

EDUCATION

- **University of California, Berkeley** 2007 – 2011
-Biophysics of cancer studied using advanced physical tools (Ph.D.)
- **University of Virginia** 2002 – 2006
-Biochemistry (B.S.); Physics (B.A.); Mathematics (Minor)
-Echols Scholar

EXPERIENCE*Professional*

- **Research Associate** Current
-Department of Microbiology, Cancer Biology and Immunology (UVA)
- **Visiting assistant professor** 2017 – 2018
-Biology department, Hollins University, Roanoke VA
- **Adjunct lecturer** Spring 2017
-Biology department, Hollins
- **Research associate** 2011 – 2015
-Howard Hughes Medical Institute (HHMI), University of Illinois, Urbana-Champaign (UIUC)
- **Science correspondent** Summer 2013
-Richard Casement internship at *The Economist*, London UK
- **Graduate student research associate** 2008 – 2011
-Berkeley
- **Software quality engineer** Summer 2006
-MicroStrategy, Inc., McLean, VA
- **High school student research associate** Summers 2000 – 2004
-Summer internship program in biomedical research at the National Institutes of Health (NIH)

Teaching

- **Cell and molecular biology** (Hollins) Spring 2018
-For biology majors, design and implement complete course pedagogy
-Lecture and 2 lab sections
- **How the immune system works** (Hollins)
-For non-majors, design and implement complete course pedagogy
-Lecture only
- **Immunology** (Hollins) Fall 2017
-For biology majors, design and implement complete course pedagogy
-Lecture and 2 lab sections
- **Human physiology** (Hollins) Spring 2017
-For biology majors
-Lecture and 1 lab section
- **Center for the Physics of Living Cells** (UIUC) Summer 2012
-Week-long course for graduate students and postdocs
- **Organic chemistry** (Berkeley) Spring 2010
-Led weekly lab sections, graded lab reports and exams
- **Math Tutoring, San Quentin State Prison, CA** Fall 2008
-Tutored prisoners in math as part of the Prison University Project
- **Physics lab** (UVA) Spring 2007
-Wrote introductory physics problems

- **Organic chemistry** (UVA) Fall 2005
-Led discussion sections, proctored and graded exams

Leadership

- **Subgroup leader** (UIUC) 2011 – 2015
-Managed weekly subgroup meetings
- **Biophysics admissions committee** (Berkeley) 2009 – 2011
-Read applications, interviewed prospective students, decided admits and rejects
- **Retreat organizer** (Berkeley) 2007 – 2009
-Prepared agendas, invited speakers
- **Editor** (UVA) 2004 – 2005
-Science section of *The Cavalier Daily*
- **President** (UVA) 2003 – 2005
-Solar Car Team

Volunteer and outreach

- **Faculty of 1000 Associate Faculty Member** Current
-To Roger Abounader
- **Sustained Dialogue** (Hollins) Fall 2017
-Engage in dialogue with diversity students, staff and faculty on sensitivity issues
- **Genome Day** (UIUC) 2012 – 2014
-Annual day-long event to share research with local elementary school students
- **Community Resources for Science** (Berkeley) 2008 – 2009
-Enables graduate students to go to elementary schools to teach science
- **Undergraduate mentor** (Berkeley) 2008 – 2011
-Managed research directions and experiments
- **Safety officer** (Berkeley) 2008 – 2011
-Managed lab safety protocols, led inspections

Research

As principal investigator-

- **Early childhood psychological well-being** (Hollins) 2017 – 2018
-Advised two undergraduate students, used meta-analysis

All others-

- **Molecular biology of glioblastoma** (UVA School of Medicine) Current
with Dr. Roger Abounader
- **Single molecule biophysics of infectious diseases** (HHMI, UIUC) 2011 – 2015
with Dr. Taekjip Ha
- **Biophysics of metastatic cancers** (Berkeley) 2008 – 2011
with Dr. Jay T. Groves
- **High energy particle physics** (UVA) 2005 – 2006
with Dr. Bob Hirosky,
- **Biochemistry of motor proteins** (NIH) 2000 – 2004
during summers with Dr. James R. Sellers

ACHIEVEMENTS and HONORS

- **Center for the Physics of Living Cells Travel Grants** (UIUC) 2013
- \$1500
- **DOD Breast Cancer Idea Award** (Berkeley) 2010
-\$500,000 / 2 years, co-lead grant writer

- **NSF GRFP Honorable Mention** (Berkeley) 2009
- **NIH Molecular Biophysics Training Grant** (Berkeley) 2007 – 2008
-\$30,000 / year
- **Member, The Jefferson Literary and Debating Society** (UVA) 2003 – 2006
- **Advisor, The Honor Committee** (UVA) 2003 – 2006
- **Echols Scholar** (UVA) 2002 – 2006
-No course requirements, select faculty advisors, priority course registration
- **Semi-finalist, Siemen’s Westinghouse Science and Technology Competition** 2001

PUBLICATIONS and PRESENTATIONS

Written for technical audience

1. “Integrin molecular tension within motile focal adhesions” *Biophys. J.* 2016, co-author
2. “Ultrasensitivity of cell adhesion to the presence of mechanically strong ligands” *Physical Review X* 2016, **co-first author**
3. “Nanoscale obstacle arrays frustrate transport of EphA2 – Ephrin-A1 clusters in cancer cell lines” *Nano Letters* 2013, **co-first author**
4. “DNA-mediated assembly of protein heterodimers on membrane surfaces” *JACS* 2013, co-author
5. “Supported membranes embedded with fixed arrays of gold nanoparticles” *Nano Letters* 2011, co-author
6. “EphA2 receptor activation by monomeric ephrin-A1 on supported membranes” *Biophys. J.* 2011, **first author**
7. “Myosin VIIB from *Drosophila* is a high duty ratio motor” *J. Biol. Chem.* 2005, co-author
8. “Neck length and processivity of Myosin V” *J. Biol. Chem.* 2003, co-author

Total citations to date: 379

Written for lay audience

1. F1000Prime Recommendation of [Chen P *et al.*, *Cancer Cell* 2019 35(6):868-884.e6]. Jul 10th 2019
2. “Put away the knitting” *The Economist*, Sep 7th 2013, Print
3. “First, wash your hands” *The Economist*, Sep 7th 2013, Technology Quarterly, Print
4. “Promotion and self-promotion” *The Economist*, Aug 31st 2013, Print
5. “The sound of silence” *The Economist*, Aug 24th 2013, Print
6. “Birds of a feather land together” *The Economist*, Aug 17th 2013, Print
7. “Peekaboo” *The Economist*, Aug 17th 2013, Print
8. “Cloudy with a chance of war” *The Economist*, Aug 6th 2013, Babbage, Online
9. “Primal attractions” *The Economist*, Aug 1st 2013, Babbage, Online
10. “A la recherche du temps inconnu” *The Economist*, Jul 27th 2013, Print
11. “Old soldiers?” *The Economist*, Jul 20th 2013, Print, Top 10 stories on Economist.com for the week
12. “Frogs, geckos, chameleons and more” *The Economist*, Jul 11th 2013, Babbage, Online
13. “The elephant in the room” *The Economist*, Jul 6th 2013, Print
14. “Why is hands-free texting dangerous?” *The Economist*, Jun 24th 2013, The Economist explains, Online
15. “Keep your mind on the road” *The Economist*, Jun 22nd 2013, Print

Presenting science for technical and lay audiences (select examples)

- Candidate interview (Hollins) 2017
Title: *Understanding cancer metastasis from the perspective of a membrane protein called EphA2*
- Group meeting (UIUC) 2013
Title: *Communicating science to a non-scientific audience*
- Center for the Physics of Living Cells (UIUC) 2012
Title: *Introduction to cancer*
- Cal Day, Berkeley, CA 2010
Title: *Fighting Cancer Cells: In Force and Organization*
- Annual meeting of the Biophysical Society, San Francisco, CA 2010
Title: *EphA2 receptor is activated by monomeric ephrin-A1 in cancer cells*
- Biophysics Graduate Group Retreat, Point Reyes, CA 2009
Title: *Receptor cluster size affects signaling in breast epithelial cancer cells*

- National Institutes of Health, summer student poster day 2004
Title: *Characterization of Myosin XVIII*
- City Council, Rockville, MD 2002
Title: *The effect of IQ motifs on the functions of Myosin V as a processive motor protein*

REFERENCES

Former post-doctoral adviser:

Taekjip Ha

Bloomberg Distinguished Professor
Howard Hughes Medical Investigator
Department of Biomedical Engineering
Johns Hopkins University
tjha@jhu.edu

Former graduate school adviser:

Jay T. Groves

Professor of Chemistry
Department of Chemistry
University of California, Berkeley
jtgroves@lbl.gov

Former high school science adviser:

James R. Sellers

Chief, Cellular and Molecular Motility Section
Laboratory of Molecular Cardiology
National Heart Lung and Blood Institute,
National Institutes of Health
jsellers@helix.nih.gov

Former science editor:

Geoffrey Carr

Science Editor
The Economist
London, UK
geoffreycarr@economist.com