Stanford

Neetu Saini

Postdoctoral Scholar, Stem Cell Transplantation

Bio

BIO

My research interests focus on translational human T-cell immunology, with an emphasis on regulatory T cells (Tregs) and their therapeutic potential in restoring immune tolerance and tissue homeostasis. I am particularly interested in engineering FOXP3-programmed CD4# T cells as a stable and functional alternative to conventional Tregs, especially in inflammatory settings where endogenous Tregs may be unstable or dysfunctional. My work integrates gene-editing approaches, immunophenotyping, and human organoid systems to study how these engineered cells interact with epithelial and stem cell compartments, with a focus on mechanisms of tissue repair and immune–epithelial crosstalk in barrier tissues such as the intestine. Moving forward, I aim to advance next-generation cell therapies by combining insights from T-cell biology, tissue biology, and disease modeling to develop durable and clinically relevant strategies for treating immune-mediated and epithelial barrier disorders.

INSTITUTE AFFILIATIONS

- Member, Maternal & Child Health Research Institute (MCHRI)

HONORS AND AWARDS

- Maternal & Child Health Research Institute (MCHRI) Postdoctoral Fellow, ,

PROFESSIONAL EDUCATION

- PhD, Institute For Stem Cell Science and Regenerative Medicine (Instem-DBT) , Regulation of cell signalling (2022)
- Master Of Science, University of Delhi , Biochemistry (2013)
- Bachelor of Science, University of Delhi , Biochemistry (2011)

STANFORD ADVISORS

- Rosa Bacchetta, Postdoctoral Faculty Sponsor

Publications

PUBLICATIONS

- **Patient-derived colon epithelial organoids reveal lipid-related metabolic dysfunction in pediatric ulcerative colitis.** *Nature communications*
  Ojo, B. A., Zhu, Y., Heo, L., Fox, S. R., Qiao, Y., Waddell, A., Moreno-Fernandez, M. E., Gibson, M., Tran, T., Dunn, A. L., Elknawy, E. I., Saini, N., López-Rivera, et al
  2025; 16 (1): 11026

- **PMC12695892** *Patient-derived colon epithelial organoids reveal lipid-related metabolic dysfunction in pediatric ulcerative colitis*
  Ojo, B. A.
  2025; 16 (11026)

- **Notch1 Modulation of Cellular Calcium Regulates Mitochondrial Metabolism and Anti-Apoptotic Activity in T-Regulatory Cells.** *Frontiers in immunology*
  Saini, N., Lakshminarayanan, S., Kundu, P., Sarin, A.
  2022; 13: 832159
- **Sirtuin1 meditated modification of Notch1 intracellular domain regulates nucleolar localization and activation of distinct signaling cascades** *Front Cell Dev Biol .*
  Saini , N., Bheeshmachar, G., Sarin, A.
  2022; 10: 988816
- **Methionine uptake via the SLC43A2 transporter is essential for regulatory T-cell survival** *Life Science Alliance*
  Saini, N., Naaz, A., Metur, S. P., Gahlot, P., Walvekar, A., Dutta, A., Davathamizhan, U., Sarin, A., Laxman, S.
  2022; 5: 12
- **Spatial regulation and generation of diversity in signaling pathways.** *Journal of biosciences*
  Saini, N., Sarin, A.
  2021; 46
- **Nucleolar localization of the Notch4 intracellular domain underpins its regulation of the cellular response to genotoxic stressors** *Cell Death Discov.*
  Saini , N., Sarin, A.
  2020; 6: 7