Stanford

# Tuhin Guha

Postdoctoral Scholar, Genetics

NIH Biosketch available Online  Curriculum Vitae available Online  Resume available Online


## CONTACT INFORMATION

- **Alternate Contact**

  **Email** tuhinkguha@gmail.com


## Bio

### BIO

A research individual with more than ten years of extensive research experience in molecular biology techniques ranging from DNA/RNA manipulations, recombinant protein expression, purification, and biochemical characterization of DNA-cutting enzymes, needed for genetic engineering. I am a postdoctoral research fellow in the Department of Genetics, Stanford University. I work with Dr. Mike Snyder. My research involves characterization of tissue and tumor microenvironment at single-cell resolution using CODEX multiplexed-molecular imaging on precancerous and cancerous colon polyps (Familial adenomatous polyposis) along with studying aging heart, placenta microenvironment. My previous work involved novel gene therapy approaches to cure muscle disorders, particularly Limb-girdle muscular dystrophy 2A using mouse models, and gene repair studies using modified CRISPR system through plasmid/protein-oligo based transfections, electroporation in human cells, microinjection in frog embryos and analyzing editing efficiencies using flow cytometry. I have a multi-disciplinary background, therefore I have a solid understanding and working knowledge in a broader domain within the biological sciences, be it from animal behavior, ecology, gene regulation, genetic diseases to understanding and designing “molecular switches” within DNA-cutting proteins, such as meganucleases, and CRISPR/Cas9 for genome engineering. I have strong communication skills, presented my research in various conferences and published heavily in the field of DNA-cutting enzymes and their use as genome editing tools. I have published in 15 peer-reviewed journals and also reviewed 9 research papers. I have a proven ability to manage challenging research objectives, collaborated with other research teams, and delivered results effectively. I always welcome new ideas and interact with people to learn any new skills and experiences. I have also supervised several undergraduate project students, summer students and junior graduate students.

### HONORS AND AWARDS

- International Graduate Student Scholarship (IGSS), CAD 8000, University of Manitoba (2012 - 2013)
- Faculty of Science Graduate Scholarship (FSGS), CAD 10000 / year, University of Manitoba (2011 - 2013)
- International Graduate Student Entrance Scholarship (IGSES), CAD 8000, University of Manitoba (2009 -2010)

### PROFESSIONAL EDUCATION

- Master of Science, University of Manitoba (2011)
- Master of Science, University Of Calcutta (2006)
- Bachelor of Science, University Of Calcutta (2004)
- Doctor of Philosophy, University of Manitoba (2016)

### STANFORD ADVISORS

- Michael Snyder, Postdoctoral Faculty Sponsor

### LINKS

- www.linkedin.com/in/tuhin-k-guha-ph-d-416996b0: www.linkedin.com/in/tuhin-k-guha-ph-d-416996b0

## Research & Scholarship

### LAB AFFILIATIONS

- Michael Snyder (8/7/2019)
- Michael Snyder (8/1/2019)

## Publications

### PUBLICATIONS

- **Single-cell analyses define a continuum of cell state and composition changes in the malignant transformation of polyps to colorectal cancer.** *Nature genetics*
  Becker, W. R., Nevins, S. A., Chen, D. C., Chiu, R., Horning, A. M., Guha, T. K., Laquindanum, R., Mills, M., Chaib, H., Ladabaum, U., Longacre, T., Shen, J., Esplin, et al
  2022
- **MITI minimum information guidelines for highly multiplexed tissue images.** *Nature methods*
  Schapiro, D., Yapp, C., Sokolov, A., Reynolds, S. M., Chen, Y., Sudar, D., Xie, Y., Muhlich, J., Arias-Camison, R., Arena, S., Taylor, A. J., Nikolov, M., Tyler, et al
  2022; 19 (3): 262-267
- **Single-cell analyses define a continuum of cell state and composition changes in the malignant transformation of polyps to colorectal cancer** *Nature Genetics*
  Becker, W. R., Nevins, S. A., Chen, D. C., Chiu, R., Horning, A., Laquindanum, R., Mills, M., Chaib, H., Ladabaum, U., Longacre, T., Shen, J., Esplin, E. D., Kundaje, et al
  2022; 54: 985-995
- **The Human Tumor Atlas Network: Charting Tumor Transitions across Space and Time at Single-Cell Resolution.** *Cell*
  Rozenblatt-Rosen, O., Regev, A., Oberdoerffer, P., Nawy, T., Hupalowska, A., Rood, J. E., Ashenberg, O., Cerami, E., Coffey, R. J., Demir, E., Ding, L., Esplin, E. D., Ford, et al
  2020; 181 (2): 236–49
- **Nucleofection of phiC31 Integrase Protein Mediates Sequence-Specific Genomic Integration in Human Cells.** *Journal of molecular biology*
  Guha, T. K., Calos, M. P.
  2020
- **Plasmid-Mediated Gene Therapy in Mouse Models of Limb Girdle Muscular Dystrophy** *MOLECULAR THERAPY-METHODS & CLINICAL DEVELOPMENT*
  Guha, J. K., Pichavant, C., Calos, M. P.
  2019; 15: 294–304
- **Production of Endoglucanase and Xylanase Using Food Waste by Solid-State Fermentation** *Waste and Biomass Valorization*
  Tian, M., Wai, A., Guha, T. K., Hausner, G., Yuan, Q.
  2018: 1-8
- **Applications of Alternative Nucleases in the Age of CRISPR/Cas9.** *International journal of molecular sciences*
  Guha, T. K., Edgell, D. R.
  2017; 18 (12)
- **The intron landscape of the mtDNA cytb gene among the Ascomycota: introns and intron-encoded open reading frames.** *Mitochondrial DNA. Part A, DNA mapping, sequencing, and analysis*
  Guha, T. K., Wai, A., Mullineux, S. T., Hausner, G.

2017: 1-10

- **Three new active members of the I-OnuI family of homing endonucleases.** *Canadian journal of microbiology*
  Bilto, I. M., Guha, T. K., Wai, A., Hausner, G.
  2017
- **Programmable Genome Editing Tools and their Regulation for Efficient Genome Engineering.** *Computational and structural biotechnology journal*
  Guha, T. K., Wai, A., Hausner, G.
  2017; 15: 146-160
- **Insertion of Group II Intron-Based Ribozyme Switches into Homing Endonuclease Genes.** *Methods in molecular biology (Clifton, N.J.)*
  Guha, T. K., Hausner, G.
  2017; 1498: 135-152
- **Using Group II Introns for Attenuating the In Vitro and In Vivo Expression of a Homing Endonuclease** *PLOS ONE*
  Guha, T. K., Hausner, G.
  2016; 11 (2)
- **I-OmiI and I-OmiII: Two intron-encoded homing endonucleases within the Ophiostoma minus rns gene** *FUNGAL BIOLOGY*
  Hafez, M., Guha, T. K., Hausner, G.
  2014; 118 (8): 721-731
- **A homing endonuclease with a switch: Characterization of a twintron encoded homing endonuclease** *FUNGAL GENETICS AND BIOLOGY*
  Guha, T. K., Hausner, G.
  2014; 65: 57-68
- **PCR-based bioprospecting for homing endonucleases in fungal mitochondrial rRNA genes.** *Methods in molecular biology (Clifton, N.J.)*
  Hafez, M., Guha, T. K., Shen, C., Sethuraman, J., Hausner, G.
  2014; 1123: 37-53

## PRESENTATIONS

- Guha, T.K.*, and Hausner, G. Controlling a DNA chopper: Group II introns as attenuators for homing endonuclease expression. 1st - 3rd June, 2016; University of Manitoba, Winnipeg, Canada. - Biophysical Society of Canada. (June 1, 2016 - June 3, 2016)
- Guha, T.K.*, and Hausner, G. On-switch regulators in action: Regulation of a Homing endonuclease by group II introns. - Canadian Society of Microbiologists (June 15, 2015 - June 18, 2015)
- Guha, T.K.*, and Hausner, G. A twintron encoded homing endonuclease with an on-switch. - Keystone Symposia, Keystone Symposia- Precision genome engineering and synthetic biology. (January 11, 2015 - January 16, 2015)
- Guha, T.K.*, and Hausner, G. A homing endonuclease with a switch: Characterization of a twintron encoded homing endonuclease. - Canadian Society of Microbiologists (June 17, 2013 - June 20, 2013)