

## 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

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

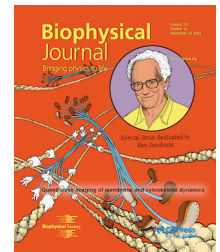
## Publications

Total citations: 1778

h-index: 18

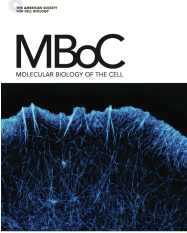
i10-index: 19

26. Lindamood HL, Liu TM, Read TA, **Vitriol EA**. (2024) Using ALS to understand profilin 1's diverse roles in cellular physiology. *Cytoskeleton*. Online ahead of print. DOI: 10.1002/cm.21896.
25. Read TA, Cisterna BA, Skruker K, Ahmadi S, Liu TM, Vitriol JA, Shi Y, Black JB, Butler MT, Lindamood HL, Lefebvre AEYT, Cherezova A, Ilatovskaya DV, Bear JE, Weintraub NL, **Vitriol EA**. (2024) The actin binding protein profilin 1 localizes inside mitochondria and is critical for their function. *EMBO Reports*. Online ahead of print. DOI: 10.1038/s44319-024-00209-3.
24. Cisterna BA, Skruker K, Jane ML, Camesi CI, Nguyen ID, Liu TM, Warp PV, Black JB, Butler MT, Bear JE, Mor DE, Read TA, **Vitriol EA**. (2024). Prolonged depletion of profilin 1 or F-actin causes an adaptive response in microtubules. *Journal of Cell Biology*, 223 (7): e202309097. Cover article.  
Highlight article: Profilin affects microtubule dynamics via actin. *Journal of Cell Biology* 223 (7): e202404112.
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  
Additional press: Nonmuscle Myosin 2 Keeps on Truckin' in this Special Issue Dedicated to Ken Jacobson. *BPS Blog* (Biophysical Society).
21. Nagarkoti S, Kim YM, Ash D, Das A, **Vitriol E**, Read TA, Youn SW, Sudhakar V, McMenemy 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, Skruker 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.  
Press release: New method gives rapid, objective insight into how cells are changed by disease. Augusta University JAGWire.  
Additional press: Using AI to fight ALS: Scientist takes on devastating disease to help people. *The Augusta Chronicle*.
19. Skruker K, Read TA, **Vitriol EA**. (2021) Delivering Defined Amounts of Purified Protein with High Precision into Living Cells. *STAR Protocols*, 2(1): 100272.
18. Skruker 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.  
Highlight article: Actin Cytoskeleton: Profilin Gives Cells an Edge. *Current Biology*, 30(14): R807-R809.  
Additional press: 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.  

Additional press: 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.

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

## Preprints

1. Nagarkoti S, Kim YM, Das A, Ash D, **Vitriol EA**, Read TA, Sudhakar V, Hossain S, Yadav S, McMenamin M, Kelley S, Lucas R, Stepp DW, Belin de Chantemèle EJ, Caldwell RB, Fulton DJ, Fukai T, Ushio-Fukai M. (2024) Endothelial Drp1 Couples VEGF-induced Redox Signaling with Glycolysis Through Cysteine Oxidation to Drive Angiogenesis. *bioRxiv* (Preprint), DOI: 10.1101/2024.06.15.599174.

## Funding

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### Current

R35 GM137959 (NIH/NIGMS) Deciphering the Mechanisms and Cellular Roles of Monomer-Driven Actin Dynamics Total costs: \$1,864,478 Role: PI	08/20/2020-07/31/2025
R35 GM137959-S1 (NIH/NIGMS) Administrative Supplement to Promote Diversity in Health-Related Research Total Costs: \$69,120 Role: PI	05/01/2024-07/31/2025
R35 GM137959-S2 (NIH/NIA) Administrative Supplement to Help Develop Alzheimer's-Focused NIH Grants Total Costs: \$331,342 Role: PI	08/01/2024-07/31/2025
RF1 AG067729-01A1 (NIH/NIA) Regulation of SORLA by beta-arrestin2 Total costs: \$2,018,885 Role: Co-I	04/01/2022-08/31/2024

### Previous

ALS Association The Actin Cytoskeleton as a Novel Pathway in ALS Pathogenesis Total costs: \$50,000 Role: PI	09/01/2018-08/31/2019
R00 NS087104 (NIH/NINDS) Novel mechanisms of Actin Dynamics underlying Cell motility, Axon Growth, and ALS Total costs: \$747,000 Role: PI	04/01/2015-03/31/2018

K99 NS087104 (NIH/NINDS) Novel mechanisms of Actin Dynamics underlying Cell motility, Axon Growth, and ALS Role: PI	04/01/2014-12/01/2014
F32 NS077612 (NIH/NINDS) Spatiotemporal Control of Cofilin Activity During Growth Cone Motility Role: PI	12/01/2011-11/31/2013
T32 NS007480 (NIH/NINDS) Training in Translational Research in Neurology at Emory University Role: Postdoctoral trainee	09/01/2010-08/31/2011
F31 NS062487 (NIH/NINDS) Spatiotemporal Dynamics of RhoA Activation in Growth Cone Motility Role: PI	02/15/2008-08/23/2009
T32GM008581 (NIH/NIGMS) Cell and Molecular Biology Training Program at UNC-Chapel Hill Role: Graduate student trainee	10/01/2005-03/31/2007

## Presentations

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University of Utah, Department of Biochemistry	invited for May 2025
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 Conference	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

## Teaching

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### 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

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### Augusta University

Graduate Faculty Council Wellness Subcommittee Chair	2024-present
Biomedical Sciences PhD Program Recruiting and Admissions Committee	2022-present
Graduate Faculty Council	2022-present
Neuroscience Graduate Program Steering Committee	2021-present
Medical College of Georgia Research Planning Committee	2021-present
Cellular Biology and Anatomy Department Chair Search Committee	2023-2024
Director of the Neuroscience Summer Undergraduate Research Program	2023
Neuroscience BS/MS Program Steering Committee	2021-2023
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	2021-2024
Special Issue Editor for <i>Biophysical Journal</i>	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

## Grant Peer Review

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UK Research and Innovation Biotechnology and Biological Sciences Research Council	2024
French National Research Agency	2024
NIH Neuronal Communications (NC) Study Section	2024
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	2018

## Manuscript Peer Review

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

## Research Mentorship

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### Research Faculty and Postdocs

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

### Graduate Students

Tatiana Liu	PhD, Neuroscience	Augusta University	2024-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	CURS 2990 student	Augusta University	2023-2024
Caleb Comesi	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