

Scott Gehler, Ph.D.

Augustana College
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Education

- 1998-2004 **Ph.D.** in Neuroscience, 2004, Area of specialization: Developmental Neuroscience
University of Minnesota Minneapolis, Minnesota
- 1994-1998 **B.A.** in Biology and Psychology, 1998
Cornell College Mount Vernon, Iowa

Teaching Experience

- 2017-present **Associate Professor of Biology:** Augustana College, Rock Island, Illinois
- 2011-2017 **Assistant Professor of Biology:** Augustana College, Rock Island, Illinois
- *Cell Biology* (Biol 210)
 - *Nutrition* (Biol 263)
 - *Human Physiology* (Biol 362)
 - *Cancer Biology* (Biol 410)
 - *Senior Inquiry: Biological Literature* (Biol 464)
 - *Senior Inquiry: Laboratory Research* (Biol 465)
- 2010-2011 **Visiting Assistant Professor of Biology:** Simpson College, Indianola, Iowa
- *Human Biology (for non-majors)*
 - *Principles of Biology I (organismal)* laboratory
 - *Principles of Biology II (Cellular and Molecular)*
 - *Topics in Cancer*
 - *Investigations in Cancer* (May term)
- 2006 **Visiting Lecturer:** Cornell College, Mount Vernon, Iowa
- *Foundations in Biology (Cellular and Molecular)*, lecture only for an intensive 3 ½ week term (One-Course-At-A-Time academic calendar)
- 2003 **Guest Lecturer:** Cornell College, Mount Vernon, Iowa
- *Neurobiology*, led classroom discussions and designed and carried out laboratory portions of the course
- 2003 **Course Lecturer:** University of Minnesota, Minneapolis, Minnesota
- *Advanced Topics in Neuroscience*, Taught upper-level undergraduates in developmental neuroscience
- 2001, 2002 **Teaching Assistant:** University of Minnesota, Minneapolis, Minnesota
- *Introduction to Neuroscience II*, Facilitated group discussions of primary research articles and evaluated student term papers and presentations
- 2000 **Teaching Assistant:** University of Minnesota, Minneapolis, Minnesota
- *Neuroanatomy Laboratory*, Instructed first-year medical students in the identification and function of neuroanatomical structures

Research/Work Experience

- 2011-2012 **Technical Consultant:** Platypus Technologies, LLC. Madison, Wisconsin
- Provided expertise and guidance for the Research and Development activities for cell-based assays division
 - Technical editor of marketing materials, research presentations, and other support documents
 - Provided technical support to customers with advanced inquiries
- 2008-2010 **Senior Scientist:** Platypus Technologies, LLC. Madison, Wisconsin
- Directed the R&D group for cell-based assays
 - Conceptualized, organized, and wrote grants with a team of researchers
 - Applied the scientific method to develop novel cell migration and invasion assays
 - Expanded research applications of existing cell-based products using state-of-the-art techniques
 - Supervisory Experience: Educated and trained personnel on current methods to study cell migration and invasion. Mentored a student intern in the development of new cell-based assays and application notes
- 2004-2008 **Postdoctoral Research:** Department of Pharmacology, University of Wisconsin-Madison, (post-doc mentor: Dr. Patricia J. Keely)
- Investigated the signal transduction mechanisms by which breast epithelial cells respond to changes in the biophysical properties of their environment using an *in vitro* three-dimensional model system of breast cancer.
 - Examined the role of neurotrophin signaling on breast epithelial cell migration
 - Studied the role of the GTPase, R-Ras, and the actin binding protein, filamin A, on breast epithelial cell migration and adhesion
 - Supervisory Experience: Research mentor for an undergraduate research project, B.S. in Molecular Biology (2005-2007)
 - student participated in conceptualization, design and completion of the project, in which his research proposal was awarded a Hilldale Scholarship given by the University of Wisconsin-Madison
- 1998-2004 **Doctoral Research:** Department of Neuroscience, University of Minnesota, Twin Cities, (graduate advisor: Dr. Paul C. Letourneau)
- Studied the signaling mechanisms by which neurotrophins regulate neuronal growth cone motility and how they might contribute to axonal guidance and synaptogenesis
 - Investigated the effects of semaphorin3A on neurite outgrowth and growth cone morphology
 - Supervisory Experience: Research mentor for summer undergraduate research students (2002-2004)
- 1998 **Summer Internship,** Medtronic, Inc., Minneapolis, MN
- Research Experience: Performed market research for electrostimulation therapy to treat symptoms of gastroparesis.

Professional Activities

- 2016- Member of the editorial board for the journal *Cogent Biology*.
- 2016-2018 Full member of the Education Committee for the American Society for Cell Biology
- 2015 Associate member of the Education Committee for the American Society for Cell Biology
- 2015 Served on the Community Grant Review Panel for Susan G. Komen Quad Cities.
- 2014 Review panelist for the 2014 National Science Foundation Graduate Research Fellowship Program (NSF GRFP)
- 2013-present Served as a peer-reviewer for the following scientific journals:
- *BBA – Molecular Basis of Disease*
 - *Breast Cancer: Targets and Therapy*
 - *Cancers*
 - *Current Cancer Drug Targets*
 - *OncoTargets and Therapy*

Honors and Awards

2013-2015	Dr. Larry P. Jones Endowed Fellowship in the Natural Sciences
2012, 2015	American Society for Cell Biology Annual Meeting Travel Award
2006-2008	UW-Institute of Aging Postdoctoral Training Grant
2003	Stark Award for Advanced Scholarship
1998	Frank G. Brooks Biology Award

Professional Associations

2005-present	Member of <i>The American Society for Cell Biology</i>
2011-2015	Member of <i>Sigma Xi</i>
1998-2015	Member of the <i>Society for Neuroscience</i>

Invited Talks

Gehler S, Compere FV, and Miller AM. How Does Neuroscience Inspire Cancer Research? *Western Illinois University Department Seminar Series*. November, 2016.

Peer-reviewed Publications (in chronological order)

Gehler S, Gallo GG, Veien E, and Letourneau PC. (2004) p75^{NTR} signaling regulates growth cone filopodial dynamics through modulating RhoA activity. *The Journal of Neuroscience*. 24:4363-4372.

Gehler S, Shaw AE, Sarmiere PD, Bamburg JR, and Letourneau PC. (2004) Brain-derived neurotrophic factor regulation of retinal growth cone filopodial dynamics is mediated through ADF/cofilin. *The Journal of Neuroscience*. 24:10741-10749.

Fass J, **Gehler S**, Sarmiere P, Letourneau PC, and Bamburg JR. (2004) Regulating filopodial dynamics through actin-depolymerizing factor/cofilin. *Anatomical Science International*. 79(4):173-183.

Chen TJ*, **Gehler S***, Shaw AE, Bamburg JR, and Letourneau PC. (2006) Cdc42 participates in the regulation of ADF/cofilin and retinal growth cone filopodial dynamics by Brain Derived Neurotrophic Factor. *Journal of Neurobiology*. 66(2):103-114.

***contributed equally as first authors**

Keely PJ, Conklin MW, **Gehler S**, Ponik SM, and Provenzano PP. (2007) Investigating integrin regulation and signaling events in three dimensional systems. *Methods in Enzymology*. 426:27-45.

Gehler S, Baldassarre M, Lad Y, Leight JL, Wozniak MA, Riching KM, Eliceiri KW, Weaver VM, Calderwood DA, Keely PJ. (2009) Filamin A-β1 integrin complex tunes epithelial cell response to matrix tension. *Molecular Biology of the Cell*. 20:3224-3238.

***nominated for the American Society for Cell Biology Paper of the Year**

Gehler S, Ponik SM, Riching KM, Keely PJ. (2013) Bi-directional signaling: Extracellular Matrix and Integrin Regulation of Breast Tumor Progression. *Critical Reviews in Eukaryotic Gene Expression*. 23(2):139-157.

Gehler S, Compere FV[#], Miller AM[#]. (2017) Semaphorin3A Increases FAK Phosphorylation at Focal Adhesions to Modulate MDA-MB-231 Cell Migration and Spreading on Different Substratum Concentrations. *International Journal of Breast Cancer*. 2017(2017):9619734.

#Augustana undergraduate students

Meeting Abstracts (in chronological order)

Gehler S, Gallo GG, Letourneau PC. p75^{NTR} regulates RhoA activity to mediate neurotrophin-induced increases in filopodial length. Society for Neuroscience. Orlando, FL. 2002.

Gehler S, Gallo GG, Letourneau PC. Neurotrophin-induced changes in filopodia dynamics are regulated by p75^{NTR} through the modulation of RhoA activity. 6th IBRO World Congress of Neuroscience. Prague, Czech Republic. 2003.

Gehler S, Bamburg JR, Letourneau PC. BDNF regulates filopodial dynamics through ADF/Cofilin. Society for Neuroscience. New Orleans, LA. 2003.

Gehler S, Schmocker R[#], Keely PJ. Nerve growth factor promotes malignant breast epithelial cell migration through a TrkA-dependent mechanism. American Society for Cell Biology. San Francisco, CA. 2005.

#Undergraduate Student

Schmocker RK[#], Kwong L, Keely PJ, and **Gehler S**. Filamin A and R-Ras coordinately regulate breast epithelial cell membrane protrusion. American Society for Cell Biology. San Diego, CA. 2006.

#Undergraduate Student

- Gehler S**, Calderwood DA, Keely PJ. Breast epithelial cells adjust their response to 3D matrix density by regulating cellular contractility through filamin- β 1 integrin interactions. American Society for Cell Biology. San Diego, CA. 2006.
- Gehler S**, Lad Y, Baldassarre M, Calderwood DA, Keely PJ. Filamin A- β 1 Integrin Interactions Regulate Myosin Activity to Tune Cellular Contractility and Tubulogenesis in Response to 3D matrix Density. American Society for Cell Biology. Washington D.C. 2007.
- Gehler S**, Lad Y, Baldassarre M, Calderwood DA, Keely PJ. Breast Epithelial Cells Adjust Their Contractile Response to 3D Matrix Density through Filamin A- β 1 Integrin Interactions. American Society for Cell Biology. Washington D.C. 2007. (Platform Presentation)
- Soltaninassab SR, Anhalt K, Bonds MD, **Gehler S**, Herber RL, Murphy CJ, Williams L. A novel 96-well assay for assessing chemokinetic modulators of cell migration and invasion. American Association for Cancer Research. San Diego, CA. 2008.
- Gehler S**, Hulkower KI, Herber RL, Keely PJ. Substratum-dependent effects of ROCK and myosin inhibitors during 2D and 3D migration of breast epithelial cells. American Society for Cell Biology. San Francisco, CA. 2008.
- Wylie P, **Gehler S**, Hulkower K. A novel high throughput-compatible cell migration screening assay using an Acumen $^{\circ}$ X3. Association for Lab Automation. Palm Springs, CA. 2009.
- Hulkower KI, Herber RL, **Gehler S**, Held P, Amouretti X. Optimizing robustness of the membrane-free, OrisTM cell migration assay for high throughput screening using the BioTek SynergyTM HT multi-mode microplate reader. Association for Lab Automation. Palm Springs, CA. 2009.
- Wylie P, Hulkower K, **Gehler S**. A novel multiplexed-compatible high throughput cell migration screening assay using an Acumen $^{\circ}$ X3 microplate cytometer. Society for Biomolecular Sciences. Lille, France. 2009.
- Riching K, **Gehler S**, Calderwood DA, Keely PJ. Filamin association with β 1 integrins regulates invasion into 3D collagen matrices. American Society for Cell Biology. San Diego, CA. 2009.
- Hulkower KI, Fronczak JA, Burkholder JK, Onley D, Wylie P, **Gehler S**. A novel cell migration assay for high content analysis. Cambridge Healthtech Institutes Seventh Annual High-Content Analysis. San Francisco, CA. 2010.
- Gehler S**, Fronczak JA, Hulkower KI, Burkholder JK. A novel automatable cell migration assay for high content screening. Society for Biomolecular Sciences. Phoenix, AZ. 2010.
- Said AF, Karam, LJ, **Gehler S**. Use of Muscale CMA_{cfz} automated image analysis software to accurately quantitate cell migration. Society for Biomolecular Sciences. Phoenix, AZ. 2010.
- Powe AC, Hodges KL, Chilton JM, **Gehler S**, Herber RL, Hulkower KI, Stice SL. Identification of stimulators and inhibitors of cell migration in human embryonic stem cell derived neural progenitors using a novel, high throughput amenable assay platform. American Society for Cell Biology. Philadelphia, PA. 2010.
- Fronczak JA, Finer JR, **Gehler S**, Vogt A, Hulkower KI. A Robust 384-well cell migration assay for high content analysis. High Content Analysis. San Francisco, CA. 2011.
- Wallace MD[#] and **Gehler S**. Semaphorin3A and Ephrin-A1 Suppress the NGF-Enhancing Effects on Breast Epithelial Cell Migration. American Society for Cell Biology. San Francisco, CA. 2012.
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- Miller AM[#] and **Gehler S**. Semaphorin3A Shifts the Motility Response of Breast Epithelial Cells Through Increased Focal Adhesions in Response to Changes in Fibronectin Concentration. Midbrains. St. Paul, MN. 2014.
#Augustana undergraduate student
- Miller AM[#] and **Gehler S**. Semaphorin3A Shifts the Biphasic Relationship Between Cell Motility and Substratum Concentration Through Increased Focal Adhesion Formation. American Society for Cell Biology. Philadelphia, PA. 2014.
#Augustana undergraduate student
- Compere FV[#] and **Gehler S**. Semaphorin3A Increases Focal Adhesion Formation to Shift the Relationship Between Cell Migration and Substratum Concentration Through a ROCK-dependent Mechanism. American Society for Cell Biology. San Diego, CA. 2015
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Jones AA[#] and **Gehler S.** The Flavonoids Acacetin and Pinostrobin Inhibit Migration and Adhesion in MDA-MB-231 Breast Epithelial Cells. American Society for Cell Biology. Philadelphia, PA. 2017

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Kinder MB[#] and **Gehler S.** The Antitumorigenic Effects of Natural Compounds, Conessine and Cardamonin, on MDA-MB-231 Breast Epithelial Cells. American Society for Cell Biology. Philadelphia, PA. 2017

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