC**, Jenkins PM, Verhey KJ, Martens JR. (2010) Size exclusion and fatty acylation control ciliary protein entry. FASEB Summer Research Conference, The Biology of Cilia and Flagella

McIntyre JC, Jenkins PM, McEwen DP, Yoder BK, Martens JR. (2010) IFT88 regulates olfactory cilia maintenance and function. *Chemical Senses*. 35 (7) A108

McIntyre JC, Bose SC, McClintock TS. (2009) Emx2 stimulates odorant receptor gene expression and controls OSN axon growth. *Chemical Senses*. 34 (7): A18

McIntyre JC, McClintock TS. (2006) Expression of axon growth and guidance genes in immature OSNs. *Chemical Senses*. 31(5): A134-135

McIntyre JC, YU TT, Shetty R, Sammeta N, Smith M, McClintock TS. (2004) Expression profiling of phenotypically identified olfactory sensory neurons. *Chemical Senses*. 30: A82

Invited Seminars

National:

02/2015 Monell Chemical Senses Center

01/2015 University of Louisville, Department of Anatomical Sciences and Neurobiology

01/2015 Florida State University, Department of Biology. “Gene therapy for the restoration of olfactory function”

10/2014: Monell Chemical Senses Center.

10/2014: University of Florida, Department of Neuroscience.

06/2014: University of Florida: Center for Smell and Taste. “Restoration of olfactory function using gene therapy”

02/2012: University of Michigan: Hearing, Balance and Chemical Senses Seminar Series. “Olfactory cilia: Connecting Sensory Perception and cilia function with Human Disease.

12/2011: Grand Valley State University: “Olfactory cilia: Connecting Sensory Perception and cilia function with Human Disease.

International

11/2014: University of Saarland School of Medicine. Homburg, Germany. “*In Vivo* analysis of mammalian cilia ultrastructure, function and restoration using gene therapy approaches”

Teaching

Courses

2012: Neurosci 614: Sensory Systems. Comprehensive introductory neuroscience course for doctoral students. Taught 4 lecture hours covering neurobiology of olfaction.

2013: MIP 592: Integrative Neuroscience. Master’s level survey course covering basic principles in neuroscience. Taught 2 lecture hours covering neurobiology of olfaction.

Undergraduates Supervised

2016: Namitha Thotli, Yasemin Kahveci, Sydney Weisman. University of Florida

2015: Dana Shively, University of Florida

2013: Ian Dillingham, University of Michigan student

2010: John Escobado, University of Michigan, SROP student

Service

Departmental

University

Society:

Networking Committee Member; Association for Chemoreception Sciences

Reviewer

2014: PLoS One

Community

2013-current: Member, Mentoring Committee. Association for Chemoreception Sciences

2014 Judge, Kanapaha Middle School Science Fair. Gainesville, FL

2013: Judge, Pioneer High School Science Fair. Ann Arbor MI

2011-2012: Judge, St Francis Academy Science Fair. Ann Arbor, MI