

BIOGRAPHICAL SKETCH

Alan J. Nighorn
Professor and Dept Head

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A. Preparation

University of Wisconsin-Madison	BS	1986	Biochemistry
Baylor College of Medicine, Houston, TX	Ph.D.	1993	Cell Biology

B. Appointments

1987-91 Research Assistant, Dept. of Cell Biology, Baylor College of Medicine, Houston, TX
1991-93 Research Assistant, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY
1993-94 Research Associate, ARLDN, University of Arizona
1994-1997 NIH Postdoctoral Fellow with Dr. John Hildebrand and Dr. David Morton . ARLDN,
University of Arizona, Tucson, AZ
1997-1999 Research Associate with Dr. John Hildebrand and Dr. David Morton. ARLDN, University
of Arizona. Tucson, AZ
1999 - 2005 Assistant Professor, ARL Division of Neurobiology, University of Arizona, Tucson, AZ
2000 - 2005 Assistant Professor, Molecular and Cellular Biology Dept., Univ. of Arizona, Tucson, AZ
2005 - 2011 Associate Professor, ARL Division of Neurobiology, University of Arizona, Tucson, AZ
2005 - 2011 Associate Professor, Molecular and Cellular Biology Dept., Univ. of Arizona, Tucson, AZ
2011 – present Professor and Associate Head, Dept of Neuroscience, Univ. of Arizona, Tucson, AZ
2011 – present Professor, Molecular and Cellular Biology Dept., Univ. of Arizona, Tucson, AZ
2014- present Professor and Department Head, Dept of Neuroscience, Univ of Arizona, Tucson AZ

C. Selected Peer-Reviewed Publications. (17 out of 36 total)

Kaneko, M and **Nighorn A.** (2003) Inter-axonal Eph-ephrin signaling may mediate sorting of olfactory sensory axons in *Manduca Sexta*. *J. Neuroscience*. **23**:11523-38

Collmann, C., Carlsson, M., Hansson, B. and **Nighorn, A.** (2004) Odorant-evoked nitric oxide signals in the antennal lobe of *Manduca sexta*. *J. Neuroscience* 24: 6070-6077.

Dacks, A.M., Dacks, J.B., Christensen, T.C., and **Nighorn, A.J.** (2006) The cloning of one putative octopamine receptor and two putative serotonin receptors from the tobacco hawkmoth, *Manduca sexta*. *Insect Biochem Mol Biol*. 2006 Sep;36(9):741-7.

Vidovic, M., **Nighorn, A.**, Koblar, S., and Maleszka, R. (2007) Eph receptor and ephrin signaling in developing and adult brain of the honeybee (*Apis mellifera*). *J Neurobiol*. February 67(2) : 233-251

Coate, T.M., Swanson, T.L., Proctor, T.M., **Nighorn, A.J.**, and Copenhaver P.F. (2007) Eph receptor expression defines midline boundaries for ephrin-positive migratory neurons in the enteric nervous system of *Manduca sexta*. *J. Comp. Neurol.* 502(2):175-91

Settembrini, B., Coronel, M., Nowicki, S., **Nighorn, A.**, and Villar, M. (2007) Distribution and characterization of nitric oxide synthase in the nervous system of *Tritoma infestans* (Insecta: Heteroptera). *Cell Tis. Res.* 328(2):421-30

Wilson, C., Christensen, T.A., and **Nighorn, A.** (2007) Inhibition of nitric oxide and soluble guanylyl cyclase signaling affects olfactory neuron activity in the moth, *Manduca sexta*. *J Comp Physiol A* 193(7):715-28.

Hu X, Murata LB, Weichsel A, Brailey JL, Roberts SA, **Nighorn A**, Montfort WR. (2008) Allosteric in recombinant soluble guanylyl cyclase from *Manduca sexta*. *J Biol Chem.* 283(30):20968-77

Dacks AM, Green DS, Root CM, **Nighorn AJ**, Wang JW. (2009). Serotonin modulates olfactory processing in the antennal lobe of *Drosophila*. *The Journal of Neurogenetics.* 23(4):366-77.

Dacks, A., Reisenman, C., Paulk, A. and **Nighorn, A.** (2010) Histamine-immunoreactive local neurons in the antennal lobes of the Hymenoptera. *J. Comp. Neurol.* 518(15):2917-33.

Dacks, A. and **Nighorn, A.** (2011) The Organization of the Antennal Lobe Correlates Not Only with Phylogenetic Relationship, But Also Life History: A Basal Hymenopteran as Exemplar. *Chemical Senses.* Jan;36(2):209-20

Higgins, M., Miller, M., and Nighorn, A. (2012). Nitric oxide has differential effects on currents in different subsets of *Manduca sexta* antennal lobe neurons *PLOS One.* 2012;7(8):e42556. doi: 10.1371/journal.pone.0042556

Dacks A.M., Riffell J.A., Martin J.P., Gage S.L., and **Nighorn A.J.** (2012) Olfactory modulation by dopamine in the context of aversive learning. *J Neurophysiol.* 108(2):539-50

Gage SL, Daly KC, **Nighorn A** (2013) Nitric oxide affects short-term olfactory memory in the antennal lobe of *Manduca sexta*. *J Exp Biol.* 2013 Sep 1;216(Pt 17):3294-300. doi: 10.1242/jeb.086694.

Dacks AM, Reale V, Pi Y, Zhang W, Dacks JB, **Nighorn AJ**, Evans PD. (2013) A characterization of the *Manduca sexta* serotonin receptors in the context of olfactory neuromodulation. *PLoS One.* 2013 Jul 29;8(7):e69422. doi: 10.1371/journal.pone.0069422.

Gage SL, Daly KC, **Nighorn A** (2013) Nitric oxide affects short-term olfactory memory in the antennal lobe of *Manduca sexta*. *J Exp Biol.* 2013 Sep 1;216(Pt 17):3294-300. doi: 10.1242/jeb.086694.

Gage SL and **Nighorn A.** (2014) The role of nitric oxide in memory is modulated by diurnal time. *Front Syst Neurosci* Apr;8:59

D. Research Support

Nitric Oxide Signaling in a Model Olfactory System

Role: Principal Investigator

Agency : National Institutes of Health: National Institute on Deafness and other Communication Disorders

Type: Individual R01 (DC04292-06)

Period : 4/1/06 – 3/31/12

The main goal of this project is understanding the role of odor-induced production of nitric oxide in the antennal lobe.

Glial and Axonal Interactions Mediating Olfactory Receptor Axon Sorting

Role: Co-Principal Investigator (consultant)

Agency: National Institutes of Health: National Institute on Deafness and other Communication Disorders

Type: Individual R01 (DC0 DC008597-01)

Period : 6/1/07 – 5/31/12

The main goal of this project is to identify and characterize the molecular interactions between growing axons and glial cells that shape the development of the antennal lobe.

Identification and Characterization of Guanylyl Cyclase Isoforms

Role: Principal Investigator: Alan Nighorn, Ph.D.

Agency: NSF/IBN Grant # 9604536 Period: 3/1/97 – 2/29/00

The major goal of this project was to clone soluble guanylyl cyclase and nitric oxide synthase from *Manduca sexta* and examine their expression patterns in the adult and developing olfactory system using in-situ hybridization.

Aminergic Modulation Underlying Olfactory Plasticity

Role: Principal Investigator

Agency: National Institutes of Health: National Institute on Deafness and other Communication Disorders

Type: Individual R01 (DC005652-05)

Period : 4/1/03 – 2/29/08

The main goal of this project is understanding olfactory function and learning.

Neural Development: Intercellular and Humoral Control

Role: CO-principal Investigator

Agency: National Institutes of Health: National Institute on Neurological Disorders and Stroke

Type: Program project grant (2P01 NS28495)

Period: 7/1/01 – 6/30/06

I am a co-PI on project 5 (Development of Sexually Dimorphic Olfactory Glomeruli), one goal of which is the molecular characterization of the development of the MGC, a male specific glomerulus in the antennal lobe of *Manduca sexta*.