

95 Lehigh Aisle, Irvine, Ca. 92612  
PHONE (413) 364-8858 • E-MAIL [mccusker.catherine@gmail.com](mailto:mccusker.catherine@gmail.com)  
**Catherine McCusker**

#### EDUCATION

**2009- Present**  
Postdoctoral scholar  
**University of California, Irvine, CA**  
Department of Developmental and Cell Biology  
Laboratory of Dr. Susan Bryant and Dr. David Gardiner

**2004 – 2009**  
Ph.D. Candidate  
**University of Massachusetts, Amherst, MA**  
Molecular and Cellular Biology program  
Dept. Vet. and Animal Sciences  
Laboratory of Dr. Dominique Alfandari.

**1996 – 2000**  
Undergraduate  
**Bridgewater State College, Bridgewater, MA**  
B.S in Chemistry  
Biochemistry Concentration  
Chemistry Undergraduate in the Laboratory of  
Dr. Edward Brush

#### PROFESSIONAL TRAINING

**2011** (October 2-8)  
Student  
**Marine Biological Laboratories, Woods Hole, MA**  
Frontiers in Stem Cells and Regeneration course

**2011** (June6-9)  
**University of California, Irvine, CA**  
FloCyte Comprehensive Flow Course

**2007** (June 9 –July 22)  
Student  
**Marine Biological Laboratories, Woods Hole, MA**  
Embryology Course: Concepts and Techniques  
in Modern Developmental Biology

#### PREVIOUS POSITIONS

**2002 – 2004**  
Research assistant  
**University of Massachusetts, Amherst, MA**  
Molecular and Cellular Biology Program  
Dept. of Chemistry  
Laboratory of Dr. Vincent Rotello

**2000 – 2002**  
Head research Technician  
**Massachusetts General Hospital, Boston, MA**  
Department of Radiology  
Division of Nuclear Medicine  
Laboratory of Allan Fischman MD. PhD.  
and Dr. Edward Carter.

**1998 – 2000**  
Research Internship  
**UCB Pharma Inc., Cambridge, MA**  
Department of Pharmacology  
Laboratory of Dr. Paul Higgins

#### AWARDS & HONORS

**2012** Postdoctoral Fellowship awarded from the American Cancer Society

**2011** Scholarship from the Marine Biological laboratory in Woods Hole, Ma to attend the Frontiers In Stem Cells & Regeneration class.

**2011** “Best postdoctoral presentation” at the UCI Dev. Cell Retreat

**2011** “Best Talk” Prize at Regional SDB meeting (\$1000 award)  
**2011** Travel Award from SDB (for participation at the West Coast Regional SDB meeting)  
**2009** Travel award from SDB (for participation to National SDB meeting)  
**2009** Graduate School Travel Award (for participation to National SDB meeting)  
**2008** “Best poster” award at UMass MCB program Annual retreat  
**2007** Scholarship from the Society for Developmental Biology (for participation at MBL)  
**2007** Ruth Sager Memorial Scholarship  
**2007** “Best Poster” award New England Society of Developmental Biology  
**1998 - 1999** Deans List  
**1996** Judith A. Riordan Community Service Scholarship  
**1996** Lucius Alden Trust Scholarship

#### REVIEWER FOR THE FOLLOWING JOURNALS

*Development*

*The international Journal of Developmental Biology*

#### MEMBERSHIPS

- American Association for the Advancement of the Sciences
- Society for Developmental Biology

#### TEACHING EXPERIENCE

**2011** Invited lecture at Biotechnology mini-class on Stem cell Biology, UCI, Irvine, Ca.  
**2010** Invited lecture at Biotechnology mini-class on Amphibian Regeneration, UCI, Irvine, Ca.  
**2010** Laboratory training of 2 visiting International Students, UCI, Irvine, Ca.  
**2006** Teaching Assistant, Animal Cell and Molecular Biology, UMASS, Amherst, MA.  
**2005** Teaching Assistant, Biotechnology, UMASS, Amherst, MA.  
**2003-2007** Laboratory Training of 4 Undergraduate Students, UMASS, Amherst, MA.  
**2004** Teaching Assistant, Genetics, UMASS, Amherst, MA.  
**2003** Teaching Assistant, Introductory Animal Biology, UMASS, Amherst, MA.  
**2002** Teaching assistant, Biochemistry Laboratory, UMASS, Amherst, MA

#### MEETINGS

**2011** Society of Developmental Biology –National Meeting, Chicago, Il.  
**2011** Society of Developmental Biology –West Coast Regional Meeting, Waikiki, Hi.  
**2009** DARPA meeting on Regenerative Medicine, Phoenix, Az.  
**2009** Society of Developmental Biology - National Meeting, San Francisco, Ca.  
**2008** Society of Developmental Biology – National Meeting, Philadelphia, Pa.  
**2005-2009** Society of Developmental Biology – North East Regional Meeting, MBL, Woods Hole, Ma.  
**2000** American Chemical Society –National Meeting, Boston, Ma.

#### SEMINARS

**McCusker C, Gardiner D, Insights into the establishment of positional information during Axolotl limb regeneration. UCI Developmental and Cellular Biology Retreat, Dana Point, Ca (USA) November 3, 2011.**

**McCusker C, Gardiner D, Insights into the establishment of positional information during Axolotl limb regeneration. West Coast Regional Developmental Biology Meeting, Waikiki, Hi (USA) April 14-16, 2011.**

**McCusker C, Cousin H, Alfandari D. Maintaining the balance: Regulation of Cadherin-11 by ADAM13 during Cranial Neural Crest Migration in Xenopus Laevis. Northeast Regional Developmental Biology, Woods Hole, Ma (USA) April 27, 2008.**

**McCusker C**, Cousin H, Alfandari D. Maintaining the balance: Regulation of Cadherin-11 by ADAM13 during Cranial Neural Crest Migration in *Xenopus Laevis*. **Molecular and Cellular Biology Colloquia, Spring Series**. Amherst, Ma (USA) February 25, 2008.

**McCusker C**, Cousin H, Alfandari D. The role of ADAM13 and Cadherin-11 in Cranial Neural Crest Migration. **1<sup>st</sup> Annual Veterinary and Animal Science Retreat**, Hadley, Ma (USA) May 26, 2006.

## PUBLICATIONS

### DEVELOPMENTAL BIOLOGY

**McCusker CD**, Gadriner D, (2012) Positional commitment is established in the proximal to distal regions of the late limb blastema in the Mexican Axolotl. (*in preparation*)

Cousin H, Abbruzzese G, **McCusker CD**, Alfandari D. (2012) ADAM13 function is required in the 3 dimensional context of the embryo during cranial neural crest cell migration. (*submitted*)

**McCusker CD**, Gardiner DM. (2011) The axolotl Model for Regeneration and Aging Research: A Mini-review. *Gerontology*. Mar 2.

**McCusker CD**, (2010) Beyond cell adhesion: exploring the role of cadherin-11 extracellular processing by ADAM metalloproteases in cranial neural crest migration (Ph.D. Dissertation). Amherst, Mass.: University of Massachusetts Amherst.

**McCusker C**, Alfandari D. (2009) Life after proteolysis: Exploring the signaling capabilities of classical cadherin cleavage fragments. *Communicative and Integrative Biology*. March/April; 2(2).

**McCusker C**, Cousin H, Neuner R, Alfandari D. (2009) Extracellular Cleavage of Cadherin-11 by ADAM metalloproteases is essential for Cranial Neural Crest Migration in *Xenopus Laevis*. *MBC*. Jan;20(1):78-89. Epub 2008 Oct 22.

Alfandari D., **McCusker C**, Cousin H. (2008) ADAM Function in Embryogenesis. *Seminars in Cell and Developmental Biology*. Sep 30. [Epub ahead of print]

Neuner R, Cousin H, **McCusker C**, Coyne M, Alfandari D. (2008) *Xenopus* ADAM19 is involved in neural, neural crest and muscle development. *Mech Dev*. Nov 6. [Epub ahead of print]

### CHEMISTRY

**McCusker C**, Carroll JB, Rotello VM. (2005) Cationic polyhedral oligomeric silsesquioxane (POSS) units as carriers for drug delivery processes. *ChemComm*. Feb 28;(8):996-8.

Yurkovetskiy A, Choi S, Hiller A, Yin M, **McCusker C**, Syed S, Fischman A.J, and Papisov M.I. (2005) Fully Degradable Hydrophilic Polyals for Protein Modification. *Biomacromolecules*, **6**, 5, 2648 – 2658.

Goodman CM, **McCusker CD**, Yilmaz T, Rotello VM. (2004) Toxicity of gold nanoparticles functionalized with cationic and anionic side chains. *Bioconjugate Chemistry*. 15(4):897-900.

## ABSTRACTS

### DEVELOPMENTAL BIOLOGY

- **McCusker C**, Gardiner D, Insights into the establishment of positional information during Axolotl limb regeneration. **National Society of Developmental Biology Meeting**, Chicago, Il (USA) July 2011

- **McCusker C**, McCusker J.R., Neuner R., Kerdavid E., Cousin H., Alfandari D. Random vs. Directed: Does cadherin-11's extracellular cleavage fragment act as a chemoattractant to cranial neural crest cells? **National Society of Developmental Biology Meeting**, San Francisco, Ca (USA) July, 2009
- **McCusker C**, McCusker J.R., Neuner R., Kerdavid E., Cousin H., Alfandari D. Random vs. Directed: Does cadherin-11's extracellular cleavage fragment act as a chemoattractant to cranial neural crest cells? **Northeast Regional Developmental Biology**, Woods Hole, Ma (USA) April 24-26, 2009.
- **McCusker C.**, Cousin H., Alfandari D. Maintaining the balance: Regulation of Cadherin-11 by ADAM13 during Cranial Neural Crest Migration in *Xenopus Laevis*. **National Society of Developmental Biology Meeting**, Philadelphia, Pa (USA) July 27, 2008.
- Alfandari, D. R.; Cousin, H. **McCusker, C.**; Neuner, R. ADAM metalloprotease control of cell specification and cell migration during early embryogenesis. **National Society of Developmental Biology Meeting**, Philadelphia, Pa (USA) July 27, 2008.
- Neuner, R.; Cousin, H.; **McCusker, C.**; Coyne, M.; Alfandari, D. *Xenopus* ADAM19 is critical for neural and muscle development. **National Society of Developmental Biology Meeting**, Philadelphia, Pa (USA) July 27, 2008.
- Cousin, H; **McCusker, C.**, Alfandari, D. Role of ADAM metalloproteases in cranial neural crest cell migration. **Northeast Regional Developmental Biology**, Woods Hole, Ma (USA) April 27, 2008.
- **McCusker C**, Cousin H, Alfandari D. Maintaining the balance: Regulation of Cadherin-11 by ADAM13 during Cranial Neural Crest Migration in *Xenopus Laevis*. **Northeast Regional Developmental Biology**, Woods Hole, Ma (USA) April 27-29, 2007. (**poster prize winner**)
- **McCusker C**, Cousin H, Alfandari D. ADAM13 Proteolysis of Cadherin-11 and its possible role in Cranial Neural Crest migration. **Northeast Regional Developmental Biology**, Woods Hole, Ma (USA) April 28-30, 2006.
- Cousin H, **McCusker C**, Alfandari D. Control of *Xenopus* Cranial neural crest cell migration: *probing the pathway*. **Northeast Regional Developmental Biology**. Woods Hole, Ma. (USA) April 22-24, 2005.

#### CHEMISTRY

- Carter, E. A.; **McCusker, C.**; Syed, S.; Tompkins, R. G.; Fischman, A. J. Effect of prolonged fasting and refeeding on hepatic apoptosis in rats evaluated with radiolabeled annexin V. May 2002
- Hamblin MR, Tawakol A, Ahmadi A, Zahra T, Stern J, Syed S, **McCusker C**, Ortel B, Fischman AJ, and Muller JE. Intravascular fluorescence detection of vulnerable atherosclerotic plaque by macrophage-targeted fluorophores. **Saratov International Workshop on Biophotonics - SIWB02**, Saratov, Russia, 2002.
- Carter EA, **McCusker C**, Syed S, Tompkins RG, Fischman AJ. Comparison of 18FLT with 18FDG for differentiation between tumor and focal sites of infection in rats. **The 49th Annual SNM meeting**, Los Angeles, Ca. (USA). June 2002.
- Yatin M, Burker M, **McCusker C**, Hillier S, Syed S, Carter EA, Fischman AJ. Synthesis and pharmacokinetic evaluation of a novel iodine-125 spermine analog as a potential tracer for infection imaging. **The 49th Annual SNM meeting**, Los Angeles, Ca. (USA). June 2002.
- Babich JW, Burker M, **McCusker C**, Fischman AJ. Infection imaging with novel chemotactic peptide antagonists. **The SNM 48th Annual meeting**, Toronto, Canada. June 2001.
- Barrow, S. A.; Burker, M.; **McCusker, C. D.**; Carter, E. A.; Fischman, A. J. Effect of intra-gastric polyethylene glycol-electrolyte solution (GoLYTELY) on gastrointestinal distribution of 18FDG in rats. Aug 2001
- Maresca, K. P.; Kronauge, J. F.; Babich, J. W.; Burker, M. A.; **McCusker, C. D.**; Fischman, A. J. Infection imaging with novel chemotactic peptide antagonists. May 2001

- Yatin M, Burker M, **McCusker C**, Hillier S, Carter EA, Fischman AJ. Polyamine involvement in Escherichia coli infected rats. **The 2001 Polyamine Gordon Research Conference**. Connecticut College, New London, Connecticut (USA). 2001.