

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

Academic Appointments

- 2025-current **Professor of Biology:** Augustana College, Rock Island, Illinois
- 2017-2025 **Associate Professor of Biology:** Augustana College, Rock Island, Illinois
- Taught upper-level courses for the biology department, expanded Senior Inquiry topics offerings, created and taught both non-majors and upper-level J-term courses, and contributed to first-year advising
 - Pivoted my research program to include local teacher engagement and included undergraduate research projects that resulted in numerous conference presentations and co-authored publications
 - Chaired tenure-track faculty position for biology department and contributed to other search committees
 - Contributed to the research and writing process for the advising program review at Augustana College
- 2011-2017 **Assistant Professor of Biology:** Augustana College, Rock Island, Illinois
- Designed and taught all levels of courses, including Senior Inquiry, for the biology major
 - Supervised undergraduate research projects that resulted in numerous conference presentations and co-authored publications
 - Served on various college-wide committees and supported departmental initiatives and recruiting activities
- 2010-2011 **Visiting Assistant Professor of Biology:** Simpson College, Indianola, Iowa
- Planned and taught non-majors, introductory (majors) and upper-level courses in biology with an emphasis on content understanding and societal connections

Research/Work Experience

- 2023-2025 **Pre-health and Biology Coordinator at Augustana College**
- In this position, I was responsible for leading and coordinating all biology department recruiting and admissions activities, contribute to transfer advising, and serve as point of contact for the 2+2 Trinity nursing program.
- 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
- Research mentor for a community college 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
- Research mentor for an undergraduate research project, B.S. in Molecular Biology (2005-2007)

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
- Research mentor for summer undergraduate research students (2002-2004)

Professional Activities

2019-present	Course Editor for the journal <i>CourseSource (Cell Biology)</i>
2018-2022, 2024	National Science Foundation Reviewer
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	Community Grant Review Panelist for Susan G. Komen Quad Cities.
2014	National Science Foundation Reviewer
2013-present	Served as a peer-reviewer for the following scientific journals: <ul style="list-style-type: none"> • Apoptosis • <i>BBA – Molecular Basis of Disease</i> • <i>Breast Cancer: Targets and Therapy</i> • <i>Cancers</i> • <i>Current Cancer Drug Targets</i> • <i>OncoTargets and Therapy</i>

Grants, Honors, and Awards

2025-2026	East Moline Community Fund Grant (\$1,000)
2024-2029	Co-Principal Investigator for National Science Foundation Robert Noyce Scholarship Program (Award Number: 2344677, \$1,199,840)
2020-2025	Co-Principal Investigator for National Science Foundation Robert Noyce Scholarship Program (Award Number: 1949831, \$1,100,000)
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

Professional Associations

2005-current	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

Frank, Nathan and **Gehler, Scott**. Backward Designed Research Experiences Using Next Gen Science Standards: A Model for Engaging STEM Education Majors in Research. In Preparation.

Jones, AA[#] and **Gehler S**. (2020) Acacetin and Pinostrobin Inhibit Malignant Breast Epithelial Cell Adhesion and Focal Adhesion Formation to Attenuate Cell Migration. *Integrative Cancer Therapies*. 19:1-12.
#Augustana undergraduate student

Wheeler B, Pinheiro J[#], Tjia-Fleck S, Zeller E, **Gehler S**, Stonedahl SH. (2019) Developing a Novel Photographic Procedure for Extracting Concentrations Compared with Particle Count Microscopy. *PennScience Journal*. 18(1):23-29.
#Augustana undergraduate student

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

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, Baldassarre M, Lad Y, Leight JL, Wozniak MA, Riching KM, Eliceiri KW, Weaver VM, Calderwood DA, Keely PJ. (2009) Filamin A- β 1 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**

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.

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**

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.

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.

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.

Meeting Abstracts (in chronological order)

Cooper, KM and **Gehler, S**. (2024) Cell Biology Classroom Active Learning Activities Brainstorming Workshop. Workshop session at ASCB-EMBO Annual Meeting. San Diego, CA.

Gehler S, Ansbarg N[#], Baldwin K[#], Phillips I[#]. (2024) Adaptations for Working with *Caenorhabditis elegans* (C. elegans) to Actively Engage High School Students in Inquiry-driven Research Questions. National Science Teaching Association (NSTA) National Conference. Denver, CO.
#Augustana undergraduate students

Ruffatto O[#], Schlabowske H[#], **Gehler S**, Schroeder M, Frank N, Egan M. (2022) Summer-based Research Experiences to Equip Future STEM Educators to Better Meet the Needs of a Diverse Student Body. 2022 Midwest Annual Robert Noyce Teacher Scholarship Program Conference. Cave City, KY. (Accepted abstract for presentation, but cancelled conference attendance due to severe weather)
#Augustana undergraduate students

Michalak A[#], Costa I[#], **Gehler S**. (2021) The Flavonoids Diosmetin and Primuletin Alter Focal Adhesion Formation to Influence Breast Epithelial Cell Adhesion and Migration. ASCB-EMBO (Virtual) Annual Meeting.
#Augustana undergraduate students

- Wick S, Raut S, Lo S, **Gehler S.** (2021) You Can Publish This Too! Developing, Publishing, and Highlighting Innovative Classroom Activities. Workshop session at ASCB-EMBO (Virtual) Annual Meeting.
- Costa I[#], Michalak A[#], **Gehler S.** (2021) The Effects of Diosmetin and Primuletin on MDA-MB-231 Breast Cancer Cells. LSMRCE Conference (Virtual).
#Augustana undergraduate students
- Wick S, Vinson E, Paliulis L, **Gehler S.** (2019) You Can Publish This Too! Developing, Publishing, and Highlighting Innovative Classroom Activities. Workshop session at ASCB-EMBO Annual Meeting. Washington, DC.
- Jones AA[#], Staton N[#], **Gehler S.** (2019) The Flavonoids Acacetin and Pinostrobin Selectively Inhibit Cell Migration and Adhesion in Cell Models of Breast Cancer. ASCB-EMBO Annual Meeting. Washington, DC.
#Augustana undergraduate students
- Wheeler B, Pinheiro J[#], Tjia-Fleck S, Zeller E, **Gehler S.** and Stonedahl SH. (2019) Developing a Novel Photographic Procedure for Extracting Concentrations Compared with Particle Count Microscopy. Sigma Xi Regional Meeting. Davenport, IA.
#Augustana undergraduate student
- Kinder MB[#] and **Gehler S.** (2018) The Antitumorigenic Effects of Natural Compounds, Conessine and Cardamonin, on MDA-MB-231 Breast Epithelial Cells. IINSPIRE-LSAMP Annual Conference. Iowa City, IA.
#Augustana undergraduate student
- Kinder MB[#] and **Gehler S.** (2017) The Antitumorigenic Effects of Natural Compounds, Conessine and Cardamonin, on MDA-MB-231 Breast Epithelial Cells. ASCB-EMBO Annual Meeting. Philadelphia, PA.
#Augustana undergraduate student
- Jones AA[#] and **Gehler S.** (2017) The Flavonoids Acacetin and Pinostrobin Inhibit Migration and Adhesion in MDA-MB-231 Breast Epithelial Cells. ASCB-EMBO Annual Meeting. Philadelphia, PA.
#Augustana undergraduate student
- Compere FV[#] and **Gehler S.** (2015) 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 Annual Meeting. San Diego, CA.
#Augustana undergraduate student
- Miller AM[#] and **Gehler S.** (2014) Semaphorin3A Shifts the Biphasic Relationship Between Cell Motility and Substratum Concentration Through Increased Focal Adhesion Formation. American Society for Cell Biology Annual Meeting. Philadelphia, PA.
#Augustana undergraduate student
- Miller AM[#] and **Gehler S.** (2014) Semaphorin3A Shifts the Motility Response of Breast Epithelial Cells Through Increased Focal Adhesions in Response to Changes in Fibronectin Concentration. Midbrains. St. Paul, MN.
#Augustana undergraduate student
- Wallace MD[#] and **Gehler S.** (2012) Semaphorin3A and Ephrin-A1 Suppress the NGF-Enhancing Effects on Breast Epithelial Cell Migration. American Society for Cell Biology Annual Meeting. San Francisco, CA.
#Augustana undergraduate student
- Fronczak JA, Finer JR, **Gehler S.** Vogt A, Hulkower KI. (2011) A Robust 384-well cell migration assay for high content analysis. High Content Analysis. San Francisco, CA.
- Powe AC, Hodges KL, Chilton JM, **Gehler S.** Herber RL, Hulkower KI, Stice SL. (2010) 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 Annual Meeting. Philadelphia, PA.
- Said AF, Karam, LJ, **Gehler S.** (2010) Use of Muscale CMA_{cfz} automated image analysis software to accurately quantitate cell migration. Society for Biomolecular Sciences. Phoenix, AZ.
- Gehler S.** Fronczak JA, Hulkower KI, Burkholder JK. (2010) A novel automatable cell migration assay for high content screening. Society for Biomolecular Sciences. Phoenix, AZ.
- Hulkower KI, Fronczak JA, Burkholder JK, Onley D, Wylie P, **Gehler S.** (2010) A novel cell migration assay for high content analysis. Cambridge Healthtech Institutes Seventh Annual High-Content Analysis. San Francisco, CA.
- Riching K, **Gehler S.** Calderwood DA, Keely PJ. (2009) Filamin association with $\beta 1$ integrins regulates invasion into 3D collagen matrices. American Society for Cell Biology Annual Meeting. San Diego, CA.
- Wylie P, Hulkower K, **Gehler S.** (2009) A novel multiplexed-compatible high throughput cell migration screening

- assay using an Acumen ^eX3 microplate cytometer. Society for Biomolecular Sciences. Lille, France.
- Hulkower KI, Herber RL, **Gehler S**, Held P, Amouretti X. (2009) 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.
- Wylie P, **Gehler S**, Hulkower K. (2009) A novel high throughput-compatible cell migration screening assay using an Acumen ^eX3. Association for Lab Automation. Palm Springs, CA.
- Gehler S**, Hulkower KI, Herber RL, Keely PJ. (2008) Substratum-dependent effects of ROCK and myosin inhibitors during 2D and 3D migration of breast epithelial cells. American Society for Cell Biology Annual Meeting. San Francisco, CA.
- Soltaninassab SR, Anhalt K, Bonds MD, **Gehler S**, Herber RL, Murphy CJ, Williams L. (2008) A novel 96-well assay for assessing chemokinetic modulators of cell migration and invasion. American Association for Cancer Research. San Diego, CA.
- Gehler S**, Lad Y, Baldassarre M, Calderwood DA, Keely PJ. (2007) Breast Epithelial Cells Adjust Their Contractile Response to 3D Matrix Density through Filamin A- β 1 Integrin Interactions. American Society for Cell Biology Annual Meeting. Washington D.C. ([Platform Presentation](#))
- Gehler S**, Lad Y, Baldassarre M, Calderwood DA, Keely PJ. (2007) 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 Annual Meeting. Washington D.C.
- Gehler S**, Calderwood DA, Keely PJ. (2006) 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 Annual Meeting. San Diego, CA.
- Schmocker RK[#], Kwong L, Keely PJ, and **Gehler S**. (2006) Filamin A and R-Ras coordinately regulate breast epithelial cell membrane protrusion. American Society for Cell Biology Annual Meeting. San Diego, CA.
#Undergraduate Student
- Gehler S**, Schmocker R[#], Keely PJ. (2005) Nerve growth factor promotes malignant breast epithelial cell migration through a TrkA-dependent mechanism. American Society for Cell Biology Annual Meeting. San Francisco, CA.
#Undergraduate Student
- Gehler S**, Bamburg JR, Letourneau PC. (2003) BDNF regulates filopodial dynamics through ADF/Cofilin. Society for Neuroscience Annual Meeting. New Orleans, LA.
- Gehler S**, Gallo GG, Letourneau PC. (2003) 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.
- Gehler S**, Gallo GG, Letourneau PC. (2002) p75^{NTR} regulates RhoA activity to mediate neurotrophin-induced increases in filopodial length. Society for Neuroscience Annual Meeting. Orlando, FL.

Community Outreach

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| 2023-2024 | Volunteer as a science tutor at SAFER Foundation. |
| 2015-2019 | Participated in 'NeurdFest' during spring term Celebration of Learning, which is an outreach program that educates second graders from Longfellow Elementary School about the amazing brain. |
| 2015, 2019 (Spring) | Participated in 'NeurdFest' with second graders at Grant Wood Elementary School in Bettendorf, IA. |
| 2019 (Spring) | Delivered 'HeartFest' to fourth graders at Grand Wood Elementary School. 'Heartfest' focuses on educating students about the cardiovascular and respiratory systems using hands-on experiences in order to promote a healthy lifestyle. |
| 2018-2020 | Served on the School Improvement Advisory Committee for the Bettendorf Community School District (Bettendorf, IA)(SIAC Mission and Community Members). |
| 2018-2019 | Member of the Portrait of a Graduate (POG) Committee for the Bettendorf Community School District (Bettendorf, IA)(POG Website). POG is an initiative that seeks to create a framework that educators and administrators at all levels can use to guide curricular |

decisions in order to equip all students with the knowledge, skills, and dispositions to successfully navigate various challenges they might face post-graduation.