

Curriculum Vitae

Megumi Fuse

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Citizenship US

Associate Professor

San Francisco State University 2007-present

Assistant Professor

San Francisco State University 2001-2007

Postdoctoral Fellow

University of Washington, Zoology: Dr. J.W. Truman 1998-2001

Education

Ph.D. University of Toronto, Zoology: Supervisor: Dr. I. Orchard 1993-1998

M.Sc. York University, Biology: Supervisor: Dr. K.G. Davey 1988-1990

B.Sc. University of Toronto, Mathematics/Biology: Supervisor: Dr. J. Machin 1982-1987

Scholarships, Grants and Awards

San Francisco State University

San Francisco, California

- 2012-2015 **NIH NIGMS-SC2 Grant, NIH** (\$528,255)
- 2010-2011 CSU Faculty-Student Collaborative Research Seed Grant, CSUPERB
- 2010 Center for Computing for Life Sciences (CCLS) Grant, SFSU
- 2009 Sabbatical, SFSU and UC Berkeley
- 2008 Center for Computing for Life Sciences (CCLS) Grant, SFSU
- 2008 SFSU Summer Stipend Award, SFSU
- 2007 Vice Presidential Mini Grant, SFSU
- 2007 Faculty Affirmative Action Award, SFSU
- 2006 Faculty Affirmative Action Award, SFSU
- 2005 Center for Computing for Life Sciences (CCLS) Grant, SFSU
- 2005-2006 CSU Faculty-Student Collaborative Research Seed Grant, CSUPERB
- 2004 Faculty Travel Grant Program, CSUPERB
- 2004 Presidential Professional Development Award, SFSU
- 2003-2007 Biomedical Research at San Francisco State University (subproject contribution to develop a Cell and Molecular Imaging Research Facility), NIH-RIMI
- 2003-2007 **MBRS-SCORE Grant, NIH** (\$ 671,279)
- 2003 Vice Presidential Mini Grant, SFSU
- 2002-2003 **National Research Initiative Grant, USDA** (\$66,000)
- 2002 Vice Presidential Assigned Time Award, SFSU
- 2002 Vice Presidential Mini Grant, SFSU
- 2001-2004 RIMI participant, NIH

University of Washington

Seattle, Washington

- 2000-2002 NRI Post Doctoral Fellowship, USDA
- 1998-2000 Post Doctoral Fellowship, NSERC (Canada)

University of Toronto

Toronto, Ontario

- 1996-1997 Ramsay Wright Scholarship, University of Toronto
- 1994-1997 Ontario Graduate Scholarship, University of Toronto

- 1993-94 Graduate Open Fellowship, University of Toronto
1987 Ann Shepard Undergraduate Zoology Scholarship, University of Toronto
1985 Varsity Archery Championship, University of Toronto
1985 Athlete of the Week Award, University of Toronto
1984 Varsity Archery Championship, University of Toronto
1994 Helen Battle Poster Award, Canadian Society of Zoologists Conference
University of British Columbia Vancouver, British Columbia
1991-1992 British Columbia Graduate Fellowship (declined), University of British Columbia
York University North York, Ontario
1990-1991 Faculty of Arts and Science MSc Thesis Award Nomination, York University

Publications

- Wadsworth T+, Carriman A*+, Gutierrez A*+, AMoffatt C, **Fuse M**. Characterizing ecdysis in the stick insect, *Carausius morosus*. (Resubmitted after revisions to *J Insect Physiol*)
- Shimoide A+, Kimball I+, Gutierrez A*#, Lim H+, Yoon I, Birmingham JT, Singh R, **Fuse M** (2013) Quantification and analysis of ecdysis in the hornworm, *Manduca sexta*, using machine vision-based tracking. *J Invert Neurosci* 13:45-55.
- Asuncion-Uchi M+*, El Shawa H+, T Martin, **Fuse M** (2010). Different actions of Ecdysis-Triggering Hormone on the brain and ventral nerve cord of the hornworm, *Manduca sexta*. *Gen Comp Endo* 166(1):54-65.
- Drexler A+*, Harris CC+*, dela Pena MG#*, Asuncion-Uchi M+*, Chung S, Webster S, **Fuse M** (2007). Molecular characterization and cell-specific expression of an Ion Transport Peptide in the tobacco hornworm, *Manduca sexta*. *Cell Tissue Res* 329(2):391-408.
- Wells C#*, Aparicio K#*, Salmon A+, Zadel A#, **Fuse M** (2006). Structure Activity Relationship of ETH during ecdysis in the tobacco hornworm, *Manduca sexta*. *Peptides* 27(4):698-709
- Shimoide A+, Yoon I, **Fuse M**, Beale HC#, Singh R (2005). Automated Behavioral Phenotype Detection and Analysis Using Color-Based Motion Tracking. *Proc 2nd Canadian Conf Comp Robot Vis (CRV 2005)*. IEEE Computer Society Press, pg.370-377.
- Fuse M**, Truman JW (2002). Modulation of ecdysis in the moth, *Manduca sexta*; the roles of the subesophageal and thoracic ganglia. *J Exp Biol* 205(8):1047-1058.
- Lee E, Lange A, Orchard I, **Fuse M**, Tobe SS, Bendena WG, Donly BC (2002) Characterization and baculovirus-directed expression of a myosuppressin encoding cDNA from the true armyworm, *Pseudaletia unipuncta*. *Peptides* 23(4):747-756.
- Fuse M**, Zhang JR, Partridge E, Nachman RJ, Orchard I, Bendena WG, Tobe SS (1999). Effects of an allatostatin and a myosuppressin on midgut carbohydrate enzyme activity in the cockroach *Diploptera punctata*. *Peptides* 20(11):1285-1293.
- Fuse M**, Orchard I (1998). The muscular contractions of the midgut of the cockroach, *Diploptera punctata*: effects of the insect neuropeptides proctolin and leucomyosuppressin. *Reg Peptides* 77:163-168.
- Fuse M**, Bendena WG, Donly BC, Tobe SS, Orchard I (1998). *In situ* hybridization analysis of leucomyosuppressin mRNA expression in the cockroach *Diploptera punctata*. *J Comp Neurol* 395(3):328-341
- Bendena WG, Donly BC, **Fuse M**, Lee E, Lange AB, Orchard I, Tobe SS (1997). Molecular characterization of the inhibitory myotropic peptide leucomyosuppressin. *Peptides* 18(1):157-163.
- Fuse M**, Ali DW, Orchard I (1996). The distribution and partial characterization of FMRFamide-related peptides in the salivary glands of the locust, *Locusta migratoria*. *Cell Tissue Res* 284(3):425-433
- Donly BC, **M Fuse**, Orchard I, Tobe SS, Bendena WG (1996). Characterization of the gene for leucomyosuppressin and its expression in the brain of the cockroach *Diploptera punctata*. *Insect Biochem Mol Biol* 26(6):627-637
- Fuse M**, KG Davey, RI Sommerville (1993). Osmoregulation in the parasitic nematode *Pseudoterranova decipiens*. *J Exp Biol* 175:127-142
- Fuse M**, Davey KG, Sommerville RI (1993). Water compartments and osmoregulation in the parasitic nematode *Pseudoterranova decipiens*. *J Exp Biol* 175:143-152

Davey KG, Sommerville RI, **Fuse M** (1993). Stress-induced failure of osmoregulation in the parasitic nematode *Pseudoterranova decipiens*: indirect evidence for hormonal regulation. *J Exp Biol* 180:263-271

Non-refereed Publications

Vaughan A, Singh R, Shimoide A+, Yoon I, **Fuse M** (2005). EigenPhenotypes: Towards an Algorithmic Framework for Phenotype Discovery. *Proc 2005 IEEE Computat Systems Bioinform Conf*. IEEE Computer Society Press, pg. 77-78

Fuse M, Orchard I (1997). Putative roles for the neuropeptide leucomyosuppressin in the midgut of the cockroach, *Diploptera punctata*. In: S Kawashima, S Kikuyama, ed. Advances in comparative endocrinology: *Proc XIII Int Cong Comp Endocrin*. Italy: Monduzzi Editore, 619-622.

Orchard I, Donly BC, Fuse M, Lange AB, Tobe SS, Bendena WG (1997). FMRFamide-related peptides in insects, with emphasis on the myosuppressins. In: BE Beckwith, A Saria, BM Chronwall, CA Sandman, FL Strand, ed. Neuropeptides in development and aging. New York: *Annals NY Acad Sci* 814:335-338.

Publications in preparation (* URM / # undergrad / + grad)

McMackin M*+, Lewin M, Moffatt C, **Fuse M**. Modification of the up-down method to assess nociceptive sensitization in the insect, *Manduca sexta*. (In preparation for *J Neurosci Meth*. To be submitted Aug 1)

Merchasin E+, McMackin M*+, Iwasaki K#, Lewin M, Moffatt C, **Fuse M**. Characterizing the defensive strike response of larval *Manduca sexta*. (In preparation for *J Insect Physiol*. To be submitted Aug 1)

Presentations

Invited Seminars (URM / # undergrad / + grad)*

Fuse M (2012) A new insect model for studying immune and endocrine responses to tissue damage.

ESSIG Graduate Students in Entomology Colloquium, UC Berkeley, CA.

Fuse M (2011). Systemic Responses during tissue regeneration, after X-ray damage. SFSU Colloquium in Microbiology, Cell and Molecular Biology.

Fuse M (2011). Biomedical Bugs: use of *Manduca sexta* for studies in neuromodulation and tissue regeneration. Bodega Marine Lab Seminar Series.

Fuse M (2006). Shedding light on the neural regulation of ecdysis in insects. SFSU Dept. Seminar Series, San Francisco, CA.

Drexler A*+, Harris CC*+, **M Fuse** (2005). Partial Characterization of a Crustacean Hyperglycemic Hormone-like peptide in the tobacco hornworm, *Manduca sexta*. Invertebrate Neuropeptide Conference (INC), Chiang Mai, Thailand.

Fuse M, Asuncion-Uchi M*+, A Vaughan (2005). ETH and EH act differentially on CCAP neurons during the initiation of ecdysis behaviors in the moth, *Manduca sexta*. INC, Chiang Mai, Thailand.

Fuse M, Truman JW (2001). Interactions between Ecdysis-Triggering Hormone and Eclosion Hormone in the activation of ecdysis in the moth, *Manduca sexta*. INC, Feb, Playa Del Carmen, Mexico.

Fuse M (2000). Hormonal regulation of complex behaviors; ecdysis in insects. Departmental Seminar, San Francisco State University, San Francisco, California, USA.

Fuse M (2000). Hormonal regulation of complex behaviors; ecdysis in insects. Departmental Seminar, Penn State Erie University, Erie, Pennsylvania, USA.

Fuse M (2000). Hormonal regulation of complex behaviors; ecdysis in insects. Departmental Seminar, Western Michigan University, Kalamazoo, Michigan, USA.

Fuse M, Truman JW (2000). Modulation of the timing of ecdysis in the moth, *Manduca sexta*. Western Nerve Net, Montana State University, Bozeman, Mo, USA.

Fuse M, Truman JW (1999). Timing of ecdysis in the moth is mediated in part by descending inhibition from the head. Symposium Session, International Congress of Comparative Biochemistry and Physiology, University of Calgary, Alberta, Canada.

Oral Presentations (* URM / # undergrad / + grad)

- Silva N*+, Miry S#, Omondi C*+, Abdon B*#, Njie C*#, Ramos L*+, **Fuse M**^{PRESENTER} (2013). Systemic responses to ionizing irradiation-induced imaginal discs in the larval hornworm, *Manduca sexta*. Society for Integrative and Comparative Biology (SICB), San Francisco, CA (January 3-7).
- Fuse M**, Asuncion-Uchi M*+ (2004). The actions of Ecdysis-Triggering Hormone on the central nervous system of the tobacco hornworm, *Manduca sexta*. West Coast Nerve Net; Santa Clara University, Santa Clara, CA.
- Fuse M**, Truman JW (1999). Timing of ecdysis in the moth, *Manduca sexta*, is mediated in part by descending inhibition from the head. Western Nerve Net, Oregon Health Sciences University, Portland, Or, USA.
- Fuse M**, Donly BC, Orchard I, Tobe SS, Bendena WG (1996). Cloning and characterization of a myosuppressin in the cockroach *Diploptera punctata*. East Coast Nerve Net, Woodshole, Ma, USA.
- Fuse M**, M^cIntosh CH, Phillips JE (1993). The distribution of the ileal antidiuretic factor ScgITP, and related peptides, in the locust *Schistocerca gregaria*. XII International Congress of Comparative Endocrinology, Toronto, On, Canada.
- Fuse M**, Davey KG (1991). Short-term osmotic responses of the cod parasitic nematode *Phocanema decipiens*. Ontario Parasitological Meeting, U of T, Toronto, On, Canada.
- Fuse M**, Davey KG (1990). Water relations in a nematode. Spineless Society Meeting, York University, North York, On, Canada.

Poster Presentations (* URM / # undergrad / + grad)

- Fuse M**, Merchasin E+, McMackin M*+, Iwasaki K#, Ramos L*#, Moffatt C (2013). Characterization of nociceptive sensitization in larval *Manduca sexta*. Society for Neuroscience, San Diego, CA.
- Lopez M*+, **Fuse M** (2013). Irradiation damage causes changes to hormonally controlled developmental timing of tobacco hornworm, *Manduca sexta*. COSE Student Project Showcase, SFSU, San Francisco, CA.
- Stitt M#, Ramos L*+, **Fuse M** (*2013). The effects of insulin on developmental timing in *Manduca sexta*. COSE Student Project Showcase.
- Lopez M*+, Mai L#, Miller J+, Fuse M (2013). Irradiation damage interferes with hormonally controlled development of tobacco hornworm, *Manduca sexta*. Sigma Xi Student Research Conference, Research Triangle Park, NC.
- Hong T+, Miry S, Cisneros B*#, **Fuse M** (2013). Quantifying hemocyte population changes in *Manduca sexta* larvae after x-ray irradiation damage. Society for Integrative and Comparative Biology (SICB), San Francisco, CA.
- Ramos L*#, C Omondi+, **Fuse M** (2013). Developing a transfusion technique in the tobacco hornworm, *Manduca sexta*. SICB.
- Wadsworth T+, Carriman A*+, **Fuse M** (2013). Establishing the presence of a circadian rhythm regulating ecdysis in the stick insect, *Carausius morosus*. SICB.
- Njie C*+, Silva N*#, Abdon B*, **Fuse M** (2012). Quantification of PTH Levels in the brain of the *Manduca sexta* after Irradiation. ABRCMS, San Jose, CA. **PRESENTATION AWARD.**
- Ramos L*#, C Omondi+, **Fuse M** (2012). Developing a transfusion technique to evaluate the effects of bloodborne factors on larval development of the tobacco hornworm, *Manduca sexta*. ABRCMS.
- Canio D*+, Tayag V*#^{PRESENTER}, **Fuse M** (2012). The neuroendocrine regulation of ecdysis-triggering hormone on ecdysis behavior of decerebrated *Manduca sexta*. COSE Student Project Showcase, SFSU, San Francisco, CA. **HONORABLE MENTION.**
- Canio, D*+, Tayag, V*#, **Fuse M** (2012). The Role of the Brain and Ecdysis Hormone in Regulating Ecdysis behaviors in *Manduca sexta*. SFBang, UC Berkeley, Berkeley, CA.
- Carriman A*+ and **Fuse M** (2011). Characterizing ecdysis behavior in the stick insect, *Carausius morosus*. SFBang, UCSF, San Francisco, CA.
- Silva N*#, Miry S, **Fuse M** (2011). A new model for regeneration & repair: the immediate responses to irradiation from imaginal discs & hemocytes of larval *Manduca sexta*. ABRCMS, St. Louis, MO. **PRESENTATION AWARD.**
- Silva N*#, Miry S, **Fuse M** (2011). A new model for regeneration & repair: the immediate responses to irradiation from imaginal discs & hemocytes of larval *Manduca sexta*. SACNAS, San Jose, CA.

- Aveo A*#, **Fuse M** (2011). Ecdysis Triggering Hormone induces motor patterns during the intermolt period in the tobacco hornworm. COSE Student Project Showcase, SFSU, San Francisco, CA.
- Bera S+, Geibig J*#^{PRESENTER}, **Fuse M** (2011). Profiles of cGMP are altered during artificially-induced ecdysis behaviors in decerebrated *Manduca sexta*. COSE Student Project Showcase.
- Silva N*#, Miry S, **Fuse M** (2011). The immediate responses to irradiation from imaginal discs and hemocytes of larval *Manduca sexta*. COSE Student Project Showcase.
- Wadsworth T#, **Fuse M** (2011). Establishing the presence of a circadian rhythm regulating ecdysis behaviors in *Carausius morosus*, the stick insect. COSE Student Project Showcase.
- Canio D*#, Geibig J*#, Bera S+, **Fuse M** (2010). Multiple injections of Ecdysis Triggering Hormone rescue lost ecdysis behaviors in decerebrated *Manduca sexta*. ABRCMS Conference, Charlotte, NC.
- Geibig J*#, Canio D*#, Bera S+, **Fuse M** (2010). Profiles of cGMP are Altered During Artificially-Induced Ecdysis Behaviors in Decerebrated *Manduca sexta*". ABRCMS Conference.
- Tamvacakis A+, Aveo A*#^{PRESENTER}, Buis T#, **Fuse M** (2010). Ecdysis Triggering Hormone induces motor patterns during the intermolt period in the tobacco hornworm. ABRCMS Conference. **BEST POSTER IN THE NEUROSCIENCE CATEGORY.**
- Aveo A*+, **Fuse M** (2010). Ecdysis Triggering Hormone induces fictive pre-ecdysis and ecdysis motor patterns during the intermolt period in the tobacco hornworm. COSE Student Project Showcase, SFSU, San Francisco, CA.
- Bera S+, Geibig J*#, **Fuse M** (2010). Characterizing cGMP regulation during ecdysis in *Manduca sexta*. COSE Student Project Showcase.
- Miry S, Omondi C*+, **Fuse M** (2010). Adenosine delays pupation in *Manduca sexta* in a manner similar to that found during tissue regeneration. COSE Student Project Showcase.
- Aveo A*#, **Fuse M** (2010). Ecdysis Triggering Hormone Induces Fictive Pre-ecdysis and Ecdysis Motor Patterns During the Intermolt Period in the Tobacco Hornworm. West Coast Undergraduate Biological Conference, Santa Clara University, Santa Clara, CA.
- Miry S, Omondi C*+, **Fuse M** (2010). Adenosine delays pupation in *Manduca sexta* in a manner similar to that found during tissue regeneration. West Coast Undergraduate Biological Conference.
- Ramos L*#, C Omondi+, Halme A, **Fuse M**^{PRESENTER} (2010). Ionizing irradiation produces a delay in pupation in the hornworm, *Manduca sexta*. SICB Conference, Seattle, WA.
- Carriman A*+, **Fuse M** (2009). Characterizing Ecdysis Behaviors In The Stick Insect. Pacific AAAS Conference, SFSU, San Francisco, CA.
- Mendoza L+*, R Ea+, **Fuse M** (2009). Determination of the Neurotransmitter that Inhibits the CNS During Ecdysis in the Hornworm, *Manduca sexta*. Pacific AAAS Conference. **3rd PLACE.**
- Ramos L*#, C Omondi+, **Fuse M** (2009). Ionizing irradiation produces a delay in pupation in the hornworm, *Manduca sexta*. Pacific AAAS Conference. **HONORABLE MENTION.**
- Carriman A*+, **Fuse M** (2009). Describing ecdysis behavior in stick insects. COSE Student Project Showcase, SFSU, San Francisco, CA.
- Ea R+, **Fuse M** (2009). The role of leucokinin immunoreactivity in the tobacco hornworm, *Manduca sexta* in the process of ecdysis. COSE Student Project Showcase, SFSU, San Francisco, CA.
- Iwasaki K#, **Fuse M** (2008). Characterization of nociceptive sensitization during development in larval *Manduca sexta*. COSE Student Project Showcase. **HONORABLE MENTION.**
- Kimball I+, Howard M+, Gutierrez A*#, Yoon I, **Fuse M** (2008). Modeling of insect ecdysis motor patterns: analysis of a complex behavior via video-tracking and electrophysiological recording. COSE Student Project Showcase.
- Mendoza L+*, Bera, S+, **Fuse M** (2009). Determination of the Neurotransmitter that Inhibits the CNS During Ecdysis in the Hornworm, *Manduca sexta*. COSE Student Project Showcase.
- Dias A#, **Fuse M** (2008). The Influence of Ion Transport Peptide on Glucose Regulation in the Different Developmental Stages of *Manduca sexta*. COSE Student Project Showcase, SFSU, San Francisco, CA.
- Tamvacakis A+, **Fuse M** (2008). Ecdysis Triggering Hormone is active in vitro in intermolt larval *Manduca sexta* nervous systems. Southeast Nerve Net, Georgia, CA.
- Merchasin E+, **Fuse M** (2008). Characterization of nociceptive sensitization in larval *Manduca sexta*. Society for Integrative and Comparative Biology (SICB), San Antonio, TX.
- Tamvacakis A+, **Fuse M** (2008). Ecdysis Triggering Hormone is active in intermolt larval *Manduca sexta* nervous systems. SICB.

- Tamvacakis A+, **Fuse M** (2007). Ecdysis Triggering Hormone is active in intermolt larval *Manduca sexta* nervous systems. Society for Neuroscience, San Diego, CA.
- dela Pena MGA##, **Fuse M** (2007). Changes in Diuretic Hormone immunoreactivity in transverse nerves of the tobacco hornworm, *Manduca Sexta*, suggest a role during ecdysis. COSE Student Project Showcase, SFSU, San Francisco, CA.
- Dias A#, **Fuse M** (2007). Identifying an appropriate blood sugar assay for the tobacco hornworm, *Manduca sexta*. COSE Student Project Showcase. **HONORABLE MENTION**.
- El Shawa H#, **Fuse M** (2007). The actions of Ecdysis Triggering Hormone (ETH) on the ventral nerve cord during ecdysis in the tobacco hornworm, *Manduca sexta*. COSE Student Project Showcase. **4TH PLACE**.
- Tamvacakis A+, **Fuse M** (2007). Ecdysis Triggering Hormone is active in intermolt larval *Manduca sexta* nervous systems. COSE Student Project Showcase.
- Merchasin E+, **Fuse M** (2007). Sensitization of defensive responses induced by noxious stimuli in the hornworm, *Manduca sexta*. Graduate Student Project Showcase, SFSU, San Francisco, CA.
- Kimball I+, Tamvacakis A+, **Fuse M** (2007). Developing an RNA interference protocol to knock down Ecdysis Hormone in *Manduca sexta*. CSUPERB Conference, San Diego, CA.
- El Shawa H+, **Fuse M** (2007). The actions of Ecdysis Triggering Hormone on the ventral nerve cord of the hornworm, *Manduca sexta*. Society for Integrative and Comparative Biology (SICB), Phoenix, AZ.
- Gutierrez A##, Shimoide A+, Ebanks T##, Salmon A+, Yoon I, **Fuse M** (2006). Videographic and electrophysiological analysis of ecdysis behaviors in the larvae and pupae of the tobacco hornworm, *Manduca sexta*. SICB, Orlando, FA.
- Ayala C+*, **Fuse M** (2005) Artificially prolonging ecdysis behaviors in the tobacco hornworm, *Manduca sexta*, induces sustained cGMP levels in neurons of the ventral nerve cord. SACNAS, Denver, CO.
- dela Pena MGA##, Drexler A+*, **Fuse M** (2005). Distribution of CHH-like immunoreactivity in two pupal stages of the tobacco hornworm, *Manduca sexta*. SACNAS.
- Gutierrez A##, Vaughan A, Shimoide A+, Yoon I, Singh R, **Fuse M** (2005). Video analysis of naturally-occurring and artificially-induced ecdysis behaviors in the tobacco hornworm, *Manduca sexta*. SACNAS.
- Vaughan A, Singh R, Shimoide A+, Yoon I, **Fuse M** (2005). EigenPhenotypes: Towards an algorithmic framework for phenotype discovery. Proceedings of the 2005 IEEE Computational Systems Bioinformatics conference. Stanford University, CA.
- Shimoide A+, Yoon I, **Fuse M**, Beale HC#, Singh R (2005). Automated behavioral phenotype detection and analysis using color-based motion tracking. Second Canadian Conference on Computer and Robot Vision (CRV 2005), IEEE Computer Society Press, Victoria, BC, Canada.
- dela Pena MGA##, Drexler A+*, **Fuse M** (2005). Developmental characterization of a CHH-like neuropeptide in the hornworm, *Manduca sexta*. COSE Student Project Showcase, SFSU, San Francisco, CA.
- Gutierrez A##, Vaughan A, Shimoide A+, Yoon I, Singh R, **Fuse M** (2005). Video analysis of ecdysis behaviors in the tobacco hornworm, *Manduca Sexta*. COSE Student Project Showcase.
- Salmon A+, Wells C##, **Fuse M** (2005). Structure-function analysis of Ecdysis Triggering Hormone activity in *Manduca sexta*. COSE Student Project Showcase.
- dela Pena MGA##, Drexler A+*, **Fuse M** (2005). Developmental characterization of a CHH-like Neuropeptide in the Hornworm, *Manduca sexta*. West Coast Biological Undergraduate Conference, University of Santa Clara, Santa Clara, CA.
- Gutierrez A##, Vaughan A, Shimoide A+, Yoon I, Singh R, **Fuse M** (2005). Video analysis of ecdysis behaviors in the tobacco hornworm, *Manduca Sexta*. West Coast Biological Undergraduate Conference.
- Drexler A+*, Harris C+*, **Fuse M** (2005). Partial characterization of a Crustacean Hyperglycemic Hormone-like peptide in the tobacco hornworm, *Manduca sexta*. Invertebrate Neuropeptide Conference, Chiang Mai, Thailand.
- Ayala C+*, **Fuse M** (2004) Assessing timing of cellular inactivation of ecdysis-triggering neurons in the hornworm, *Manduca sexta*. Society for Advancement of Chicanos and Native Americans in Science (SACNAS), Austen, TX.

- Salmon A+, Wells C#*, Zadel A#, **Fuse M** (2004). Structure-function analysis of ecdysis triggering hormone activity in *Manduca sexta*. Society for Neuroscience Conference, San Diego, CA.
- Wells C#*, Aparicio K#*, Salmon A+, Zadel A#, **Fuse M** (2004). *In vitro* analysis of Ecdysis Triggering Hormone (ETH): Establishing a structure-activity relationship. Gordon Conference on Neural Development, Salve Regina University, Newport, RI.
- Wells C#*, Aparicio K#*, **Fuse M** (2004). Receptor-ligand interactions of Ecdysis-Triggering Hormone. AAAS Conference, Seattle, WA.
- Harris CC+*, Drexler A+* (equal authorship with CCH), **Fuse M** (2004). Novel players in ecdysis regulation: A molecular characterization of Crustacean Hyperglycemic Hormone in *Manduca sexta*. COSE Student Showcase, SFSU.
- Modilevsky L#, Orchanian C# (equal authorship with LM), Lewin M, **Fuse M** (2004). Effects of isolation and crowding on nociceptive sensitization in the caterpillar, *Manduca sexta*. COSE Student Showcase.
- Drexler A+*, Harris C+*, **Fuse M** (2004). The Crustacean Hyperglycemic Hormones: Novel players in ecdysis regulation? A molecular characterization in the tobacco hornworm, *Manduca sexta*. California State University Competition; San Francisco State University, SF, CA.
- Ayala C+*, **Fuse M** (2004). Effects of decapitation on cellular activation during ecdysis in the tobacco hornworm, *Manduca sexta*. West Coast Nerve Net; Santa Clara University, Santa Clara, CA.
- Salmon A+, Wells C#*, Zadel A#, **Fuse M** (2004). Structure-function analysis of Ecdysis Triggering Hormone activity in *Manduca sexta*. West Coast Nerve Net.
- Beale H#, **Fuse M** (2003). Computer analysis of whole animal behaviors: A novel method of analyzing insect ecdysis. Society for Neuroscience Conference, New Orleans, LA.
- Beale H#, **Fuse M** (2003). Computer analysis of whole animal behaviors: A novel method of analyzing insect ecdysis. Pacific AAAS Conference, San Francisco, CA.
- Harris C+*, Asuncion-Uchi M+*, **Fuse M** (2003). Crustacean Hyperglycemic Hormone, a possible endocrine regulator of ecdysis in the Tobacco Hornworm, *Manduca Sexta*. Pacific AAAS Conference.
- Wells C#*, Aparicio K#*, **Fuse M** (2003). Receptor-ligand interactions of Ecdysis-Triggering Hormone. Pacific AAAS Conference. **Runner up for National AAAS conference competition.**
- Harris CC+*, Asuncion-Uchi M+*, **Fuse M** (2003). Identification of a CHH-like peptide in *Manduca sexta*. COSE Student Showcase, SFSU.
- Wells C#*, Aparicio K#*, **Fuse M** (2003). Receptor-ligand interactions of Ecdysis-Triggering Hormone. COSE Student Showcase. **3rd Place.**
- Asuncion-Uchi M+*, Harris CC+*, **Fuse M** (2003). Possible Roles of Leucokinin and *Mas*-DH in Ecdysis in the tobacco hornworm, *Manduca sexta*. California State University Competition; San Francisco State University, SF, CA.
- Harris CC+*, **Fuse M** (2003). Possible roles of CHH during ecdysis in *Manduca Sexta*. California State University Competition.
- Wells C*#, Aparicio K#*, **Fuse M** (2003). Activity of Ecdysis Triggering Hormone analogs in the tobacco hornworm, *Manduca sexta*. International Conference of Comparative Physiology and Biochemistry, Sydney, Australia. **BEST STUDENT POSTER.**
- Asuncion-Uchi M*+, Harris CC*+, **Fuse M** (2003). Identification of putative regulators of ecdysis in the tobacco hornworm, *Manduca sexta*. Invertebrate Neuropeptide Conference (INC), Tasman, Australia.
- Wells C#*, Aparicio K#*, **Fuse M** (2003). Activity of Ecdysis Triggering Hormone analogs in the tobacco hornworm, *Manduca sexta*. INC.
- Wells C#*, Aparicio K*#, **Fuse M** (2003). Receptor-ligand interactions of Ecdysis-Triggering Hormone. COSE Student Showcase, SFSU. **3rd Place.**
- Harris C*+, Asuncion-Uchi M*+, *Fuse M* (2002). Preliminary characterization of a brain-gut peptide family in the moth, *Manduca sexta*. Annual Biomedical Research Conference for Minority Students (ABRCMS), New Orleans, LA.
- Beale H#, **Fuse M** (2003). Computer Analysis of Whole Animal behaviors: A novel method of analyzing insect ecdysis. Pacific AAAS Conference, San Francisco, CA.

- Harris C*+, Asuncion-Uchi M*+, **Fuse M** (2003). Crustacean Hyperglycemic Hormone, a possible endocrine regulator of ecdysis in the Tobacco Hornworm, *Manduca Sexta*. Pacific AAAS Conference, San Francisco, CA.
- Wells C*#, Aparicio K*#, M Fuse (2003). Receptor-ligand interactions of Ecdysis-Triggering Hormone. Pacific AAAS Conference, San Francisco, CA. **Runner up for Student National AAAS conference competition.**
- Harris C*+, Asuncion-Uchi M*+, Fuse M (2002). Preliminary characterization of a brain-gut peptide family in the moth, *Manduca sexta*. Annual Biomedical Research Conference for Minority Students (ABRCMS), New Orleans, LA.
- Wells C*#, **Fuse M** (2002). Examination of Receptor-ligand interactions of ETH. Annual Biomedical Research Conference for Minority Students (ABRCMS), New Orleans, LA.
- Fuse M**, Tobe SS, Orchard I^{PRESENTER} (1998). Leucomyosuppressin in *Diploptera punctata*: mRNA expression and physiological effects. 19th Conference of European Comparative Endocrinologists, Nijmegen, Netherlands.
- Fuse M**, Orchard I (1998). The actions of leucomyosuppressin and proctolin on the midgut of the cockroach, *Diploptera punctata*. East Coast Nerve Net, Woodshole, MA, USA.
- Fuse M**, Asimakopoulos S, Orchard I (1997). Do FMRFamide-related peptides play a role in the control of locust and stick insect salivary glands? Neuroscience, New Orleans, LA, USA.
- Lange AB^{PRESENTER}, Orchard I, **Fuse M** (1997). Biological action of myosuppressins on insect midgut. Society for Experimental Biology, University of Kent, Canterbury, UK.
- Fuse M**, Bendena WG, Donly BC, Tobe SS, Orchard I (1997). Distribution of a myosuppressin in the cockroach, *Diploptera punctata*. Insect Biotech Canada Conference and Workshops (IBC), Toronto, On, Canada.
- Fuse M**, Donly BC, Bendena WG, Tobe SS, Orchard I (1997). *In situ* hybridization analysis of leucomyosuppressin in the cockroach, *Diploptera punctata*. Canadian Society of Zoologists Conference (CSZ), University of Western Ontario, London, ON, Canada.
- Fuse M**, Orchard I (1997). What FMRFamide-related peptides don't do in locust salivary glands. East Coast Nerve Net, Woodshole, MA, USA.
- Fuse M**, Donly BC, Bendena WG, Tobe SS, Orchard I (1996). Distribution of a myosuppressin in the cockroach *Diploptera punctata*. IBC, Toronto, ON, Canada.
- Fuse M**, Donly BC, Bendena WG, Tobe SS, Orchard I (1996). Distribution of a myosuppressin in the cockroach *Diploptera punctata*. Southern Ontario Neuroscience Association (SONA), University of Toronto, Toronto, ON, Canada.
- Orchard I^{PRESENTER}, Donly BC, **Fuse M**, Lange AB, Tobe SS, Bendena WG (1996). FMRFamide-related peptides in insects, with emphasis on the myosuppressins. Winter Neuropeptide Conference, Breckenridge, CO, USA.
- Fuse M**, Donly BC, Orchard I, Tobe SS, Bendena WG (1995). FMRFamide-related peptides in the cockroach *Diploptera punctata*. SONA, McMaster University, Hamilton, ON, Canada.
- Fuse M**, Donly BC, Orchard I, Tobe SS, Bendena WG (1995). FMRFamide-related peptides in the cockroach *Diploptera punctata*. CSZ, Université de Québec, Rimouski, PQ, Canada.
- Fuse M**, Donly BC, Orchard I, Tobe SS, Bendena WG (1995). Demonstration of FMRFamide-related peptides in the cockroach, *Diploptera punctata*. FIPP Research Symposium, U of T, Toronto, ON, Canada.
- Fuse M**, Donly BC, Orchard I, Tobe SS, Bendena WG (1994). Demonstration of FMRFamide-related peptides in the cockroach *Diploptera punctata*. IBC, Toronto, ON, Canada.
- Fuse M**, Ali DW, Orchard I (1994). FMRFamide-related peptides in the salivary glands of the locust, *Locusta migratoria*. CSZ, University of Manitoba, Winnipeg, MA, Canada.
- Ali DW^{PRESENTER}, **Fuse M**, I Orchard (1994). The release of aminergic neurotransmitters in locust salivary glands, from the salivary neurons, SN1 and SN2. CSZ.
- Fuse M**, M^cIntosh CH, Phillips JE (1993). Development and application of a radioimmunoassay for the ileal antidiuretic factor from the locust *Schistocerca gregaria*. Zoology Graduate Student Symposium, UBC, Vancouver, BC, Canada.
- Fuse M**, Davey KG (1990). Short-term osmoregulation in the third stage larva of the nematode *Phocanema decipiens*. CSZ, Simon Fraser University, Burnaby, BC, Canada.

Professional Affiliations

Society for Neuroethology
Society for Neuroscience, East Bay Chapter
Faculty for Undergraduate Neuroscience (FUN)
American Physiological Society (APS)
Society for Comparative and Integrative Biology (SCIB)
Society for the advancement of Chicano and Native American Students (SACNAS)
American Association for the Advancement of Science (AAAS)
Society for Neuroscience (SFN)

Teaching Experience

San Francisco State University

BIOL 613: Human Physiology Labs (2002-2014)

Lecture and lab course

BIOL 620: Endocrinology (2001-2013)

Lecture course

BIOL 612: Human Physiology (SP2008, 2010)

Lecture course

BIOL 865: Physiology Research Methods (SP2007, 2010)

Graduate Seminar course

BIOL 865: Arthropod Physiology: Insect Physiology (SP2006, 2008, 2012)

Graduate Seminar course

BIOL 865: Physiological Integrations: Circadian Rhythms (F2002)

Graduate Seminar course

BIOL 631: Animal Physiology Lecture and Lab (F2001)

Lecture and lab course

CHEM 85: SFSU/CCSF Bridges to the Baccalaureate Program (SP2002-2004, 2007, 2010; F2005)

Joint City College of San Francisco/San Francisco State University seminar course, taught at City College

SFSU/CCSF Bridges to the Baccalaureate Summer Directed Research Program (Summer 2007-2008)

Joint San Francisco State University/City College of San Francisco 2-week summer research for 15 students (9am-5pm)

SFSU/CCSF Bridges to the Baccalaureate Summer Internship (Summer 2002-2003, 2005-2006, 2008-2009)

Joint San Francisco State University/City College of San Francisco summer lab research

BIOL 897 Graduate Research Project (2002-current)

BIOL 699 Undergraduate Independent Research Projects (2002-current)

Post-Baccalaureate NIH PREP Program Mentor (2007, 2009)

Graduate NIH RISE Graduate coordinator (2007-8, 2009-current)

Graduate NIH BRIDGE Graduate coordinator (2007-8, 2009-current)

Postdoctoral PROF Post-doc Mentor (Fall 2005)

Undergraduate NIH MARC student Mentor (2002-current)

Graduate NSF student Mentor (2002-current)

Undergraduate NIH Rise student Mentor (2002-current)

DOD Student Mentor (2002-2004)

OTHER

Graduate Teaching Assistant (1988-1997)

1993-1997: Introductory Animal Physiology (University of Toronto)

- Graded assignments, gave pre-lab lectures and technical support on the use of equipment such as oscilloscopes, force transducers, and spectrophotometers.

1991-1993: Introductory Biology, including botany and zoology (UBC)

- General teaching and created and ran a three week exercise physiology section with lectures, labs and seminars.

1988-1990: Second Year Animal Physiology (York University)

- Demonstrated in labs, graded assignments, and prepared and graded final lab exams

Paid Tutor (1992-1993)

1st Year Population Genetics (University of British Columbia)

- Aided a failing student in achieving a B grade in the final exam.

Academic Service: Campus

San Francisco State University

2013- current Co-organizer of the “Friends of Biology” Series for the Development Committee

2012- current Biology Development Committee (fundraising and alumni relations)

2012- current Biology Scholarship Review Committee

2012-current COSE members on the Academic Program Review Committee (APRC)

2012 Chair for Karen Crow-Sanchez’s RTP subcommittee

2012 CoSE Transfer Day for community college students

- Biology Department presenter

2012 Graduation Marshall for Biology

2011 Departmental Chair review committee

2007-current NIH MBRS-RISE Graduate coordinator

2007-current NIH-MA/PhD Bridge Graduate coordinator

2007-current Physiology Program Coordinator (Graduate and Undergraduate)

2007-current Physiology Graduate Advisor

2007 Graduation Marshall for Biology

2006-2008 Physiology Faculty hiring committee

2005-2007 CoSE Research and Program Development Committee

2005-2006 NIH postdoctoral PROF Program Mentor

2005-2006 Neurobiology Faculty hiring committee

2004-2005 CoSE Student Project Showcase judge

2004-2005 Conservation Genetics Lab MRI Grant Proposal for NSF

- Focus project contribution as co-PI

2004 CoSE Retreat Breakout Discussion Group Leader 2004

2004 Graduation Marshall for Biology

2004 Participant in CET focus group on student support resources

2003-2005 PROF Program participant, NIH (joint with UCSF)

2003-2005 COR Program participant, NIMH (SFSU Dept. of Psychology)

2003-2005 CoSE Research and Program Development Committee

2003-2004 Conservation Genetics Lab MRI Grant Proposal for NSF

- Focus project contribution

2003 CoSE Open House for high school and community college students

- Oral presenter (“Bugs Misbehaving”)

2003 SFSU Campus Open House

- Physiology Majors booth and bug demo in Hensill Hall

2003 CoSE Open House for high school and community college students

- Oral presenter (“Bugs Misbehaving”)

2003 Systems Physiology Faculty hiring committee

2003 RIMI Cell and Molecular Imaging Facility Development Committee

2002 Quantitative Ecologist Faculty Hiring Committee

2002 Benthic Invertebrate Faculty Hiring Committee

2001-2009 Undergraduate Advisor for Physiology

2001-2004 RIMI participant, National Institute of Health

OTHER

- 2000-2001 Post Doctoral Symposium Coordinator, University of Washington
- Created and ran the first annual post doctoral symposium at the University of Washington.
- 2000 University Strategic Planning Committee, University of Washington
- post-doctoral representation on the University-wide Strategic Planning Committee.
- 1988-1996 Zoology Graduate Student Union President
- 1995-1996: President, University of Toronto
- 1994-1995: Secretary, University of Toronto
- 1992-1993: Executive member, University of British Columbia
- 1989: Orientation week volunteer, York University
- Interacted with the graduate chair regarding student concerns
 - Published the graduate student handbook and directory
 - Helped organize graduate student lectures, symposia, and weekly discussion groups.
 - Represented zoology graduate students at departmental meetings
- 1995-1996 *Departmental Physiology Seminar Series Coordinator*, University of Toronto
- Organized and ran the weekly departmental physiology seminar series.
- 1995-1996 *Graduate Student Representative for Faculty of Arts and Science*, University of Toronto
- Zoology Representative: discussed and voted on faculty of arts and science graduate student issues
- 1994 *'Women in Zoology' Chair and Co-founder*, University of Toronto
- Gender issues in science included a profile on women in the Zoology Department for the U of T Open House, clothing drives for women's shelters, discussions on international gender demographics in science; "Discovering Science Day" experiments and demonstrations for female highschool students, "Take Your Daughter to Work" projects.

Academic Service: Community

- 2013 Invited Grant Panel Reviewer, CSUPERB
- 2013 Invited Grant Panel Reviewer, NSF
- Activation program in the Neural Systems Cluster within the Biology Directorate of the National Science Foundation
- 2012-present Editorial Board of ISRN Entomology
- 2012 Diversity Forum at SFSU.
- The Life Sciences panel
- 2010-2011 Grant Reviewer, NSF
- Processes, Structures and Integrity (PSI) Program within the Division of Integrative Organismal Systems: David Schooley, Insect Guanylate Cyclase Receptors and Their Ligands; 1 grant reviewed, 2 declined for conflict of interest
- 2006-2013 Manuscript Reviewer, Peptides International Journal (3 manuscripts)
- 2007-2014 Manuscript Reviewer, General & Comparative Endocrinology
- 2005-2006 NIH postdoctoral PROF Program Mentor
- 2005 Manuscript Reviewer, Journal of Experimental Biology
- 2002-2004 SFSU/CCSF Bridges to the Baccalaureate Summer Internship Mentor
- 2002-2004 Chem 85: SFSU/CCSF Bridges to the Baccalaureate Program Mentor and Coordinator
- Joint City College of San Francisco/San Francisco State University seminar course
- 2004-2012 Participant of Expanding Your Horizons (EYH) Middle School Girls Science and Math Conference - "Bugs Misbehaving" lab module
- Set up and ran bug lab for middle school activities.
- 2004-2005 Participant of EOP's Pre Collegiate/Community Outreach Program - "I'm going to college" event
- Focuses on early educational intervention to Bay Area elementary, middle and high schools through interaction with faculty on campus – set up bug lab for 5th graders.
- 2004 Interview for SFSU Public affairs/San Francisco Chronicle
- Met with reporter for a story on the growth of research activities at SFSU

- 2004 Participation in Faculty Experts Guide put forth by Public affairs, SFSU
- 2002-2003 Abstract Reviewer, ABRCMS and SACNAS Conferences
- 2002 Poster Judge, SACNAS Conference, Anaheim, CA
- 2001-2002 Grant Reviewer, USDA
- Entomology/Nematology Program of the USDA's National Research Initiative Competitive Grant Program (NRICGP): 4 grants
- 2001 Manuscript Reviewer, Peptides International Journal
- 2000-2005 Elementary School Visits
- Brought insects and discussed relevance of insects to humans in medicine and in the environment.
- 2000 Student Career Day, University of Washington
- Had a high school student job shadow for the day

Non-academic Service

- 2002-2003 On-campus Voter Registration
- 2001 Teacher Appreciation Week
- Organized fund raising, special lunch and gifts for the teachers of West Campus Child Center
- 1980-1982 Charitable Ensemble Concerts
- Performed volunteer concerts at homes for the elderly in Toronto, Canada.
- 1982-1987 Archery Instruction
- 1985-87 extramural archery instruction in highschools
 - 1982-83 Summer camp archery instructor (Camp Wahonowin, Algonquin Park)
- 1979 United Way Canvassing
- Door-to-door canvassing for funds