

Ishmail Abdus-Saboer

University of Pennsylvania
Department of Biology
3740 Hamilton Walk, 319 Leidy Labs
Philadelphia, PA, 19104
Office: 215-898-0144
ishmail@sas.upenn.edu
www.abdus-saboerlab.com

Positions

University of Pennsylvania

2018–present Mitchell J. Blutt & Margo Krody Blutt Presidential Assistant Professor of Biology

Education

2014–2018 Postdoctoral Fellow, University of Pennsylvania, Neuroscience (advisor: Wenqin Luo)
2012–2014 Postdoctoral Fellow, Weill Cornell Medicine, Neuroscience (advisor: Benjamin Shykind)
2012 Ph.D., Cell & Molecular Biology, University of Pennsylvania (advisor: Meera Sundaram)
2006 B.S., Animal Science, summa cum laude, North Carolina A&T University

Awards and Honors

2020 Rita Allen Foundation Scholar in Pain Award
2018 Named to Mitchell J. Blutt & Margo Krody Blutt Presidential Endowed Chair
2018 NIH Mitchell Max Award for Pain Research
2017 NIH K99/R00 Pathway to Independence Award
2017 Rising Stars in Biomedical, Massachusetts Institute of Technology
2015 Burroughs Wellcome Fund PDEP Post-doctoral Fellowship
2014 NIH IRACDA Post-doctoral Fellowship
2012 Tom Kadesch Prize in Genetic Research, University of Pennsylvania
2011 Society for Developmental Biology Award
2009 NIH T32 Genetics Pre-doctoral Fellowship
2006 Gloria Twine Chisum Fellowship, University of Pennsylvania
2005 Phi Kappa Phi Honor Society

Peer-reviewed publications

*Denotes equal contribution ‡Denotes corresponding author

13. Jessica Jones*, William Foster*, Colin Twomey*, Justin Burdge, Jessica Wojick, Osama Ahmed, Talmo Pereira, Gregory Corder, Joshua Plotkin, **Ishmail Abdus-Saboer**.[‡] A machine-vision approach for automated pain measurement at millisecond timescales. *eLife* 9:e57258 (2020)
12. Nathan Fried, Alexander Chamesian, Mark Zylka, **Ishmail Abdus-Saboer**.[‡] Improving pain assessment in mice and rats with advanced videography and computational approaches. *Pain* 161(7):1420-1424 (2020).

11. Heather L. Rossi, Lily Pachanin, William Foster, Saumitra Pitake, Jennifer Gibbs, Brian Schmidt, Claire Mitchell, **Ishmail Abdus-Saboor**.[‡] Evoked and spontaneous pain assessment in a dental pulp injury model. *Scientific Reports* 10:2759 (2020).
10. Saumitra Pitake, Leah Middleton, **Ishmail Abdus-Saboor**, Santosh K Mishra. Inflammation induced sensory nerve growth and pain hypersensitivity requires the N-type calcium channel Cav2.2. *Frontiers in Neuroscience* 13, 1 – 13 (2019).
9. Melanie Schaffler, Leah Middleton, **Ishmail Abdus-Saboor**.[‡] Mechanisms of tactile sensory phenotypes in autism: current understanding, and future directions for research. *Current Psychiatry Reports* 21:134, 1-10 (2019).
8. **Ishmail Abdus-Saboor**^{*}, Nathan Fried^{*}, Mark Lay, Kathryn Swanson, Justin Burdge, Jessica Jones, Peter Dong, Weihua Cai, Xinying Guo, Yuan-Xiang Tao, Roman Fischer, John Bethea, Minghong Ma, Xinzhong Dong, Long Ding, Wenqin Luo. Development of a mouse pain scale using sub-second behavioral mapping and statistical modeling. *Cell Reports* 28,1623-1634 (2019).
7. William Olson, **Ishmail Abdus-Saboor**^{*}, Lian Cui^{*}, Justin Burdge, Tobias Raabe, Minghong Ma, Wenqin Luo. Sparse genetic tracing reveals regionally specific functional organization of mammalian nociceptors. *eLife* 6:e29507 (2017).
6. Lian Cui^{*}, Xuerong Miao^{*}, Lingli Liang, **Ishmail Abdus-Saboor**, William Olson, Michael Fleming, Minghong Ma, Yuanxiang Tao, Wenqin Luo. Identification of early RET+ deep dorsal spinal cord interneurons in gating pain. *Neuron* 91, 1–17 (2016).
5. **Ishmail Abdus-Saboor**, Muhammad Al-Nufal, Maha Agha, M. Ruinar de Brimont, Alexander Fleischmann, Benjamin Shykind. An expression refinement process ensures singular odorant receptor gene choice. *Current Biology* 26, 1083–90 (2016).
4. **Ishmail Abdus-Saboor**, Alexander Fleischmann, Benjamin Shykind. Setting limits: maintaining order in a large gene family. *Transcription* 5:e28978 (2014).
3. Alexander Fleischmann, **Ishmail Abdus-Saboor**, Atef Sayed, Benjamin Shykind. Functional interrogation of an odorant receptor locus reveals multiple axes of transcriptional regulation. *PLoS Biology* 11(5):e1001568 (2013).
2. **Ishmail Abdus-Saboor**, Craig Stone, John I. Murray, Meera Sundaram. The Nkx5/Hmx homeodomain protein MLS-2 is required for proper tube cell shape in the C.elegans excretory system. *Developmental Biology* 366, 298–307 (2012).
1. **Ishmail Abdus-Saboor**^{*}, Vincent P. Mancuso^{*}, John I. Murray, Katherine Palozola, Carolyn Norris, David Hall, Kelly Howell, Kai Huang, Meera V. Sundaram. Notch and Ras promote sequential steps of excretory tube development in C.elegans. *Development* 138, 3545–3555(2011).

Grant Support

9/20 – 8/23

Rita Allen Foundation Scholar in Pain Award

Discovering behavioral signatures of pain at millisecond timescales.

\$150,000 direct costs

Role: PI

- 12/18 – 12/20 Research Supplement to R00 Award (DE026807)
\$161,115 total costs
- 9/17 – 8/21 NIH K99/R00 Pathway to Independence Award (DE026807)
Determining the functions of molecularly defined populations of nociceptors
in spinal and dental pain.
\$955,440 total costs
Role: PI, 75%
- 9/15 – 8/18 Burroughs Wellcome Fund Postdoctoral Enrichment Program
Defining the neural mechanisms mediating crosstalk between touch and pain.
\$60,000 direct costs
Role: PI
- 6/16 – 12/17 Burroughs Wellcome Fund Collaborative Research Travel Grant
Optogenetic and brain imaging investigation of pain neural circuitry.
\$8,000 direct costs
Role: PI; Co-PI: Jin Lee, Stanford
- 9/14 – 7/17 NIH IRACDA Postdoc Fellowship (K12 GM081295)
Dissect neural mechanisms underlying the crosstalk between touch and pain.
\$190,488 total costs
- 2009 – 2011 NIH Pre-Doctoral Training Program in Genetics (T32 GM008216)

Invited Research Talks

69. **Gordon Conference on Molecular and Cellular Neurobiology**, Hong Kong 7/2/22
68. **Gordon Conference on Neurotrophic Mechanisms**, Rhode Island 6/1/21
67. **Lehigh Valley Molecular & Cell Biology Society Meeting, Keynote Speaker** 4/21
66. **University of Rochester**, Department of Pharmacology and Physiology. **cancelled due to covid-19*
65. **Northeastern University**, Biology Colloquium (virtual) 12/7/20
64. **Weill Cornell Medicine**, Frontiers in Neuropsychiatry Seminar Series (virtual) 11/24/20
63. **University of Texas San Antonio**, Neuroscience Seminar Series (virtual) 11/11/20
62. **University of Iowa**, Neuroscience Institute Seminar Series (virtual) 10/30/20
61. **University of Michigan**, Dpt. of Molecular, Cell, Developmental Biology (virtual) 10/16/20
60. **Johns Hopkins University**, Department of Biochemistry and Molecular Biology (virtual) 10/12/20
59. **NIH**, NIDA Animal Genetics Consortium (virtual) 9/24/20
58. **Next Generation Pain Therapeutics Meeting**, Texas **cancelled due to covid-19*
57. **Georgetown University**, Department of Pharmacology and Physiology (virtual) 9/10/20
56. **Duke University School of Medicine**, Pain Seminar Series **cancelled due to covid-19*
55. **University of Pennsylvania**, ULAR veterinary residents lecture 8/20/20
54. **NIH**, Early Career Investigators in Addiction Neuroscience (virtual) 8/12/20
53. **Johns Hopkins University**, Department of Pharmacology & Molecular Sciences (virtual) 7/22/20
52. **Stanford University & Chinese Academy of Sciences**; Neuro Zoom (virtual) 7/6/20

51. **University of Virginia**, Neuroscience Department, Inaugural Juneteenth Lecture (virtual) 6/15/20
50. **Duke University School of Medicine**; U01 Pain Project Team seminar (virtual) 6/8/20
49. **University of Chicago**, Department of Biochemistry & Molecular Biophysics *cancelled due to covid-19
48. **New York University School of Medicine**, Marie M. Daly Lecture *cancelled due to covid-19
47. **Pain Research Forum**; moderated by Cheryl Stucky, Wisconsin (virtual) 3/24/20
46. **Rowan University**, Molecular and Cellular Biosciences Seminar Series 2/28/20
45. **Temple University**, Neuroscience Seminar Series 2/12/20
44. **Keystone Symposium**, Pain: Aligning the Target, Colorado 2/3/20
43. **University of Pennsylvania**, Dermatology Research Seminar Series 1/14/20
42. **University of Pennsylvania**, Psychology Colloquium Series 12/2/19
41. **University of Texas at Dallas**, School of Behavioral and Brain Sciences 11/7/19
40. **Lasalle University**, Department of Biology 10/1/19
39. **University of Illinois at Chicago**, Integrative Neuroscience Seminar Series 9/26/19
38. **Fox Chase Cancer Center**, Molecular Therapeutics Department 6/20/19
37. **University of Maryland Baltimore County**, Dpts. of Biology; Chemistry & Biochemistry 5/8/19
36. **University of Washington, Seattle**, Neuroscience Seminar Series 3/14/19
35. **North Carolina A&T University**, Department of Biology 1/23/19
34. **University of California Santa Cruz**, Dpt. of Molecular, Cell, Developmental Biology 1/14/19
32. **St. Joseph's University**, Department of Biology 11/14/18
31. **University of Pennsylvania**, Center for Neurobiology and Behavior Seminar 10/26/18
30. **University of Pennsylvania**, Department of Biology Retreat 10/4/18
29. **Mid-Atlantic Pharmacology Society Meeting**, Philadelphia, PA 9/27/18
28. **University of Pennsylvania**, mindCORE Seminar Series 9/4/18
27. **Gordon Conference on Molecular and Cellular Neurobiology**, Hong Kong 7/3/18
26. **NIH**, Pain Consortium Symposium (awarded Mitchell Max Award) 5/31/18
25. **Rockefeller University**, Sense to Synapse Conference 5/12/18
24. **Vanderbilt University School of Medicine**, Emerging Scholars Lecture 5/3/18
23. **Meharry Medical College**, Department of Biochemistry and Cancer Biology 5/2/18
22. **Bryn Mawr College**, Chemistry Colloquia Series 4/16/18
21. **Duke University School of Medicine**, Department of Pharmacology 2/20/18
20. **New York University School of Dental Medicine**, Department of Oral Surgery 2/7/18
19. **University of Pennsylvania**, Department of Biology 1/11/18
18. **University of Pennsylvania**, Department of Oral Surgery & Pharmacology 12/14/17
17. **Johns Hopkins University**, Department of Pharmacology & Molecular Sciences 12/12/17
16. **Temple University**, Center for Substance Abuse Research 12/7/17
15. **Society for Neuroscience Meeting**, Washington D.C. 11/11/17
14. **Haverford College**, Department of Biology 4/3/17
13. **Syracuse University**, Department of Biology 3/10/17
12. **Rutgers University Camden**, Department of Biology 1/19/17
11. **Swarthmore College**, Department of Biology 11/30/16
10. **Mount Holyoke College**, Department of Biological Sciences 11/8/16
9. **University of Pennsylvania Dental School**, Levy Series 10/27/16
8. **Bucknell University**, Department of Biology 10/3/16
7. **Rutgers University Camden**, Department of Biology 3/10/16
6. **Virginia Tech University**, Department of Biochemistry 1/13/16

5. **2nd International Symposium on Olfaction**, Paris 9/19/13
4. **University of Pennsylvania**, Genetics Symposium (awarded Tom Kadesch Prize) 11/28/12
3. **University of Pennsylvania**, Cell and Molecular Biology Annual Symposium 10/11/11
2. **International C.elegans Meeting**, Los Angeles, CA 6/26/11
1. **Society for Developmental Biology Meeting**, Philadelphia, PA 6/3/11

Classes Taught at the University of Pennsylvania (percentage denotes portion of the course)

BIOL 221: Molecular Biology and Genetics. 50%, 130 students. Spring 2020

NGG 588: Topics in Translational Neuroscience, Spring 2020. (one course lecture)

BIOL 221: Molecular Biology and Genetics. 50%, 130 students. Spring 2019

Research Advising: (*denotes underrepresented minority)

Post-doctoral Fellows

Anissa Jhumka, beginning fall 2020

*Juan Inclan Rico, beginning fall 2020, co-advised with Debroski Herbert

Heather Rossi, 2018 – present.

Saumitra Pitake, 2018 – 2020.

Doctoral Students

Justin Burdge. Biology PhD student. 2020 – present.

2020 – 2023: NIH T32 Genetics Pre-doctoral Fellowship

*Melanie Schaffler. Neuroscience PhD student. 2018 – present.

Leah Middleton. Neuroscience PhD student. 2018 – present.

2020: Selected into North American Pain School

Rotation Students

*Lindsay Ejoh, Neuroscience (fall 2020)

*Erin (Evonne) Jean, Immunology (summer 2020)

Ryan Schwark, Neuroscience (spring 2020)

Justin Burdge, Biology (fall 2019)

Leah Middleton, Neuroscience (fall 2018)

*Melanie Schaffler, Neuroscience (summer 2018)

Post-baccalaureate Researchers

William Foster, 2018 – 2021.

PhD student in Neuroscience at Emory University, 2021 –

2019: Delivered nano-symposium talk at Society for Neuroscience meeting.

*Jessica Jones, 2018 – 2020.

PhD student in Neuroscience at University of Washington, 2020 –

2019: Delivered nano-symposium talk at Society for Neuroscience meeting.

Undergraduates

Samuel Kaufmann, 2019 – present, (Biology)

2020: Benjamin Franklin Scholars Summer Grant

2019: Benjamin Franklin Scholars Summer Grant

2019: Pincus-Magaziner Family Undergraduate Research and Travel Fund Grant

Lucie Pham, 2019 – present, (Biology)

*Justin Arnold, fall 2019 – present, (Biological Basis of Behavior)

Justin Burdge, 2018 –2019, (Health and Societies)

PhD student in Biology at Penn in Abdus-Saboor lab, 2019 –

Emma Lu, 2019, (Biology)

*Migyana Thomas, 2018 –2019

Summer Interns

*Kayla Dennis, Philadelphia High School for Girls, 2020 (LENS intern)

*Camille Harrison, North Carolina A&T University, 2020 (SUIP intern).

*Meghan Wachira, Rutgers Camden University, 2020 (DAPPG intern).

Isabella Succi, St. Joseph's University, 2019.

*Syphane Gibbs, North Carolina A&T University, 2019 (SUIP intern).

PhD student in Pharmacology at University of Virginia, 2020 –

*Racquel Amadi, Xavier University in Louisiana, 2019. (DAPPG intern).

*Mariatu Fayia, high school student, 2019 (LENS intern)

Professional Service

Reviewing Editor

2020– eLife

Ad hoc Reviewer

2020– Neuroscience

2020– Journal of Neuroscience

2020– Pain

2019– eLife

2019– eNeuro

2018– Molecular Pain

2017– Neuroscience Letters

2017– PLoS One

Ad hoc Grant Reviewer

6/3/2020 Study Section: NIH/NINDS, F99/K00 Blueprint Diversity Specialized Predoctoral to Postdoctoral Advancement in Neuroscience

5/2020 Department of Defense/Army Research Office, Neurophysiology of Cognition

8/2019 Burroughs Wellcome Fund Graduate Diversity Enrichment Program

9/2018 Research Grants Council of Hong Kong

Service to the University of Pennsylvania

Biology Department

2020– Seminar Committee

2020 Recruitment Day Chair for Ph.D. admissions

2018–2020 Co-Director, Mentoring Circle Program for underrepresented minority students

School of Arts and Sciences

2019–2020 Member, Dean Fluharty’s Committee for “Mapping the Mind”

School of Medicine

2020– Seminar Committee, Department of Neuroscience

2020– Faculty Advisory Board, E.E. Just Biomedical Society for underrepresented minority PhD students in Biomedical Graduate Studies

Graduate Student Qualifying Exam and/or Thesis Advisory Committees

Brandon Bastien, Neuroscience Graduate Group. 2020 – present

Jessica Wojick, Biology Graduate Group, 2020

Michelle Klima, Neuroscience Graduate Group. 2020 – present

Melina Gyparaki, Biology Graduate Group. 2019 – present

Bishwas Sharma, Biology Graduate Group. 2019 – present

Lily See, DSc.D. program, 2019 – present

Luigim Cifuentes, Neuroscience Graduate Group. 2019

Yongjun Li, Biology Graduate Group, 2019

Linyang Ju, Biology Graduate Group, 2019

Outreach as Faculty

2020 Speaker, Harvard Medical School Black Postdoctoral Association

2020 External Participant, Monell Chemical Senses Center, Diversity Journal Club

2020 Research Seminar, Penn SUIP and DAPPG underrepresented minority interns

2020 Podcast Interview, Penn Science Policy and Diplomacy Group

2020 Podcast Interview, UCSF Carry the One Radio

2020 Session Chair at Keystone Symposium Pain Meeting:

“Inclusivity and Diversity in the Field: What Works and How to Do Better”

2020 Feature Interview for middle school book project “Healthy NewsWorks”

2020 Speaker for mindCORE event, “Beyond the CV: Stories from Faculty”

2020 Panelist, Postdoc Association (BPP) event, “Pursuing an Academic Career”

2019 Guest Lecturer, Penn Summer High School Program’s Neuroscience Research Academy

2019 Guest Lecturer, Penn Summer High School Program’s Biomedical Research Academy

2019 Research Seminar, Penn SUIP underrepresented minority interns

2019 Panelist for mindCORE event, “Navigating the academic job market”

2019 Speaker, Penn Neuroscience “Public Lecture on Pain”

2019 Abdus-Saboor lab Science Day for 25 elementary students in West Philly

2019 Panelist, Center for Teaching/Learning “Workshop on Inclusive Teaching”

2019 Research Seminar Speaker for SUIP underrepresented minority interns

2019 Research Talk, ABRCMS Biomedical Research Conference, California

2018 Panelist, Lasalle University STEM underrepresented minority day

2018 Invited Research Seminar, Penn Neuroscience Honors Society

2018 Speaker, SMASH STEM program for high school minority students

TV Special, Media Coverage, Feature Stories

- Cell Press, 2020. “100 inspiring black scientists in America.”
- Katherine Baillie, 2019. “The Science of Sensations” Penn Today.

- Stephanie Stahl, 2018. *“From Central High School to His Own Lab, Penn Scientist Focused on Finding Better Treatments for Pain.”* CBS Local News TV Special.
- Marla Vacek Broadfoot, 2018. *“How early STEM program and mentors paved the way for a career in science.”* Burroughs Wellcome Fund Feature Article.
- Gregory Richter, 2018. *“PennPORT (al) into a Thriving Science Career.”* Penn Medicine News.

Scientific Society Memberships

2020-present US Association for the Study of Pain
2018–present International Association for the Study of Pain
2013–present Society for Neuroscience