Stanford

Shivesh Anand

Postdoctoral Scholar, Cardiothoracic Surgery

Bio

BIO

Dr. Shivesh Anand is an NWO Rubicon Postdoctoral Fellow in the Department of Cardiothoracic Surgery at Stanford University, specializing in tissue engineering and regenerative medicine. He completed his PhD at the MERLN Institute (Maastricht, Netherlands), where he applied biomaterials, biofabrication, and biomodulation strategies to develop nano-engineered scaffolds for tympanic membrane regeneration. His global research trajectory is deeply interdisciplinary, including research appointments at Harvard-MIT Health Sciences and Technology (United States), A*STAR (Singapore), IBEC Barcelona (Spain), and Aarhus University (Denmark). Currently focused on active regenerative engineering, he investigates how multimodal biophysical cues modulate cell fate and tissue regeneration.

HONORS AND AWARDS

- Postdoctoral Recognition Award – Second Place, Society For Biomaterials (2026)
- Scientific Impact Award, TERMIS Americas (2025)
- BITS Global 30 Under 30 – Research Leaders, BITS Pilani Alumni Association (2025)
- NWO Rubicon Grant, Dutch Research Council (2025)
- Best Poster Award, World Biomaterials Congress (2024)
- Best Oral Presentation, World Biomaterials Congress (2020)
- Travel Award, Journal of Manufacturing and Materials Processing (2020)
- Best Poster Award (Runner-up), MERLN Annual Symposium (2019)
- Best Rapid-fire Presentation, MERLN Annual Symposium (2018)
- MINECO Fellowship, Ministry of Economy and Competitiveness, Spain (2018)
- AGAUR FI Fellowship, Generalitat de Catalunya, Spain (2018)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Youth Editorial Board Member, International Journal of Bioprinting (2024 - present)

PROFESSIONAL EDUCATION

- Doctor of Philosophy, MERLN Institute, Maastricht (Netherlands) , Tissue Engineering
- Master of Science, BITS Pilani (India) , Chemistry
- Bachelor of Engineering, BITS Pilani (India) , Electrical & Electronics Engineering

STANFORD ADVISORS

- Ngan Huang, Postdoctoral Faculty Sponsor

Publications

PUBLICATIONS

- **Multicellular microtissues from fused ligament- and bone-cell spheroids relevant to enthesis repair.** *Materials today. Bio*
  Giacomini, F., Anand, S., Vermeulen, S., Barata, D., Tahmasebi Birgani, Z. N., Emans, P. J., López-Iglesias, C., Moroni, L., Mota, C., Giselbrecht, S., Habibović, P., Truckenmüller, R.
  2026; 38: 103129

- **Layered double hydroxide nanozyme decorated polycaprolactone membranes as superoxide radical scavengers** *CHEMPHYSMATER*
  Szerlauth, A., Anand, S., Szenti, I., Chen, M., Dong, M., Konya, Z., Szilagyi, I.
  2026; 5 (1): 100-106

- **Stem cell-based therapies for treatment of abdominal aortic aneurysm: development, application, and future potential.** *npj biomedical innovations*
  Badawy, S., Anand, S., Marini, A. X., Mulorz, J., Tsao, P. S., Huang, N. F.
  2025; 2 (1): 41

- **Human iPSC-Based in Vitro Cardiovascular Tissue Models for Drug Screening Applications.** *Current cardiology reports*
  Anand, S., Chen, G., Khanna, A., Huang, N. F.
  2025; 27 (1): 145

- **Acoustically Responsive Nanofibrous Scaffolds with 3D Hierarchy for Tympanic Membrane Regeneration** *SMALL STRUCTURES*
  Anand, S., Del Toro Runzer, C., Rosado Balmayor, E., van Griensven, M., Moroni, L., Mota, C.
  2025

- **Tunable ciprofloxacin delivery through personalized electrospun patches for tympanic membrane perforations** *BIOACTIVE MATERIALS*
  Anand, S., Fusco, A., Guenday, C., Guenday-Tuereli, N., Donnarumma, G., Danti, S., Moroni, L., Mota, C.
  2024; 38: 109-123

- **Embracing Remote Fields as the Fourth Dimension of Tissue Biofabrication** *ADVANCED FUNCTIONAL MATERIALS*
  Anand, S., Mueller, C., Jensen, B., Chen, M.
  2024; 34 (32)

- **Chitin nanofibrils modulate mechanical response in tympanic membrane replacements.** *Carbohydrate polymers*
  Anand, S., Azimi, B., Lucena, M., Ricci, C., Candito, M., Zavagna, L., Astolfi, L., Coltelli, M. B., Lazzeri, A., Berrettini, S., Moroni, L., Danti, S., Mota, et al
  2023; 310: 120732

- **Cellular uptake of modified mRNA occurs via caveolae-mediated endocytosis, yielding high protein expression in slow-dividing cells.** *Molecular therapy. Nucleic acids*
  Del Toro Runzer, C., Anand, S., Mota, C., Moroni, L., Plank, C., van Griensven, M., Balmayor, E. R.
  2023; 32: 960-979

- **DRUG RELEASING HIERARCHICAL SCAFFOLDS FOR HUMAN EARDRUM RECONSTRUCTION**
  Anand, S., Gunday, C., Munafo, S., Tureli, N., Danti, S., Moroni, L., Mota, C.
  MARY ANN LIEBERT, INC.2022: S410

- **TYMPANIC MEMBRANE SCAFFOLDS AIDED BY CHITIN NANOFIBRILS TO MODULATE INFLAMMATORY AND IMMUNE RESPONSE**
  Azimi, B., Zavagna, L., Ricci, C., Fusco, A., Milazzo, M., Anand, S., Donnarumma, G., Mota, C., Danti, S.
  MARY ANN LIEBERT, INC.2022: S651-S652

- **MIMICKING HUMAN TYMPANIC MEMBRANE: THE SIGNIFICANCE OF GEOMETRY**
  Anand, S., Stoppe, T., Lucena, M., Neudert, M., Danti, S., Moroni, L., Mota, C.
  MARY ANN LIEBERT, INC.2022: S406-S407

- **Regenerative therapies for tympanic membrane** *PROGRESS IN MATERIALS SCIENCE*
  Anand, S., Danti, S., Moroni, L., Mota, C.
  2022; 127

- **Shaping and properties of thermoplastic scaffolds in tissue regeneration: The effect of thermal history on polymer crystallization, surface characteristics and cell fate** *JOURNAL OF MATERIALS RESEARCH*
  Calore, A., Srinivas, V., Anand, S., Albillos-Sanchez, A., Looijmans, S. P., van Breemen, L. C. A., Mota, C., Bernaerts, K., Harings, J. A. W., Moroni, L.
  2021; 36 (19): 3914-3935

- **Chitin Nanofibril Application in Tympanic Membrane Scaffolds to Modulate Inflammatory and Immune Response.** *Pharmaceutics*
  Danti, S., Anand, S., Azimi, B., Milazzo, M., Fusco, A., Ricci, C., Zavagna, L., Linari, S., Donnarumma, G., Lazzeri, A., Moroni, L., Mota, C., Berrettini, et al
  2021; 13 (9)

- **Mimicking the Human Tympanic Membrane: The Significance of Scaffold Geometry.** *Advanced healthcare materials*
  Anand, S., Stoppe, T., Lucena, M., Rademakers, T., Neudert, M., Danti, S., Moroni, L., Mota, C.
  2021; 10 (11): e2002082

- **Ciprofloxacin-loaded polymeric nanoparticles incorporated electrospun fibers for drug delivery in tissue engineering applications.** *Drug delivery and translational research*
  Günday, C., Anand, S., Gencer, H. B., Munafò, S., Moroni, L., Fusco, A., Donnarumma, G., Ricci, C., Hatir, P. C., Türeli, N. G., Türeli, A. E., Mota, C., Danti, et al
  2020; 10 (3): 706-720

- **Dimensionality changes actin network through lamin A/C and zyxin.** *Biomaterials*
  Zonderland, J., Moldero, I. L., Anand, S., Mota, C., Moroni, L.
  2020; 240: 119854

- **Force Modulation and Adaptability of 3D-Bioprinted Biological Actuators Based on Skeletal Muscle Tissue** *ADVANCED MATERIALS TECHNOLOGIES*
  Mestre, R., Patino, T., Barcelo, X., Anand, S., Perez-Jimenez, A., Sanchez, S.
  2019; 4 (2)

- **Reduction of efficiency droop in GaN/InGaN based multiple quantum well light emitting diode by varying Si-doping and thickness in barrier layers** *OPTIK*
  Anand, S., Mahala, P., Singh, S., Pal, S.
  2019; 178: 645-649

- **Development of a Water-Dispersible SBA-15-Benzothiazole-Derived Fluorescence Nanosensor by Physisorption and Its Use in Organic-Solvent-Free Detection of Perborate and Hydrazine** *CHEMISTRYSELECT*
  Gawas, R. U., Anand, S., Ghosh, B. K., Shivbhagwan, P., Choudhary, K., Ghosh, N., Banerjee, M., Chatterjee, A.
  2018; 3 (38): 10585-10592

- **The arrival of commercial bioprinters - Towards 3D bioprinting revolution!** *International journal of bioprinting*
  Choudhury, D., Anand, S., Naing, M. W.
  2018; 4 (2): 139

- **Bioprinting for Neural Tissue Engineering.** *Trends in neurosciences*
  Knowlton, S., Anand, S., Shah, T., Tasoglu, S.
  2018; 41 (1): 31-46