

Riddhiman K. Garge, Ph.D.

PERSONAL CONTACT DETAILS

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EDUCATION

- 2015 - 2021 **Ph.D., Biochemistry**
The University of Texas (UT) at Austin
Advisor: Dr. Edward M. Marcotte
Thesis entitled "Of Yeast and Men : Insights into Evolution and Human Health from 1 Billion Years of Divergence"
- 2011 - 2015 **B.E., Biotechnology**
M. S. Ramaiah Institute of Technology, Bangalore

POSITIONS AND RESEARCH EXPERIENCE

- 2021 - Present **Postdoctoral Researcher**
Center for Multiplex Assessment of Phenotype (CMAP), Department of Genome Sciences, University of Washington
Advisors- Drs. Jay A. Shendure & Lea M. Starita
- 2021 - Present **Research Fellow**
Brotman Baty Institute for Precision Medicine, University of Washington
- 2016 - 2021 **Ph.D. Student**
Department of Molecular Biosciences, The University of Texas at Austin
Advisor- Dr. Edward M. Marcotte
- 2015 - 2016 **Rotation Student**
Department of Molecular Biosciences, The University of Texas at Austin
Advisors- Drs. Edward M. Marcotte, Andreas Matouschek, Rick Russell
- 2014 - 2015 **Research Assistant**
Institute of Stem Cell and Regenerative Medicine, National Center for Biological Sciences, Bengaluru
Advisors- Dr. Ramaswamy Subramanian & Dr. Jeffrey Abramson
- 2013 **Research Assistant**
Bugworks Research India Pvt Ltd.
Advisor- Dr. Bala Subramanian

- 2012 **Research Assistant**
Schrödinger India Inc.
Advisor- Dr. Ravikumar Muttineini

FELLOWSHIPS AND AWARDS

- 2023 - Present Washington Research Foundation Postdoctoral Fellowship
- 2021 - 2023 CMAP Postdoctoral Fellowship
- 2019 Institute for Cellular and Molecular Biology (ICMB) Travel Award
- 2018 - 2020 American Heart Association (AHA) Predoctoral Fellowship
- 2018 Marion Elizabeth Eason Endowed Scholarship for The Study of Biology
- 2018 Graduate Dean's Prestigious Fellowship Supplement
- 2018 David Bruton Jr. Graduate School Fellowship
- 2018 ICMB Biochemistry Program Summer Travel Award
- 2017 ICMB Biochemistry Program Summer Travel Award

PUBLICATIONS

* denotes equal contribution, ^ denotes co-corresponding author

1. Pendyala, S., Partington, K., Bradley, N., McEwen, A.E., Straub, G., Kim, H., Fayer, S., Holmes, D.L., Sitko, K.A., **Garge, R.K.**, et al. Image-based, pooled phenotyping reveals multidimensional, disease-specific variant effects. *Cell* (2026). [Link](#)
2. **Garge, R.K.**[^], Lynch, V., Fields, R., Casadei, S., Best, S., Stone, J., Snyder, M., McGann, C.D., Shendure, J., Starita, L.M., et al. The proteomic landscape and temporal dynamics of human and mouse gastruloid development. *Nature Cell Biology* (2026). [Link](#)
3. Fayer, S., **Garge, R.K.**, Hopkins, M., Friedman, C.E., McGee, A.V., Rico, J., Powell, R. L., McDermot, E., Smith N.T., Pendyala, S., Richardson, M.E., Smith, E.D., et al. Editing stem cell genomes at scale to measure variant effects in diverse cell and genetic contexts. *medRxiv* (2025). [Link](#)
4. Woo, I., Casadei, S., Snyder, M.W., Smith, N.T., Best, S., Tejura, M., Gupta, P., McEwen, A.E., Post, M., Hamm, A., Dawood, M., Hosokai A., Alicia X., **Garge R.K.**, et al. Saturation genome editing of BARD1 resolves VUS and provides insight into BRCA1-BARD1 tumor suppression. *medRxiv* (2025). [Link](#)
5. Pinglay, S., Lalanne, J.-B., Daza, R.M., Kottapalli, S., Quaisar, F., Koepfel, J., **Garge, R.K.**, Li, X., Lee, D.S., and Shendure, J. Multiplex generation and single-cell analysis of structural variants in mammalian genomes. *Science* (2025). [Link](#)
6. Hamazaki, N., Yang, W., Kubo, C., Qiu, C., Martin, B.K., **Garge, R.K.**, Regalado, S.G., Nichols, E., Lee, C., Daza, R.M., et al. Induction and *in silico* staging of human gastruloids with neural tube, segmented somites & advanced cell types. *Nature Cell Biology* (2024). [Link](#)
7. Boyle, G.E., Sitko, K., Galloway, J.G., Haddox, H.K., Bianchi, A.H., Dixon, A., Thomson, R.E.S., **Garge, R.K.**, Rettie, A.E., Rubin, A.F., et al. Deep mutational scanning of CYP2C19 reveals a substrate specificity-abundance tradeoff. *Genetics* (2024). [Link](#)
8. **Garge, R.K.**, Geck, R.C., Armstrong, J.O., Dunn, B., Boutz, D.R., Battenhouse, A., Leutert, M., Dang, V., Jiang, P., Kwiatkowski, D., et al. Systematic Profiling of Ale Yeast Protein Dynamics across Fermentation and Repitching. *G3: Genes, Genomes, Genetics* (2023). [Link](#)
9. Abdullah, M., Greco, B.M., Laurent, J.M., **Garge, R.K.**, Boutz, D.R., Vandeloo, M., Marcotte, E.M., Kachroo, A., Rapid, Scalable, and Combinatorial Genome Engineering by Markerless Enrichment and

Recombination of Genetically Engineered Loci (MERGE) in Yeast. **Cell Reports Methods** (2023).

[Link](#)

10. Bean, B.D.M., Mulvihill, C.J., **Garge, R.K.**, Boutz, D.R., Rousseau, O., Floyd, B.M., Cheney, W., Gardner, E.C., Ellington, A.D., Marcotte, E.M., et al. Functional expression of opioid receptors and other human GPCRs in yeast engineered to produce human sterols. **Nature Communications** (2022). [Link](#)
11. Roberson E., Battenhouse A., **Garge R. K.**, Tran N. K., Marcotte E. M., Wallingford J. B., Spatiotemporal transcriptomics of the cycling mouse oviduct. [Cover article](#). **Developmental Biology** (2021). [Link](#)
12. **Garge, R.K.***, Cha, H.J.*, Lee, C., Gollihar, J.D., Kachroo, A.H., Wallingford, J.B., and Marcotte, E.M. Antifungal benzimidazoles disrupt vasculature by targeting one of nine β -tubulins. [Cover article](#). **Genetics** (2021). [Link](#)
13. **Garge, R.K.**, Laurent, J.M., Kachroo, A.H., and Marcotte, E.M. Systematic Humanization of the Yeast Cytoskeleton Discerns Functionally Replaceable from Divergent Human Genes. [Cover article](#). **Genetics** (2020). [Link](#)
14. Laurent, J.M., **Garge, R.K.**, Teufel, A.I., Wilke, C.O., Kachroo, A.H., and Marcotte, E.M. Humanization of yeast genes with multiple human orthologs reveals functional divergence between paralogs. **PLoS Biology** (2020). [Link](#)
15. Blank, H.M., Papoulas, O., Maitra, N., **Garge, R.K.**, Kennedy, B.K., Schilling, B., Marcotte, E.M., and Polymenis, M. Abundances of transcripts, proteins, and metabolites in the cell cycle of budding yeast reveal coordinate control of lipid metabolism. **Molecular Biology of the Cell** (2020). [Link](#)
16. Akhmetov, A., Laurent, J.M., Gollihar, J., Gardner, E.C., **Garge, R.K.**, Ellington, A.D., Kachroo, A.H., and Marcotte, E.M. Single-step Precision Genome Editing in Yeast Using CRISPR-Cas9. **Bio Protocol** (2018). [Link](#)

PRESS

- 2024 Paper Offers New Insights into Human and Mouse Gastruloid Development [Link](#)
- 2024 Promising Young Scientist: Riddhiman Garge Embraces Two Distinct Passions [Link](#)
- 2024 Annual Intern Forum-Luncheon Provides Students Opportunities to Discuss Careers with Scientists [Link](#)
- 2024 Brü Lab Podcast Ep.142- Changes in Yeast Proteins During Fermentation with Dr. Riddhiman Garge [Link](#)
- 2024 Beer brewers and geneticists collaborate on study of yeast changes during commercial fermentation [Link](#)
- 2021 How an anti-fungal medication can stop new blood vessel formation [Link](#)

CONFERENCES AND PRESENTATIONS

- 2026 Poster Stem Cell Models in Embryology
- 2025 Invited Seminar UW Genome Sciences Department
- 2024 Invited Seminar Biotechnology Department, Ramaiah Institute of Technology
- 2024 Poster NHGRI Centers in Genome Excellence (CEGS) Meeting
- 2024 Organizer Alpine Genomics Institute, Challenges and Opportunities in Genetics and Genomics
- 2024 Invited Seminar Dell Pediatric Research Institute, UT Austin

- 2024 Invited Seminar Biochemistry and Molecular Genetics Department, CU Anschutz
- 2024 Lightning Talk US Human Proteome Organization
- 2023 Invited Talk UW Institute of Stem Cell and Regenerative Medicine seminar
- 2023 Participant NHGRI Centers in Genome Excellence (CEGS) Meeting
- 2023 Invited Talk Master Brewers Association of the Americas (MBAA) Conference
- 2023 Poster Advances in Genome Biology and Technology (AGBT) Precision Health Meeting
- 2023 Poster 82nd Annual Society for Developmental Biology Meeting
- 2022 Poster NHGRI Centers in Genome Excellence (CEGS) Meeting
- 2020 Participant From Functional Genomics to Systems Biology, EMBL
- 2020 Poster Molecular Mechanisms in Evolution and Ecology, EMBL
- 2020 Poster The Allied Genetics Conference
- 2019 Poster Yeast Research: Origins, Insights & Breakthroughs, CSHL
- 2019 Poster American Society of Brewing Chemists Conference
- 2018 Poster From Functional Genomics to Systems Biology, EMBL
- 2018 Poster Genetics Society of America Yeast Genetics Meeting
- 2017 Participant DNA23
- 2017 Selected Talk Society for Molecular Biology and Evolution
- 2017 Participant 5th Annual Big Data in Biology Symposium at UT Austin
- 2016 Participant 4th Annual Big Data in Biology Symposium at UT Austin
- 2014 Poster Recent Advances in Computational Drug Design, Indian Institute of Science

TEACHING EXPERIENCE

- 2020 Teaching Assistant Introduction to Core Next Generation Sequencing Concepts and Tools
- 2018 Teaching Assistant Systems Biology and Bioinformatics

WORKSHOPS

- 2025 UW Future Faculty Workshop
- 2019 Principles of Machine Learning for Bioinformatics
- 2018 Introduction to Core Next Generation Sequencing Concepts and Tools
- 2016 Introduction to Mass Spectrometry and Proteomics

MENTORING

() denotes current position

Undergraduate students

1. 2024 Clare Malhotra REU student (Undergraduate at University of Chicago)

2.	2022-2023	Annabelle Fryer	Research Assistant (Patient Services Coordinator II, Massachusetts General Hospital)
3.	2021 - 2026	Ivan Woo	Research Assistant (Research Scientist, Brotman Baty Institute)
4.	2021-2025	Audrey Hamm	Research Assistant
5.	2017-2019	Sophie Curie	Research Assistant (UW Radiology Resident)
6.	2018	Anastasiya Kulikova	Research Assistant (UT Austin Molecular Biosciences graduate student)

Graduate students

1.	2025	Melissa Hopkins	UW Genome Sciences graduate student
2.	2025	Alexandra Donny	UW Genome Sciences graduate student
3.	2024	Abby McGee	UW Genome Sciences graduate student
4.	2023	Evan McDermott	UW Genome Sciences graduate student
5.	2022	Connor Kubo	UW Genome Sciences graduate student
6.	2017	Evelyn Abbott	UT Austin Ecology and Evolutionary Biology graduate student

SERVICE

• 2024	Judge and Guest of Honor	Sadhu Vasvani International School Science Fair
• 2024	Invited Panelist	Brotman Baty Institute Career Panel for Undergraduates
• 2024	Organizing committee	Alpine Genomics Institute Unconference
• 2024	Graduate Recruitment Panel	UW Department of Genome Sciences
• 2022	Organizing Member	UW Department of Genome Sciences 20th Anniversary Symposium
• 2019	Committee Member	Gottlieb Lecture Series featuring Dr. Jay Shendure
• 2017-2020	Organizer	“Biology Talks about Computers, Organisms and Systems”, Center for Systems and Synthetic Biology, UT Austin
• 2016	Committee Member	Gottlieb Lecture Series featuring Dr. William Moerner
• 2016	Judge	Molecular Biosciences Undergraduate Research Symposium, UT Austin

SCIENTIFIC OUTREACH

• 2025	Volunteer	UW Robinson Center’s visit to the Brotman Baty Institute
• 2023	Invited guest	The Brü Lab podcast hosted by Brülosophy
• 2018	Volunteer	Magellan International School visit to UT Austin
• 2017	Invited guest	NPR’s “They Blinded Me With Science” on KVRX
• 2016	Volunteer	NSF’s Building with Biology event at the Thinkery in Austin

REFERENCES

DR. JAY A. SHENDURE

Postdoc Advisor
Investigator, Howard Hughes Medical Institute
Professor, Department of Genome Sciences, University of Washington
Director, Allen Discovery Center for Cell Lineage Tracing
Scientific Director, Seattle Hub for Synthetic Biology
Scientific Director, Brotman Baty Institute for Precision Medicine, University of Washington
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Phone- (206) 685-8543

DR. LEA M. STARITA

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DR. EDWARD M. MARCOTTE

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DR. DEVIN K. SCHWEPPE

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DR. DOUGLAS M. FOWLER

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