

Isha Himani Jain

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EDUCATION

Harvard-MIT Health Sciences and Technology, PhD, Medical Engineering and Medical Physics; Computer Science 2012- 2017
Harvard University, AB, Chemical and Physical Biology, magna cum laude 2008- 2012

RESEARCH POSITIONS

- 1. Harvard/MIT | Vamsi Mootha & Warren Zapol Labs | Systems Medicine 2013- 2018**
 - Development of hypoxia as a therapy for mitochondrial diseases
 - Involved in designing a Phase 1 clinical trial based on these initial findings
 - Use of computational and systems biology, molecular biology and physiology to determine mitochondrial disease pathology and therapeutics
- 2. Harvard University| Erin O'Shea Lab | Systems Biology 2009- 2012**
 - Microscopy and modeling of chromosome segregation dynamics during cell division
 - Discovery of molecular mechanisms that allow for spatial ordering of chromosomes and carboxysomes in cyanobacteria
 - Analysis of cyanobacterial transcriptome and determinants of circadian gene expression
- 3. UC Berkeley| Steven Brenner Lab | Computational Biology 2009 Summer**
 - Use of CHIP-Seq and RNA-Seq datasets to understand the role of histone modifications in determining mRNA splicing patterns
 - Part of modENCODE project to identify splicing patterns in model organism transcriptomes
- 4. Max Planck Institute| Wulf Blankenfeldt Lab | Structural Biology 2008 Spring**
 - Crystallization and biochemical characterization of enzymes involved in phenazine synthesis pathway
- 5. Lehigh University| Kathy Iovine Lab | Developmental Biology 2004-2008**
 - Characterization and modeling of bone growth patterns in zebrafish fins
 - Identification of the role of gap junction proteins in determining bone growth kinetics
- 6. Lehigh University| Materials Science and Engineering 2001-2004**

- Developed novel hands-on pedagogical demonstrations for teaching materials science and glass technology to pre-college students using sucrose-water as a model system for common silicate glass and its crystallization properties

PUBLICATIONS

1. **I. H. Jain**, A. L. Markhard, O. S. Skinner, S. E. Calvo, V. K. Mootha. Mitochondria and peroxisome metabolism are differentially essential at high versus low oxygen levels. *In Revision. Cell*
2. **I. H. Jain***, L. Zazzeron*, Goldberger, O...W.M. Zapol**, V. K. Mootha**. Normalizing brain hyperoxia, but not HIF activation, is sufficient to rescue a mouse model of Leigh syndrome *In Press. Cell Metabolism* (2019). [* , **equal contribution]
3. M. Ferrari*, **I. H. Jain***, Goldberger, O...V. K. Mootha**, W.M. Zapol**. Hypoxia treatment reverses neurodegenerative disease in a mouse model of Leigh syndrome. *PNAS*, 114 (21), E4241-E4250 (2017). [* , **equal contribution]
4. **I. H. Jain**, L. Zazzeron, R. Goli...F. Zhang, W. Goessling, W. M. Zapol, V. K. Mootha. Hypoxia as a therapy for mitochondrial disease. *Science*, 352 (6281), 54-61 (2016).
5. **I. H. Jain***, V. Vijayan*, E.K. O'Shea. Spatial ordering of chromosomes enhances the fidelity of chromosome partitioning in cyanobacteria. *PNAS*, 109 (34), 13638-13643 (2012). [*equal contribution]
6. V. Vijayan, **I. H. Jain**, E.K. O'Shea. A high resolution map of a cyanobacterial transcriptome. *Genome Biology*, 12:R47 (2011). *Highly accessed article*.
7. A. D. Hoptak-Solga, S. Nielsen, **I. H. Jain**, R. Thummel, D. Hyde, and M. K. Iovine. Connexin43 (GJA1) is required in the population of dividing cells during fin regeneration. *Developmental Biology*, (2008)
8. **I. H. Jain**, C. Stroka, J. Yan, W. Huang, M. K. Iovine. Bone growth in zebrafish fins occurs via multiple pulses of cell proliferation. *Developmental Dynamics*, 236, 2668-2674 (2007)
9. A. Sharma, H. Jain, J. O. Carnali, **I. H. Jain**. Inhomogeneous evolution of a glass surface via free, rapid expansion. *Applied Physics Letters*, 83, 2802-2804 (2003)
10. H. Jain and **I. H. Jain**. Discovering the Science and Technology of Glass Formation from Candy Making. *Proc. Am. Soc. Eng. Edu.*, Session 3264, pp 1-7 (2002)
11. H. Jain and **I. H. Jain**. Learning the Principles of Glass Science and Technology from Candy Making. *Standard Experiments in Engineering Materials, Science and Technology, NEW: Update 2000. NASA/CP-2001-211029*. pp. 169-182 (2001).

MAJOR INTERNATIONAL AND NATIONAL AWARDS

1. Harold Weintraub Graduate Student Award	2017
2. Philanthropic Educational Organization National Scholar Award (\$15K)	2016
3. Barry Goldwater Scholarship	2011
4. Glamour Magazine's Top 10 College Women	2009
5. Discover Magazine's Top Five Scientists Under 20	2008
6. Siemens Math, Science & Technology Competition, National Winner (\$100K)	2007-08
7. L'Oreal Women in Science, Invited Panelist	2008
8. Intel Science Talent Search Finalist	2008
9. Intel Science and Engineering Fair, First Place Award	2007
10. 36th Int'l Metallographic Contest – First Prize, George Kehl Award	2004
11. First Prize, Nat'l Educators Workshop, Undergrad Research Poster Contest	2003

FELLOWSHIPS AND GRANTS

1. Program for Breakthrough Biomedical Research, New Frontiers Grant	2019-20
2. NIH Early Independence Grant (DP5)	2018-23
3. Glenn Award/Grant for Aging Research	2018-19
4. American Federation for Aging Research (AFAR) Grant for Junior Faculty	2018-20
5. UCSF Sandler Faculty Fellowship	2018-23
6. Department of Energy Computational Science Graduate Fellowship	2013-16
7. National Defense Science & Engineering Graduate Fellowship, <i>declined</i>	2013
8. National Science Foundation Graduate Research Fellowship, <i>declined</i>	2012
9. MIT Presidential Fellowship	2012
10. Phi Beta Kappa Honors Society	2012
11. Rhodes Scholarship Finalist	2011
12. John Harvard Scholar (top 5% annual GPA) – Harvard University	2011

SELECTED ORAL PRESENTATIONS (NATIONAL / INTERNATIONAL)

1. Lausanne Integrative Metabolism Seminar, Invited	Lausanne, Switzerland	2018
2. University of Geneva Cell Biology Seminar, Invited	Geneva, Switzerland	2018
3. MitoClub Seminar Series, Invited	Cologne, Germany	2018
4. Rising Stars Symposium, Invited	Salt Lake City, UT	2017
5. Gordon Conference on Bioenergetics, Invited	Andover, NH	2017
6. Keystone Symposia on Hypoxia Adaptations	Whistler, Canada	2017
7. Cell Symposia on Aging and Metabolism	Melia Sitges, Spain	2016
8. Wellcome Trust Mitochondrial Medicine Conference	Hinxton, UK	2016
9. Future Physicians and Scientists, Invited	Washington DC	2014
10. Neurobiology of Disease in Children	Austin, TX	2013

11. International Women's Forum, Invited Panelist	Miami, FL	2009
12. Experimental Bio Conference 2008 Invited Speaker	San Diego, CA	2008
13. Max Planck Institute Seminar	Bavaria, Germany	2008
14. Kondo Group Seminar	Kyoto, Japan	2006
15. Annual Meet. Pennsylvania Science Teachers Assoc.	Hershey, PA	2006
16. XIX Annual National Educators Workshop	Phoenix, AZ	2003
17. Am. Ceram. Soc. Glass & Optical Materials Div. Mtg.	Corning, NY	2003
18. Am. Ceram. Soc. Glass & Optical Mater. Div. Mtg.	Pittsburgh, PA	2002
19. Am. Soc. Eng. Edu. (ASEE) Ann. Mtg.	Montreal, Canada	2002
20. Am. Ceram. Soc. Glass & Optical Materials Div. Mtg.	Corning, NY	2002

TEACHING AND SERVICE

1. Organizer, National Symposium for the Advancement of Women in Science, 2011
 - Over 200 attendees from ~15 universities and high schools across the country
 - Two-day event with panels, workshops, networking socials, etc.
 - Raised > \$20,000 from pharmaceutical/biotech companies, etc.
2. Vice President, Women in Science Lecture Series (WISHR), 2008-2009
3. Physical Chemistry Tutor, 2011
4. Vice President (2010-2011), Organizer, Harvard Undergraduate Research Symposiums (2008-2009), Harvard College Undergraduate Research Association
5. The Harvard Undergraduate Research Journal Content Board, 2008-2019