

SUSHANT BANGRU, Ph.D.

Postdoctoral Fellow

Regenerative Biology Theme
Morgridge Institute for Research

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RESEARCH FOCUS

Tissue regeneration, developmental robustness, and adaptive cellular plasticity using zebrafish and complementary vertebrate models, employing quantitative live imaging, genetics, and functional genomics.

EDUCATION

- 2015–2021 **Ph.D., Biochemistry**, University of Illinois Urbana-Champaign, Urbana, IL
Advisor: Auinash Kalsotra, Ph.D.
- 2011–2015 **B.Sc. (Research), Biological Sciences**, Indian Institute of Science, Bangalore, India
Advisor: Desirazu N. Rao, Ph.D.

RESEARCH TRAINING

- 2024– **NICHD K99/R00 Postdoctoral Fellow**, Regenerative Biology, Morgridge Institute for Research
Advisors: **Kenneth D. Poss, Ph.D.**, and **Stefano Di Talia, Ph.D.**
Research: Mechanisms of robustness and plasticity in tissue regeneration.
- 2021–2024 **Postdoctoral Fellow**, Dept. of Cell Biology, Duke University
Advisors: **Kenneth D. Poss, Ph.D.**, and **Stefano Di Talia, Ph.D.**
Research: Mechanisms of robustness and plasticity in tissue regeneration.
- 2015–2021 **Graduate Research Associate**, Dept. of Biochemistry, University of Illinois Urbana-Champaign
Advisor: **Auinash Kalsotra, Ph.D.**
PhD Thesis: Elucidating gene regulatory mechanisms of postnatal maturation and regeneration in the mammalian liver
- 2013–2015 **Undergraduate Researcher**, Department of Biochemistry, Indian Institute of Science
Advisor: **Desirazu N. Rao, Ph.D.**
Undergraduate Thesis: Examination of the differences in substrate specificity and methylation patterns of *H. pylori* HpyAII methyltransferases.

RESEARCH FUNDING

- 2026–2031 **NICHD K99/R00 Pathway to Independence Award** - NIH/NICHD K99HD121969
Morgridge Institute for Research & Duke University
- 2021–2023 **CAGT Genome Technology Postdoctoral Fellowship**
Center for Advanced Genomic Technology, Duke University
- 2020–2021 **Graduate College Dissertation Completion Fellowship**
University of Illinois Urbana-Champaign
- 2018–2020 **NIH Tissue Microenvironment T32 Fellowship** - NIH/NIBIB T32EB019944
Beckman Institute, University of Illinois Urbana-Champaign
- 2015–2016 **Ullyot Fellowship**
School of Molecular and Cellular Biology, University of Illinois Urbana-Champaign
- 2010–2015 **Kishore Vaigyanik Protsahan Yojana Fellowship**
Department of Science and Technology, Government of India

AWARDS AND HONORS

Research awards

- 2019 Colin A. Wraight Award, Best Research Paper in Biochemistry, University of Illinois Urbana-Champaign

Presentation and travel awards

- 2026 Postdoc Poster Presentation Award, Santa Cruz Developmental Biology Meeting, Santa Cruz, CA
- 2022 Conference Travel Award, Annual Meeting of the RNA Society, Boulder, CO

- 2020 Conference Travel Award, Annual Meeting of the RNA Society, Vancouver, BC
- 2018 Poster Presentation Award, RNA Rustbelt Meeting, Columbus, OH
- 2018 RNA Society Conference Travel Award, International Society for Computational Biology Conference, Chicago, IL
- 2017 Graduate College Travel Award, University of Illinois Urbana-Champaign
- 2014 T. N. Khoshoo Ecology and Environment Award, Wipro Earthian Competition

PUBLICATIONS

*First- and co-first-author works are highlighted in gray. * denotes equal contribution.*

Pre-printed articles

- 27)** Gillotay, P.*, **Bangru, S.***, Shen, J., Moore, B., Ou, J., Stewart, R., & Poss, K.D. (2026). Transcriptional control of axon pathfinding shapes regeneration outcomes in zebrafish after spinal cord injury. *bioRxiv*, *In Review*. Available at <https://www.biorxiv.org/content/10.1101/2025.10.25.684558v1>

Peer-reviewed articles

- 26)** Ando, K.*, **Bangru, S.***, Welsby, J., Thompson, J.D., & Poss, K.D. (2026). Buffering of genetic defects in animal development by regeneration programs. *PLoS Biology*, *In Press*. Available at <https://www.biorxiv.org/content/10.1101/2025.10.25.684558v1>
- 25)** Zhou, W., Chembazhi, U.V., Huang, J., **Bangru, S.**, Dean, A.E., Asokakumar, A., Kalsotra, A., Rudnick, D.A., & Anakk, S. (2026). Loss of Constitutive Androstane Receptor (Car) elevated bile acids, and c-Myc transcript in mice, revealing its metabolic role during liver regeneration. *Cellular and Molecular Gastroenterology and Hepatology*, *In Press*.
- 24)** Gillotay, P., **Bangru, S.**, Dassay, B., Haerlingen, B., Shankar, M.P., Fonseca, B.F., Ziros, G.P., Singh, S.P., Sykietis, P.S., Mirian, R., & Costagliola, S. (2026). The role of Nrf2 in thyroid maturation and hormone synthesis in vertebrate models. *Life Science Alliance*, 9(7), e202603687.
- 23)** Song, Y.J., Shinn, M.K.*, **Bangru, S.***, Wang, Y., Sun, Q., Hao, Q., Chaturvedi, P., Freier, S.M., Perez-Pinera, P., Nelson, E.R., Belmont, A.S., Guttman, M., Prasanth, S.G., Kalsotra, A., Pappu, R., & Prasanth, K.V. (2026). LncRNA-Splicing Factor Condensates Regulate Hypoxia-Responsive Pre-mRNA Processing near Nuclear Speckles. *Molecular Cell*, 86(6):1061-1080.e10.
- 22)** **Bangru, S.**, Diegmiller, R., Di Talia, S., & Poss, K.D. (2025). Signal control mechanisms underlying tissue regeneration in adult animals. *Nature Reviews Molecular Cell Biology*, 27(4):316-335.
- 21)** Chembazhi, U.V.*, **Bangru, S.***, Dutta, R., Peiffer, B., Das, D., Natua, S., Toohill, K., Leona, A., Purwar, I., Bhowmik, A., Goyal, Y., Sun, Z., Diehl, A.M., & Kalsotra, A. (2025). Dysregulation of RNA splicing induces liver regeneration failure in alcohol-associated liver disease. *Nature Communications*, 16(1):8049.
- 20)** **Bangru, S.**, Chen, J., Baker, N., Chembazhi, U.V., Das, D., Derham, J.M., Chorghade, S., Arif, W., Alencastro, F., Duncan, A.W., Carstens, R.P., & Kalsotra, A. (2025). ESRP2-microRNA-122 axis directs the postnatal onset of liver polyploidization and maturation. *Genes & Development*, 39(5-6):325-347.
- 19)** Goo, Y.H., Ayyappan, J.P., Cheeran, F.D., **Bangru, S.**, Saha, P.K., Baar, P., Schulz, S., Lydic, T.A., Spengler, B., Wagner, A.H., Kalsotra, A., Yechoor, V.K., & Paul, A. (2024). Lipid droplet-associated hydrolase mobilizes stores of liver X receptor sterol ligands and protects against atherosclerosis. *Nature Communications*, 15(1):6540.
- 18)** Iyer, R.R., Applegate, C.C., Arogundade, O.H., **Bangru, S.**, Berg, I.C., Emon, B., Porras-Gomez, M., Hsieh, P., Jeong, Y., Kim, Y., Knox, H.J., Moghaddam, A.O., Renteria, C.A., Richard, C., Santaliz-Casiano, A., Sengupta, S., Wang, J., Zambuto, S.G., Zeballos, M.A., Pool, M., Bhargava, R., & Gaskins, H.R. (2024). Inspiring a convergent engineering approach to measure and model the tissue microenvironment. *Heliyon*, e32456.
- 17)** Ando, K., Ou, J., Thompson, J., Welsby, J., **Bangru, S.**, Shen, J., Wei, X., Diao, Y., & Poss, K.D. (2024). A screen for regeneration-associated silencer regulatory elements in zebrafish. *Developmental Cell*, 59(5), 676-691.
- 16)** Piersma, S.*, **Bangru, S.***, Yoon, J., Liu, T.W., Yang, L., Hsieh, C.S., Plougastel-Douglas, B., Kalsotra, A. & Yokoyama, W. (2023). NK cell expansion requires HuR and mediates innate immune control of solid tumors and long-term virus infection. *Journal of Experimental Medicine*, 220(11):e20231154.
- 15)** Srivastava, I., Lew, B., Wang, Y., Blair, S., George, M.B., Hajek, B.S., **Bangru, S.**, Pandit, S., Wang, Z., Ludwig,

J., Flatt, K., Gruebele, M., Nie, S., & Gruev, V. (2023). Cell-membrane coated nanoparticles for tumor delineation and qualitative estimation of cancer biomarkers at single wavelength excitation in murine and phantom models. *ACS Nano*, 17(9):8465-8482.

14) Chembazhi, U.V., Tung, W.S., Hwang, H., Wang, Y., Lalwani, A., Nguyen, K.L., **Bangru, S.**, Yee, D., Chin, K., Yang, J., Kalsotra, A., & Mei, W. (2023). PTBP1/HNRNP I controls intestinal epithelial cell regeneration by maintaining stem cell survival and stemness. *Nucleic Acids Research*, gkad042.

13) Arif, W., Mathur, B., Saki M.F., Chembazhi, U.V., Toohill, K., Song, Y.J., Hao, Q., Karimi, S., Blue, S.M., Yee, B.A., Van Nostrand, E.L., **Bangru, S.**, Guzman, G., Yeo, G.W., Prasanth, K.V., Anakk, S., Cummins, C., & Kalsotra, A. (2022). Splicing factor SRSF1 deficiency in the liver triggers NASH-like pathology via R-loop induced DNA damage and cell death. *Nature Communications*, 14(1):551

12) Sonam, S.*, **Bangru, S.***, Perry, K.J., Chembazhi, U.V., Kalsotra, A., & Henry, J.J. (2022). Cellular and molecular profiles of larval and adult *Xenopus* corneal epithelia resolved at the single-cell level. *Developmental Biology*, 491, 13-20.

11) Peng, J., Serrano, G., Traniello, I.M., Calleja-Cervantes, M.E., Chembazhi, U.V., **Bangru, S.**, Ezponda, T., Rodriguez-Madoz, J.R., Kalsotra, A., Prosper, F., Ochoa, I., & Hernaez, M. (2022). A single-cell gene regulatory network inference method for identifying complex regulatory dynamics across cell phenotypes. *Communications Biology*, 5(1):351.

10) Chembazhi, U.V.*, **Bangru, S.***, Hernaez, M., & Kalsotra, A. (2020). Cellular plasticity balances metabolic and proliferation dynamics of a regenerating liver. *Genome Research*, 31(4), 576-591.

9) Kumar, S., **Bangru, S.**, Kumar, R., & Rao, D. (2020). Promiscuous DNA cleavage by HpyAII endonuclease is modulated by the HNH motif catalytic residues. *Bioscience Reports*, bsr20201633.

8) Sun, Q., Hao, Q., Lin, Y.C., Song, Y.J., **Bangru, S.**, Arif, W., Tripathi, V., Zhang, Y., Cho, J.H., Freier, S.M., Jenkins, L.M., Ma, J., Yoon, J.H., Kalsotra, A., Lal, A., Prasanth, S.G., & Prasanth, K.V. (2020). Antagonism between Splicing and Microprocessor complex Dictates the Serum-induced Processing of Lnc-MIRHG for Efficient Cell Cycle Re-entry. *RNA*, rna.075309.120.

7) Srivastava, I., Misra, S.K., **Bangru, S.**, Boateng, K.A., Soares, J.A.N.T., Schwartz-Duval, A.S., Kalsotra, A., & Pan, D. (2020). Complementary Oligonucleotide Conjugated Multicolor Carbon Dots for Intracellular Recognition of Biological Events. *ACS Applied material & Interfaces*, 12(14), 16137-16149.

6) **Bangru, S.**, & Kalsotra, A. (2020). Cellular and molecular basis of liver regeneration. *Seminars in Cell & Developmental Biology*, 100, 74-87.

5) Hyun, J., Sun, Z., Ahmadi, A.R., **Bangru, S.**, Chembazhi, U.V., Du, K., Chen, T., Tsukamoto, H., Rusyn, I., Kalsotra, A., & Diehl, A.M. (2020). ESRP2-mediated alternative splicing reprograms hepatocytes in severe alcoholic hepatitis. *Journal of Clinical Investigation*, 130(4), 2129-2145.

4) Misra, C., **Bangru, S.**, Lin, F., Lam, K., Koenig, S., Lubbers, E., Hedhli, J., Murphy, N., Parker, D.J., Dobrucki, W.L., Cooper, T.A., Tajkhorshid, E., Mohler, P., & Kalsotra, A. (2020). Aberrant Expression of a Non-muscle RBFOX2 Isoform Triggers Cardiac Conduction Defects in Myotonic Dystrophy. *Developmental Cell*, 52(6), 748-763.

3) Seimetz, J., Arif, W., **Bangru, S.**, Hernaez, M., & Kalsotra, A. (2019). High resolution and cell-type specific polysome profiling from tissues. *Methods*, 155, 131-139.

2) **Bangru, S.***, Arif, W.*, Seimetz, J., Bhate, A., Chen, J., Rashan, E.H., Carstens, R.P., Anakk S., & Kalsotra, A. (2018). Alternative Splicing rewires Hippo Signaling pathway in hepatocytes to promote liver regeneration. *Nature Structural & Molecular Biology*, 25(10), 928-939.

1) **Bangru, S.**, & Kalsotra, A. (2016). Advances in analyzing RNA diversity in eukaryotic transcriptomes: peering through the Omics lens. *F1000Research*, 5:2668.

TEACHING EXPERIENCE

Spring 2022	Instructor, BIOTRAIN 754: The Responsible Scientist II, Duke University
2017–2018	Teaching Assistant, MCB 354: Biochemical and Physical Basis of Life, University of Illinois Urbana-Champaign
Fall 2016	Teaching Assistant, MCB 450: Introductory Biochemistry, University of Illinois Urbana-Champaign
Spring 2015	Teaching Assistant, UES 307: Introduction to Solid Earth, Indian Institute of Science

ORAL PRESENTATIONS

Invited Conference and Institutional Presentations

- Nov 2026 Discovery Seminar Series, University of Wisconsin–Madison (scheduled)
- Oct 2026 Developmental Biology Seminar Series, University of Wisconsin–Madison (scheduled)
- Oct 2026 Center for Quantitative Cell Imaging seminar series, University of Wisconsin–Madison (scheduled)
- Jul 2025 19th International Zebrafish Conference, Skeletal Biology Workshop, Madison, WI

Conference presentations selected from abstracts

- Sep 2026 Midwest Society for Developmental Biology Meeting, Cincinnati, OH
- Aug 2021 CSHL Eukaryotic mRNA Processing Meeting, virtual
- Feb 2019 Keystone Symposium: RNA–Protein Interactions, Whistler, Canada
- Apr 2018 Tissue Microenvironment Symposium, Urbana, IL
- Oct 2017 RNA Rustbelt Meeting, Indianapolis, IN

POSTER PRESENTATIONS

- Aug 2026 Santa Cruz Developmental Biology meeting, Santa Cruz, California
- Sep 2025 Midwest Society for Developmental Biology Meeting, Cincinnati, OH
- Jul 2025 19th International Zebrafish Conference, Madison, WI
- 2016–2022 Additional graduate school presentations at RNA Society, RNA Rustbelt, Gordon Research Conference, ISCB, and CSHL meetings.

TRAINEES MENTORED

- 2026–2027 Freddy Caswell, Undergraduate Researcher, Poss Lab, University of Wisconsin–Madison
SCRMC Summer Research Fellowship (2026)
- 2024–2026 Rebecca Myatt, Research Technician II, Poss Lab, Morgridge Institute for Research
- 2022–2024 Lucas Garcia, Research Technician II, Poss–Di Talia Lab, Duke University
Current position: Graduate student, University of Denver
- 2022–2023 Demi Wang, Undergraduate Researcher, Duke University
- 2018–2019 Neha Hebbar & Uma Basole, High School Student Researchers, researchHStart Program, Cancer Center at Illinois, UIUC
- 2019–2021 Jan Uy, Undergraduate Researcher, University of Illinois Urbana-Champaign
MCB Summer Research Fellowship (2020)
- 2016–2019 Jackie Chen, Undergraduate Researcher, University of Illinois Urbana-Champaign
Best Undergraduate Poster Award, RNA Rustbelt Meeting (2017);
Best Undergraduate Thesis in Biochemistry (2018)
Current position: Scientist in biotechnology industry (Ph.D. completed, 2025)
- 2016–2021 Ullas VC, Ruicheng Shi, Adrika Raybarman, Nicholas Baker, & Junya Li - Rotation students in the Kalsotra Lab with the MCB Graduate Program, UIUC.

CAREER DEVELOPMENT TRAINING

- 2025–2026 Postdoctoral Training Course in Scientific Leadership, Office of Postdoctoral Studies, UW Madison
Six-month leadership program for postdoctoral scientists covering team leadership, expectation setting, feedback, and conflict management.

INSTITUTIONAL SERVICE

- 2026 Member, SCRMC Summer Undergraduate fellowship Committee
Served as a committee member for interview and selection of Sophomore Undergraduates for Summer fellowship at Stem Cell Center, UW Madison.
- 2022–2023 Member, Duke Cell Biology Postdoctoral Committee
Organized coffee hours, invited seminars and career workshops for Postdoctoral researchers in the Cell Biology Department

- 2018 Member, MCB Retreat planning Committee
Helped plan and organize the MCB retreat for the School of Molecular and Cellular Biology.

AD HOC PEER REVIEW

- 2021– Ad hoc reviewer and co-reviewer for manuscripts submitted to Science, Cell Biology and Toxicology, Molecular Biology Reports, BMC Molecular and Cell Biology, Cells, Frontiers Cell and Developmental Biology, Molecular Biology of the Cell (MBoC), Scientific Reports

REFERENCES

Kenneth D. Poss, Ph.D.

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Stefano Di Talia, Ph.D.

Professor, Department of Cell Biology, Duke University
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Auinash Kalsotra, Ph.D.

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kalsotra@illinois.edu

Anna Mae Diehl, M.D.

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