Stanford



Joydeep Bhadury

Senior Research Scientist-Basic Life, Stem Cell Bio Regenerative Med Institute

Bio

BIO

I'm Joy, currently an Instructor in the lab of Prof. Hiro Nakauchi. My academic journey began with an undergraduate degree in Genetic Engineering from India, leading me to further studies with an M.S. and a Ph.D. in Sweden. I then went to Prof Nakauchi's lab at the University of Tokyo, Japan to familiarize myself with stem cell biology before joining his Stanford lab.

Under Prof. Jonas Nilsson's mentorship during my Ph.D., I explored the molecular intricacies of cancer. This helped me identify strategies that could potentially prevent pluripotent stem cells from developing malignant characteristics, ensuring their safety in clinical applications.

My ongoing research revolves around three core objectives:

1. Defining Pluripotency in Mammals: Our work has led to the identification of specific conditions that sustain pluripotency across species without requiring small molecules or cytokines.

2. Overcoming Xeno-barriers in Organ Development: By employing genome-wide perturbation techniques, we're working to identify and bypass barriers that hinder the effective integration of xenogeneic donor cells. This is crucial for generating complete organs in research animals.

3. Evolving Organ Preservation Methods: Drawing inspiration from natural processes, we are on the path to formulating innovative ex vivo organ preservation techniques and thereby, enhancing the success rates of transplantations.

ACADEMIC APPOINTMENTS

- Senior Research Scientist-Basic Life, Stem Cell Bio Regenerative Med Institute

HONORS AND AWARDS

- International Postdoc Grant (2017-0034, Spring 2017), Swedish Research Council (June 2017)
- PhD thesis of the year 2016 for Institute of Clinical Sciences, University of Gothenburg, The Sahlgrenska Academy, University of Gothenburg , Sweden (May 2017)
- Assar Gabrielssons Best PhD Thesis Award 2017 in Experimental Research, Stiftelsen Assar Gabrielssons Fond, Sweden (May 2017)

LINKS

- Google Scholar: https://scholar.google.com/citations?user=-3jNtOcAAAAJ&hl=en
- The Nakauchi Lab: http://med.stanford.edu/nakauchilab.html

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My goal is to generate universally transplantable human organs in research animals.

Publications

PUBLICATIONS

- **TorPause: Efficient Static Organ Preservation for Transplants.** *bioRxiv : the preprint server for biology*
  Bhadury, J., Tajima, T., Suchy, F. P., Masaki, H., Rivera, M., Zhang, J., Nishimura, T., Charlesworth, C. T., Esquivel, C. O., Nakauchi, H.
  2026

- **Xenophagocytosis blockade enhances interspecies chimerism**
  Niizuma, K., Wang, S., Liu, D., Suchy, F., Sato, H., Yanagida, A., Masaki, H., Miyauchi, M., Tabatabaee, S., Hidajat, N., Bhadury, J., Charlesworth, C., Zhang, et al
  OXFORD UNIV PRESS.2026

- **Xenophagocytosis blockade enhances interspecies chimerism.** *Cell*
  Wang, S., Niizuma, K., Liu, D. D., Suchy, F. P., Chang, A. H., Tabatabaee, S., Sato, H., Yanagida, A., Masaki, H., Hidajat, N., Homma, S., Miyauchi, M., Bhadury, et al
  2026

- **In vivo CRISPR screening identifies SAGA complex members as key regulators of hematopoiesis.** *Nature communications*
  Shankar, A., Olender, L., Hsu, I., Miyauchi, M., Pálovics, R., Meaker, G. A., Kaito, S., Rizq, O., Khoo, H. M., Bozhilov, Y., Igarashi, K. J., Bhadury, J., Munson, et al
  2026

- **A genome-wide screen identifies Runx2 as a novel regulator of hematopoietic stem cell expansion and T-cell commitment** *BLOOD*
  Meaker, G. A., Nicholls, M., Chahrour, C., Hsu, I., Smith, A., Bozhilov, Y., Leung, M., Vassort, H., Olender, L., Beaven, O., Huang, X., Brown, E. J., Vanden Bempt, et al
  2025; 146 (26): 3188-3200

- **FLT3 ligand facilitates long-term ex vivo expansion of human hematopoietic stem cells by maintaining lymphoid reconstitution potential**
  Miyauchi, M., Banuelos, A., Mack, P., Suchy, F., Tan, T., Charlesworth, C., Homma, S., Zhang, J., Kayamori, K., Yilmaz, L., Bhadury, J., Karigane, D., Nakauchi, et al
  ELSEVIER.2025: 4931-4932

- **Xenophagocytosis blockade enhances interspecies chimerism.** *bioRxiv : the preprint server for biology*
  Wang, S., Niizuma, K., Liu, D. D., Suchy, F. P., Sato, H., Yanagida, A., Masaki, H., Miyauchi, M., Tabatabaee, S., Hidajat, N., Bhadury, J., Charlesworth, C. T., Zhang, et al
  2025

- **Intercellular mRNA transfer alters the human pluripotent stem cell state.** *Proceedings of the National Academy of Sciences of the United States of America*
  Yoneyama, Y., Zhang, R., Maezawa, M., Masaki, H., Kimura, M., Cai, Y., Adam, M., Parameswaran, S., Mizuno, N., Bhadury, J., Maezawa, S., Ochiai, H., Nakauchi, et al
  2025; 122 (4): e2413351122

- **Identification of the Saga Complex As a Key Regulator of Hematopoiesis**
  Haney, M., Shankar, A., Olender, L., Hsu, I., Miyauchi, M., Meaker, G., Kaito, S., Rizq, O., Khoo, H., Bozhilov, Y., Palovics, R., Igarashi, K., Bhadury, et al
  ELSEVIER.2024: 5623

- **HYPDXIC/SCF-SUPPLEMENTED CULTURE IN POLYMER-BASED MEDIUM ENABLES STABLE EX VIVO HUMAN HEMATOPOIETIC STEM CELL EXPANSION**
  Miyauchi, M., Mack, P., Bhadury, J., Tan, A., Suchy, F., Zhang, J., Charlesworth, C., Homma, S., Karigane, D., Nakauchi, H.
  ELSEVIER SCIENCE INC.2024

- **Inter-cellular mRNA Transfer Alters Human Pluripotent Stem Cell State.** *bioRxiv : the preprint server for biology*
  Yoneyama, Y., Zhang, R., Kimura, M., Cai, Y., Adam, M., Parameswaran, S., Masaki, H., Mizuno, N., Bhadury, J., Maezawa, S., Ochiai, H., Nakauchi, H., Potter, et al
  2024

- **Unwanted Concatemeric Knock-Ins Occur Frequently with Cas9/AAV-Mediated Gene-Editing: Detection and Prevention**
  Suchy, F. P., Karigane, D., Nakauchi, Y., Higuchi, M., Zhang, J., Pekrun, K., Hsu, I., Fan, A. C., Nishimura, T., Charlesworth, C. T., Bhadury, J., Nishimura, T., Wilkinson, et al
  CELL PRESS.2024: 211-212

- **Genome engineering with Cas9 and AAV repair templates generates frequent concatemeric insertions of viral vectors.** *Nature biotechnology*
  Suchy, F. P., Karigane, D., Nakauchi, Y., Higuchi, M., Zhang, J., Pekrun, K., Hsu, I., Fan, A. C., Nishimura, T., Charlesworth, C. T., Bhadury, J., Nishimura, T., Wilkinson, et al
  2024

- **Age-related changes in the hematopoietic stem cell pool revealed via quantifying the balance of symmetric and asymmetric divisions.** *PloS one*
  Kawahigashi, T., Iwanami, S., Takahashi, M., Bhadury, J., Iwami, S., Yamazaki, S.
  2024; 19 (1): e0292575

- **Secreted Particle Information Transfer (SPIT) - A Cellular Platform forIn VivoGenetic Engineering.** *bioRxiv : the preprint server for biology*
  Charlesworth, C. T., Homma, S., Suchy, F., Wang, S., Bhadhury, J., Amaya, A. K., Camarena, J., Zhang, J., Tan, T. K., Igarishi, K., Nakauchi, H.
  2024

- **Physioxia improves the selectivity of hematopoietic stem cell expansion cultures.** *Blood advances*
  Igarashi, K. J., Kucinski, I., Chan, Y. Y., Tan, T., Khoo, H. M., Kealy, D., Bhadury, J., Hsu, I., Ho, P. Y., Niizuma, K., Hickey, J. W., Nolan, G., Bridge, et al
  2023

- **LARGE-SCALE IN VIVO CRISPR SCREENS IDENTIFY SAGA COMPLEX MEMBERS AS KEY REGULATORS OF HAEMATOPOIESIS**
  Wilkinson, A., Haney, M., Shankar, A., Hsu, I., Miyauchi, M., Palovics, R., Olender, L., Khoo, H., Igarashi, K., Bhadury, J., Munson, C., Mack, P., Tan, et al
  ELSEVIER SCIENCE INC.2023: S43

- **Chimpanzee and pig-tailed macaque iPSCs: Improved culture and generation of primate cross-species embryos.** *Cell reports*
  Roodgar, M., Suchy, F. P., Nguyen, L. H., Bajpai, V. K., Sinha, R., Vilches-Moure, J. G., Van Bortle, K., Bhadury, J., Metwally, A., Jiang, L., Jian, R., Chiang, R., Oikonomopoulos, et al
  2022; 40 (9): 111264

- **Streamlined and quantitative detection of chimerism using digital PCR.** *Scientific reports*
  Suchy, F. P., Nishimura, T., Seki, S., Wilkinson, A. C., Higuchi, M., Hsu, I., Zhang, J., Bhadury, J., Nakauchi, H.
  2022; 12 (1): 10223

- **Generating human artery and vein cells from pluripotent stem cells highlights the arterial tropism of Nipah and Hendra viruses.** *Cell*
  Ang, L. T., Nguyen, A. T., Liu, K. J., Chen, A., Xiong, X., Curtis, M., Martin, R. M., Raftry, B. C., Ng, C. Y., Vogel, U., Lander, A., Lesch, B. J., Fowler, et al
  2022

- **Generation of Functional Organs Using a Cell-Competitive Niche in Intra- and Inter-species Rodent Chimeras.** *Cell stem cell*
  Nishimura, T., Suchy, F. P., Bhadury, J., Igarashi, K. J., Charlesworth, C. T., Nakauchi, H.
  2020

- **Activated HoxB4-induced Hematopoietic Stem Cells from Murine Pluripotent Stem Cells via Long-Term Programming.** *Experimental hematology*
  Izawa, K., Yamazaki, S., Becker, H. J., Bhadury, J., Kakegawa, T., Sakaguchi, M., Tojo, A.
  2020

- **BET bromodomain inhibitors synergize with ATR inhibitors in melanoma in melanoma.** *Cell death & disease*
  Muralidharan, S. V., Einarsdottir, B. O., Bhadury, J., Lindberg, M. F., Wu, J., Campeau, E., Bagge, R. O., Stierner, U., Ny, L., Nilsson, L. M., Nilsson, J. A.
  2017; 8 (8): e2982

- **Global analysis of somatic structural genomic alterations and their impact on gene expression in diverse human cancers** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Alaei-Mahabadi, B., Bhadury, J., Karlsson, J. W., Nilsson, J. A., Larsson, E.
  2016; 113 (48): 13768-13773

- **BET and HDAC inhibitors induce similar genes and biological effects and synergize to kill in Myc-induced murine lymphoma**
  Bhadury, J., Nilsson, L. M., Somsundar, M., Green, L. C., Keller, U. B., McLure, K. G., Nilsson, J. A.
  AMER ASSOC CANCER RESEARCH.2016

- **BET bromodomain inhibitors synergize with ATR inhibitors to induce DNA damage, apoptosis, senescence-associated secretory pathway and ER stress in Myc-induced lymphoma cells** *ONCOGENE*
  Muralidharan, S. V., Bhadury, J., Nilsson, L. M., Green, L. C., McLure, K. G., Nilsson, J. A.
  2016; 35 (36): 4689-4697

- **Hypoxia-regulated gene expression explains differences between cell line-derived xenografts and patient-derived xenografts**
  Bhadury, J., Einarsdottir, B. O., Podraza, A., Bagge, R., Stierner, U., Ny, L., Lopez, M., Nilsson, J. A.
  AMER ASSOC CANCER RESEARCH.2016

- **Hypoxia-regulated gene expression explains differences between melanoma cell line-derived xenografts and patient-derived xenografts** *ONCOTARGET*
  Bhadury, J., Einarsdottir, B. O., Podraza, A., Bagge, R. O., Stierner, U., Ny, L., Lopez, M. D., Nilsson, J. A.
  2016; 7 (17): 23801-23811

- **Cancer Differentiating Agent Hexamethylene Bisacetamide Inhibits BET Bromodomain Proteins** *CANCER RESEARCH*
  Nilsson, L. M., Green, L. C., Muralidharan, S. V., Demir, D., Welin, M., Bhadury, J., Logan, D. T., Walse, B., Nilsson, J. A.
  2016; 76 (8): 2376-2383

- **Small RNA deep sequencing discriminates subsets of extracellular vesicles released by melanoma cells - Evidence of unique microRNA cargos** *RNA BIOLOGY*
  Lunavat, T. R., Cheng, L., Kim, D., Bhadury, J., Jang, S. C., Lasser, C., Sharples, R. A., Lopez, M. D., Nilsson, J., Gho, Y. S., Hill, A. F., Lotvall, J.
  2015; 12 (8): 810-823

- **Melanoma patient-derived xenografts accurately models the disease and develop fast enough to guide treatment decisions**
  Einarsdottir, B. O., Bagge, R., Bhadury, J., Jespersen, H., Nilsson, L. M., Mattsson, J., Truve, K., Naredi, P., Nilsson, O., Lopez, M., Stierner, U., Ny, L., Nilsson, et al
  AMER ASSOC CANCER RESEARCH.2015

- **Melanoma patient-derived xenografts accurately model the disease and develop fast enough to guide treatment decisions** *ONCOTARGET*
  Einarsdottir, B. O., Bagge, R. O., Bhadury, J., Jespersen, H., Mattsson, J., Nilsson, L. M., Truve, K., Lopez, M. D., Naredi, P., Nilsson, O., Stierner, U., Ny, L., Nilsson, et al
  2014; 5 (20): 9609-9618

- **Identification of tumorigenic and therapeutically actionable mutations in transplantable mouse tumor cells by exome sequencing.** *Oncogenesis*
  Bhadury, J., López, M. D., Muralidharan, S. V., Nilsson, L. M., Nilsson, J. A.
  2013; 2