

Eric Vitriol, Ph.D.

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Education

Ph.D.	University of North Carolina at Chapel Hill	Cell and Developmental Biology	2009
B.S.	University of North Carolina at Chapel Hill	Biology	2002

Research and Academic Positions

Director Neuroscience PhD Program	Medical College of Georgia at Augusta University	2022-present
Associate Professor Neuroscience & Regenerative Medicine	Medical College of Georgia at Augusta University	2021-present
Assistant Professor Anatomy and Cell Biology	University of Florida	2014-2021
Postdoctoral Research Associate Mentor: James Zheng	Emory University	2009-2014
Graduate Student Mentors: Ken Jacobson and Klaus Hahn	University of North Carolina at Chapel Hill	2004-2009
Research Technician Supervisor: Kerry Bloom	University of North Carolina at Chapel Hill	2003-2004
Undergraduate Researcher Mentor: Kerry Bloom	University of North Carolina at Chapel Hill	2001-2002

Honors and Awards

Tenure	2023
NIH Pathway to Independence Award (K99/R00)	2014-2018
Emory Outstanding Postdoctoral Fellow Achievement Award	2013
NIH Ruth L. Kirschstein NRSA for Individual Postdoctoral Fellows (F32)	2011-2013
Training in Translational Research in Neurology (NIH/T32) postdoctoral fellow	2010-2011

NIH Ruth L. Kirschstein NRSA for Individual Predoctoral Fellows (F31)	2008-2009
Cell and Molecular Biology Training Program (NIH/T32) predoctoral fellow	2005-2007
Graduated with Honors and Distinction	2002

Publications

Total citations: 1660

h-index: 17

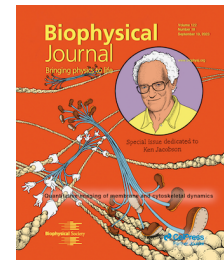
i10-index: 18

Preprints

25. Cisterna BA, Skruber K, Jane ML, Camesi CI, Nguyen ID, Warp PV, Black JB, Butler MT, Bear JE, Read TA, **Vitriol EA**. (2023). Cytoskeletal adaptation following long-term dysregulation of actomyosin in neuronal processes. *bioRxiv* (Preprint), doi: <https://doi.org/10.1101/2023.08.25.554891>
24. Read TA, Cisterna BA, Skruber K, Ahmadieh S, Lindamood HL, Vitriol JA, Shi Y, Lefebvre AEYT, Black JB, Butler MT, Bear JE, Cherezova A, Ilatovskaya DV, Weintraub NL, **Vitriol EA**. (2023) The actin binding protein profilin 1 is critical for mitochondria function. *bioRxiv* (Preprint), doi: <https://doi.org/10.1101/2023.08.07.552354>

Published Articles

23. Hahn KM, Itano MS, Loew LM, **Vitriol EA**. (2023). Celebrating the creative scientific life of Ken Jacobson. *Biophysical Journal*, 122 (18): E01-E04.
22. **Vitriol EA***, Quintanilla MA, Tidei JJ, Troughton LD, Cody A, Cisterna BA, Jane ML, Oakes PW*, Beach JR*. (2023) Non-muscle myosin 2 filaments are processive in cells. *Biophysical Journal*, 122 (18): 3678-3689. Cover article. *Corresponding author



Highlighted in:

Nonmuscle Myosin 2 Keeps on Truckin' in this Special Issue Dedicated to Ken Jacobson. *BPS Blog*

21. Nagarkoti S, Kim YM, Ash D, Das A, **Vitriol E**, Read TA, Youn SW, Sudhakar V, McMennamin M, Hou Y, Boatwright H, Caldwell R, Essex DW, Cho J, Fukai T, Ushio-Fukai M. (2023) Protein Disulfide Isomerase A1 as a Novel Redox Sensor in VEGFR2 Signaling and Angiogenesis. *Angiogenesis*, 26 (1): 77-96.
20. Edwards P, Skruber K, Milićević N, Heidings JB, Read TA, Bubenik P, **Vitriol EA**. (2021) TDAExplore: quantitative analysis of fluorescence microscopy images through topology-based machine learning. *Patterns*, 2(11): 100367.

Highlighted in:

Using AI to fight ALS: Scientist takes on devastating disease to help people. *The Augusta Chronicle*.

New method gives rapid, objective insight into how cells are changed by disease. Augusta University press release picked up by 11 news outlets.

19. Skruber K, Read TA, **Vitriol EA**. (2021) Delivering Defined Amounts of Purified Protein with High Precision into Living Cells. *STAR Protocols*, 2(1): 100272.
18. Skruber K, Warp PV, Shklyarov R, Thomas JD, Swanson MS, Henty-Ridilla JL, Read TA, **Vitriol EA**. (2020) Arp2/3 and Mena/VASP Require Profilin 1 for Actin Network Assembly at the Leading Edge. *Current Biology*, 30(14):2651-2664.

Highlighted in:

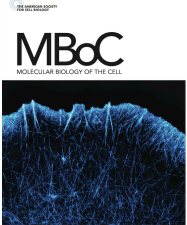
Actin Cytoskeleton: Profilin Gives Cells an Edge. *Current Biology*, 30(14): R807-R809.

Profilin, actin monomers and neurons. *The Node* (Company of Biologists)

17. Nutter CA, Bubenik JL, Oliveira R, Ivanković F, Sznajder LJ, Kidd BM, Pinto BS, Otero BA, Carter HA, **Vitriol EA**, Wang ET, Swanson MS. (2019) Cell-specific RNA Mis-splicing in Mouse Short Tandem Repeat Knockin Models of Myotonic Dystrophy Type 1. *Genes and Development* 33(23-24):1635-1640.

16. Osking Z, Ayers JI, Hildebrandt R, Skruber K, Eukovich AR, Brown H, Ryu D, Golde TE, Borchelt DR, Read TA, **Vitriol EA**. (2019) ALS-linked SOD1 Mutants Enhance Outgrowth and Branching in Adult Motor Neurons. *iScience* 11:294-304.
15. Skruber K, Read TA, **Vitriol EA** (2018) Reconsidering an Active Role for G-actin in Cytoskeletal Regulation. *Journal of Cell Science*, 131(1): jcs203760.
14. Li X, Mei Y, Yan B, **Vitriol E**, Huang S, Ji P, Qiu Y (2017) Histone Deacetylase 6 Regulates Cytokinesis and Erythrocyte Enucleation Through Deacetylation of Formin Protein mDia2. *Haematologica*, 102(6):984-994.
13. Kapustina M, Read TA, **Vitriol EA** (2016) Simultaneous Quantification of Actin Monomer and Filament Dynamics with Modeling Assisted Analysis of Photoactivation. *Journal of Cell Science*, 129(24):4633-4643.
12. **Vitriol EA***, McMillen LM, Kapustina M, Gomez SM, Vavylonis D, Zheng JQ* (2015) Two Functionally Distinct Sources of G-actin Supply the Leading Edge of Lamellipodia. *Cell Reports*, 11(3):433-445. *Corresponding author
11. Tsygankov D, Bilancia CG, **Vitriol EA**, Hahn KM, Peifer M, Elston TC (2014) CellGeo: A Computational Platform for the Analysis of Shape Changes in Cells with Complex Geometries. *Journal of Cell Biology*, 204(3): 443-460
10. **Vitriol EA**, Wise AL, Berginski ME, Bamburg JR, Zheng JQ (2013) Instantaneous Inactivation of Cofilin Reveals Its Function of F-actin Disassembly in Lamellipodia. *Molecular Biology of the Cell*, 24(14): 2238-47. Cover article.

Highlighted in: Visualizing Retrograde Flow. *The Emory Health Sciences Research Blog*
Recommended by Faculty of 1000 (2★).


9. Lee CW*, **Vitriol EA***, Shim S, Wise AL, Velayutham RP, Zheng JQ (2013) Dynamic Localization of G-actin During Membrane Protrusion in Neuronal Motility. *Current Biology*, 23(12): 1046-56. *Co-first author
8. **Vitriol EA** and Zheng JQ (2012) Growth Cone Travel in Space and Time: The Cellular Ensemble of Cytoskeleton, Adhesion, and Membrane. *Neuron*, 73(6): 1068-1081.
7. Fan Y, Tang X, **Vitriol E**, Chen G, Zheng JQ (2011) Actin Capping Protein is Required for Dendritic Spine Development and Synapse Formation. *Journal of Neuroscience*, 31(28): 10228-10233.
6. Berginski M*, **Vitriol EA***, Hahn KM, Gomez SM (2011) High-Resolution Quantification of Focal Adhesion Spatiotemporal Dynamics in Living Cells. *PLoS One*, 6(7): e22025. *Co-first author
5. Gulyani A*, **Vitriol E***, Allen R, Wu J, Gremyachinskiy D, Lewis S, Dewar B, Graves LM, Kay BK, Kuhlman B, Elston T, Hahn KM (2011) A Biosensor Generated via High-throughput Screening Quantifies Cell Edge Src Dynamics. *Nature Chemical Biology*, 7(7): 437-44. *Co-first author
4. Kapustina M, **Vitriol E**, Elston T, Loewe LM, Jacobson K (2010) Modeling Capping Protein FRAP and CALI Experiments Reveals *in vivo* Regulation of Actin Dynamics. *Cytoskeleton*, 67(8): 519-534.
3. Jacobson K, Rajfur Z, **Vitriol E**, Hahn KM (2008) Chromophore-Assisted Laser Inactivation in Cell Biology. *Trends in Cell Biology*, 18(9): 443-50.

Recommended by Faculty of 1000 (1★).
2. **Vitriol EA**, Uetrecht AC, Shen F, Jacobson K, Bear JE (2007) Enhanced Green Fluorescent Protein-Chromophore Assisted Laser Inactivation Using Deficient Cells Rescued with Functional EGFP-Fusion Proteins. *Proceedings of the National Academy of Sciences*, 104(16): 6702-6707.

1. Lobachev K, **Vitriol E**, Stemple J, Resnick MA, Bloom K (2004) Chromosome Fragmentation After Induction of a Double-Strand Break is an Active Process Prevented by the RMX Repair Complex. *Current Biology*, 14(23): 2107-2112.

Highlighted in: DNA Repair: Keeping It Together. *Current Biology*, 14(23): R994-R996.

Funding

Current

R35 GM137959 (NIH/NIGMS) 08/20/2020-07/31/2025
Deciphering the Mechanisms and Cellular Roles of Monomer-Driven Actin Dynamics
Total costs: \$1,864,478
Role: PI

RF1 AG067729-01A1 (NIH/NIA) 04/01/2022-06/30/2024
Regulation of SORLA by beta-arrestin2
Total costs: \$2,018,885
Role: Co-I

Previous

ALS Association 09/01/2018-08/31/2019
The Actin Cytoskeleton as a Novel Pathway in ALS Pathogenesis
Total costs: \$50,000
Role: PI

R00 NS087104 (NIH/NINDS) 04/01/2015-03/31/2018
Novel mechanisms of Actin Dynamics underlying Cell motility, Axon Growth, and ALS
Total costs: \$747,000
Role: PI

Pre-tenure track

K99 NS087104 (NIH/NINDS) 04/01/2014-12/01/2014
Novel mechanisms of Actin Dynamics underlying Cell motility, Axon Growth, and ALS
Role: PI

F32 NS077612 (NIH/NINDS) 12/01/2011-11/31/2013
Spatiotemporal Control of Cofilin Activity During Growth Cone Motility
Role: PI

T32 NS007480 (NIH/NINDS) 09/01/2010-08/31/2011
Training in Translational Research in Neurology at Emory University
Role: Postdoctoral trainee

F31 NS062487 (NIH/NINDS) 02/15/2008-08/23/2009
Spatiotemporal Dynamics of RhoA Activation in Growth Cone Motility
Role: PI

T32GM008581 (NIH/NIGMS) 10/01/2005-03/31/2007
Cell and Molecular Biology Training Program at UNC-Chapel Hill
Role: Graduate student trainee

Presentations

Triangle Cytoskeleton Meeting	2023
Chicago Cytoskeleton Meeting	2023
Loyola University, Department of Cell and Molecular Physiology	2023
UConn Health, Center for Cell Analysis & Modeling	2023
Scripps Research Translational Institute, Department of Molecular Medicine	2022
Augusta Brain Aging & Neurodegeneration Symposium	2022
Cell Bio Virtual (ASCB/EMBO), Cytoskeletal Dynamics in Health and Disease subgroup	2021
The Cytoskeleton of Neurons and Glia seminar series (virtual)	2021
Augusta University, Vascular Biology Center	2021
Augusta University, Department of Cell Biology	2021
Augusta University, ALS Clinic Symposium	2020
Augusta University, Department of Neuroscience & Regenerative Medicine	2020
University of Florida, McKnight Brain Institute Zoom into Neuroscience	2020
University of Florida, Department of Biochemistry & Molecular Biology	2019
University of Florida, Center for Neurogenetics	2018
University of Florida, Department of Pharmacology & Therapeutics	2018
SUNY Upstate Medical University, Department of Cell and Developmental Biology	2018
University of Florida, Department of Physiological Sciences	2015
University of Florida, Department of Neuroscience	2015
Annual Meeting of the American Society for Cell Biology, Philadelphia	2014
University of Florida, Department of Anatomy and Cell Biology	2014
Institut Curie, France, Subcellular Structure and Cellular Dynamics Unit	2014
UNC-Chapel Hill, Department of Cell Biology and Physiology	2013
Annual Meeting of the American Society for Cell Biology, Washington D.C.	2007

Grant Peer Review

NIH CSR Special Emphasis Panel for Fellowships on Cell Biology, Developmental Biology, & Bioengineering	2022
Pre-submission NSF CAREER grant reviewer for The Implementation Group	2021
French National Research Agency	2020
Wellcome Trust	2020
Thomas H. Maren Postdoctoral Award Review Panel	2018

Manuscript Peer Review

• Nature Methods	• Current Biology	• International Review of Cell & Molecular Biology
• Journal of Cell Science	• Scientific Reports	• Molecular Biomedicine
• Biophysical Journal	• Biophysical Reviews	• Review Commons
• Molecular Biology of the Cell	• Journal of General Physiology	• Science Advances
• The FASEB Journal	• Journal of Mathematical Biology	
• Advanced Science	• The EMBO Journal	

Teaching

Augusta University

Neuroscience I (BIOM 8080) <u>Course director</u>	2022-present
Neuroscience II (NURO 8082)	2022-present
Molecular Cell Biology (BIOM 8022)	2022-present

University of Florida

Grant writing (GMS 6691) <u>Course director</u>	2020
Advanced Cell Biology (GMS 6421)	2020
Science for Life Research Course (BCH 4905)	2019-2020
Grantsmanship (GMS 6691) <u>Course director</u>	2017
Molecular Cell Biology Journal Club (GMS 6690) <u>Course director</u>	2015-2017
Neurodegenerative Research: From Bench-to-Bedside (GMS 6029)	2016
Transcriptional and Translational Control of Cell Growth and Proliferation (GMS 6647)	2016
Fundamentals of Biomedical Science (GMS 6001)	2015-2016

Emory University

Techniques in Neuroscience (NS 551)	2011-2013
Foundations in Biochemistry, Cell, and Developmental Biology (BCDB 502)	2012

University of North Carolina at Chapel Hill

Advanced Cell Biology I (CBIO 324), teaching assistant	2005-2007
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Service

Augusta University

Biomedical Sciences PhD Program Recruiting and Admission Committee	2022-present
Graduate Faculty Council	2022-present
Neuroscience BS/MS Program Steering Committee	2021-present
Neuroscience Graduate Program Steering Committee	2021-present
Medical College of Georgia Research Planning Committee	2021-present
Director of the Neuroscience Summer Undergraduate Research Program	2023
Cellular Biology and Anatomy Department Chair Search Committee	2023
Department of Neuroscience & Regenerative Medicine Faculty Search Committee	2021-2022
Microscopy workshop for Summer STAR Students	2022
Assistant Dean of the Graduate School Search Committee	2022

University of Florida

Co-director of the Molecular Cell Biology Concentration of the BMS Graduate Program	2015-2017
Doctoral Degree Commencement Ceremony Marshal	2016
International Student Award Competition Judge	2016
Medical Guild Advancement to Candidacy Award Judge	2015-2016
Graduate Program in Biomedical Sciences Admissions Committee	2015-2016
Medical Guild Graduate Student Research Competition Judge	2015
Department of Anatomy and Cell Biology Faculty Search Committee	2015

Broader Scientific Community

Augusta Brain Aging and Neurodegeneration Symposium Organizing Committee	2021-present
Editor of a Special Issue for Biophysical Journal (tribute to Ken Jacobson)	2023
Cell Bio Virtual (ASCB/EMBO) Minisymposium Co-chair	2021
Florida Translational Cell Biology Symposium Faculty Mentor	2017-2019
American Society for Cell Biology Ambassador to the University of Florida	2017
Cell Migration Club Co-organizer	2005-2009

Research Mentorship

Research Faculty and Postdocs

Bruno Cisterna	Postdoc	Augusta University	2021-present
Tracy-Ann Read	Research Associate Professor	Augusta University	2014-present

Graduate Students

Tatiana Liu	MS, Medical Illustration	Augusta University	2023-present
Halli Lindamood	PhD, Neuroscience	Augusta University	2022-present
Kristin Skruber	PhD, Molecular Cell Biology	University of Florida	2017-2020
Zachary Osking	PhD, Molecular Cell Biology	University of Florida	2017-2020

Member of Graduate Student PhD Committees

Yoldas Yildiz	Cell and Molecular Physiology	Loyola University	2023-present
Kirstyn Denney	Neuroscience	Augusta University	2022-present
Julie Vincent	Neuroscience	Augusta University	2022-present
Yuxing Xia	Neuroscience (MD-PhD)	University of Florida	2018-2021
Joseph Lebowitz	Neuroscience	University of Florida	2015-2019

Undergraduate Students

Mackenzie Jane	Biology Honors program	Augusta University	2023-present
Caleb Camesi	DNRM Summer Internship	Augusta University	2023
Ivan Nyugen	CURS 2990 student	Augusta University	2022
Cameron Boyd	Cyber Center summer student	Augusta University	2022
Breanna Taylor	CURS 2990 student	Augusta University	2021
Peyton Warp	BMS 4905 student	University of Florida	2019-2020
Jasmine Encarnacion	BMS 4905 student	University of Florida	2020
Monica Khadka	BMS 4905 student	University of Florida	2019-2020
Austin Chen	BMS 4905 student	University of Florida	2018-2020
Rachael Shkylyarov	BMS 4905 student	University of Florida	2018-2019
Nida Imtiaz	Volunteer	University of Florida	2018
Amanda Eukovich	BMS 4905 student	University of Florida	2015-2017