

Isha Himani Jain

POSITIONS

Assistant Professor and Investigator (*starting late 2020*)

Gladstone Institute of Cardiovascular Disease | Gladstone Institutes

Department of Physiology | University of California, San Francisco

UCSF Sandler Faculty Fellow (*Aug 2018-present*)

Department of Physiology | University of California, San Francisco

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 TRAINING

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. A. H. Baik, **I. H. Jain**. Turning the oxygen dial: balancing the highs and lows. **Trends in Cell Biology**. (2020)
2. **I. H. Jain***, S. E. Calvo*, A. L. Markhard...V. K. Mootha. Genetic screen for cell fitness in high or low oxygen highlights mitochondrial and lipid metabolism. **Cell**, 181, 1-12 (2020). [*, **equal contribution]
3. **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. **Cell Metabolism**, 30, 1-9 (2019). [*, **equal contribution]
4. 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]
5. **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).
6. **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]
7. 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*.
8. 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)
9. **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)
10. 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)
11. 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)

12. H. Jain and **L. 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).

GRANTS & FELLOWSHIPS

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| 1. DARPA Panacea Grant (Co-PI) | 2019-24 |
| 2. Program for Breakthrough Biomedical Research, NFR Grant | 2019-20 |
| 3. NIH Early Independence Grant (DP5) | 2018-23 |
| 4. Glenn Award/Grant for Aging Research | 2018-19 |
| 5. American Federation for Aging Research Grant for Junior Faculty | 2018-20 |
| 6. UCSF Sandler Faculty Fellowship | 2018-23 |
| 7. Beckman Young Investigator Grant, Finalist | 2018/2019 |
| 8. Department of Energy Computational Science Graduate Fellowship | 2013-16 |
| 9. National Defense Science & Engineering Graduate Fellowship, <i>declined</i> | 2013 |
| 10. National Science Foundation Graduate Research Fellowship, <i>declined</i> | 2012 |
| 11. MIT Presidential Fellowship | 2012 |

MAJOR INTERNATIONAL AND NATIONAL AWARDS

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| 1. Harold Weintraub Graduate Student Award | 2017 |
| 2. Philanthropic Educational Organization National Scholar Award (\$15K) | 2016 |
| 3. Phi Beta Kappa Honors Society | 2012 |
| 4. Rhodes Scholarship Finalist | 2011 |
| 5. Barry Goldwater Scholarship | 2011 |
| 6. Glamour Magazine's Top 10 College Women | 2009 |
| 7. Discover Magazine's Top Five Scientists Under 20 | 2008 |
| 8. Siemens Math, Science & Technology Competition, National Winner (\$100K) | 2007-08 |
| 9. L'Oreal Women in Science, Invited Panelist | 2008 |
| 10. Intel Science Talent Search Finalist | 2008 |
| 11. Intel Science and Engineering Fair, First Place Award | 2007 |
| 12. 36th Int'l Metallographic Contest – First Prize, George Kehl Award | 2004 |
| 13. First Prize, Nat'l Educators Workshop, Undergrad Research Poster Contest | 2003 |

SELECTED ORAL PRESENTATIONS (NATIONAL / INTERNATIONAL)

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| 1. Q-Life Symposium, Invited | Paris, France | 2019 |
| 2. Fusion Conference for Mitochondrial Biology, Invited | Nassau, Bahamas | 2019 |
| 3. Lausanne Integrative Metabolism Seminar, Invited | Lausanne, Switzerland | 2018 |
| 4. University of Geneva Cell Biology Seminar, Invited | Geneva, Switzerland | 2018 |
| 5. MitoClub Seminar Series, Invited | Cologne, Germany | 2018 |

6. Rising Stars Symposium, Invited	Salt Lake City, UT	2017
7. Gordon Conference on Bioenergetics, Invited	Andover, NH	2017
8. Keystone Symposia on Hypoxia Adaptations	Whistler, Canada	2017
9. Cell Symposia on Aging and Metabolism	Melia Sitges, Spain	2016
10. Wellcome Trust Mitochondrial Medicine Conference	Hinxton, UK	2016
11. Future Physicians and Scientists, Invited	Washington DC	2014
12. Neurobiology of Disease in Children	Austin, TX	2013
13. International Women's Forum, Invited Panelist	Miami, FL	2009
14. Experimental Bio Conference 2008 Invited Speaker	San Diego, CA	2008
15. Max Planck Institute Seminar	Bavaria, Germany	2008
16. Kondo Group Seminar	Kyoto, Japan	2006
17. Annual Meet. Pennsylvania Science Teachers Assoc.	Hershey, PA	2006
18. XIX Annual National Educators Workshop	Phoenix, AZ	2003
19. Am. Ceram. Soc. Glass & Optical Materials Div. Mtg.	Corning, NY	2003
20. Am. Ceram. Soc. Glass & Optical Mater. Div. Mtg.	Pittsburgh, PA	2002
21. Am. Soc. Eng. Edu. (ASEE) Ann. Mtg.	Montreal, Canada	2002
22. Am. Ceram. Soc. Glass & Optical Materials Div. Mtg.	Corning, NY	2002

TEACHING AND SERVICE

1. Reviewer (eLife, PNAS, Nature Metabolism, etc.), 2018- Present
2. Faculty Lecturer, Committees, etc. (Graduate Programs: BMS, Tetrad, PSPG), 2018- Present
3. 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.
4. Vice President, Women in Science Lecture Series (WISHR), 2008-2009
5. Physical Chemistry Tutor, 2011
6. Vice President (2010-2011), Organizer, Harvard Undergraduate Research Symposiums (2008-2009), Harvard College Undergraduate Research Association
7. The Harvard Undergraduate Research Journal Content Board, 2008-2009