Stanford

Shailendra Koirala

Postdoctoral Scholar, Radiology

NIH Biosketch available Online Curriculum Vitae available Online Resume available Online

Bio

BIO

Shailendra Koirala is a Postdoctoral Scholar in the Department of Radiology at Stanford University, working at the intersection of molecular imaging, large-animal models (porcine), and translational research. His current research focuses on developing advanced MRI lymphangiography techniques using large-animal models to enable quantitative assessment of the lymphatic system and support translation of preclinical imaging approaches toward clinical applications.

Dr. Koirala has extensive experience in designing and optimizing imaging workflows, including MRI protocol development, quantitative image analysis (T1/T2, relaxivity), and longitudinal in vivo studies. His work integrates imaging, biology, and engineering, including targeted irradiation and surgical model development to study lymphatic function.

Prior to Stanford, he completed his Ph.D. in Chemistry and Biochemistry at the University of Texas at Dallas, where he developed fluorescent and MRI-based molecular probes for bacterial detection and engineered novel imaging platforms. His interdisciplinary background spans chemistry, microbiology, and in vivo systems, with a growing focus on clinical translation and radiology-driven research.

HONORS AND AWARDS

- First-author Chemical Science article in RSC 2025 Most Popular Collection, Royal Society of Chemistry (RSC) (2025)
- Mei Lein Fellowship, University of Texas at Dallas (2023)
- Betty and Gifford Johnson Travel Award, University of Texas at Dallas (2022)
- Best International Student Award, Southern Illinois University Edwardsville (2019)
- Graduate Research Grant Award, Southern Illinois University Edwardsville (2018)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Reviewer, Chemical Engineering Journal (2022 - present)
- Secretary, Nepali Graduate Student Association at UTD (2023 - 2025)

PROFESSIONAL EDUCATION

- Bachelor of Science, Kathmandu University (2015)
- Master of Science, Southern Illinois Univ-Edwardsville (2020)
- Doctor of Philosophy, University of Texas at Dallas (2025)
- IRB/CITI Training, Stanford University , Clinical Research Compliance (2025)

- Animal Research (IACUC) Training, Stanford University , Animal Research Compliance (2025)
- MRI Safety Certification, Stanford University , Magnetic Resonance Imaging / Safety (2025)

STANFORD ADVISORS

- Andreas Loening, Postdoctoral Faculty Sponsor

LINKS

- Google Scholar: https://scholar.google.com/citations?user=T4ZMI5AAAAAJ&hl=en&oi=ao
- ORCID: https://orcid.org/0000-0001-6640-0072
- LinkedIn: https://www.linkedin.com/in/shailendra-koirala-phd-95167615a/

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My research focuses on developing advanced MRI-based lymphangiography methods for quantitative evaluation of the lymphatic system in large-animal (porcine) models. This work aims to bridge preclinical and clinical imaging by establishing reproducible imaging workflows, optimizing MRI protocols, and integrating biological, surgical, and imaging approaches.

I design and conduct longitudinal in vivo imaging studies, including MRI acquisition, quantitative data analysis (T1/T2 relaxivity), and interpretation of imaging-derived functional metrics. My work also involves targeted irradiation and surgical model development to study lymphatic disruption and recovery.

Through collaboration with radiologists, surgeons, and imaging scientists, I contribute to translational research initiatives, including ARPA-H Discovery Duo programs, with the goal of advancing imaging technologies toward clinical use.

PROJECTS

- MR Lymphangiography in Large-Animal (Porcine) Model - Stanford University (11/1/2025 - present)
- ARPA-H Discovery Duo: Translational Imaging Research - Stanford University (3/1/2026 - present)
- Molecular Probe Development for Bacterial Imaging - University of Texas at Dallas (11/13/2024 - 11/13/2024)

LAB AFFILIATIONS

- Andreas Loening, Loening (11/24/2025 - - 10/31/2027)

Publications

PUBLICATIONS

- **Fluorescent molecular probe for in vivo and in vitro targeting and imaging of an intracellular bacterial infection** *CHEMICAL SCIENCE*
  Koirala, S., Gaspar, M. A., Wijesundara, Y. H., Li, D., Gadhvi, J. G., Ehrman, R. N., Cornelius, S. A., Mariasoosai, C., Nguyen, T. N., Trashi, O., Trashi, I., Kumari, S., Hagge, et al
  2025; 16 (18): 7902-7911
- **TEMPO-conjugated tobacco mosaic virus as a magnetic resonance imaging contrast agent for detection of superoxide production in the inflamed liver.** *Journal of materials chemistry. B*
  Lumata, J. L., Hagge, L. M., Gaspar, M. A., Trashi, I., Ehrman, R. N., Koirala, S., Chiev, A. C., Wijesundara, Y. H., Darwin, C. B., Pena, S., Wen, X., Wansapura, J., Nielsen, et al
  2024; 12 (13): 3273-3281

- **An optimized purification protocol for enzymatically synthesized S-adenosyl-L-methionine (SAM) for applications in solution state infrared spectroscopic studies.** *Spectrochimica acta. Part A, Molecular and biomolecular spectroscopy*
  Odeyemi, I., Douglas, T. A., Igie, N. F., Hargrove, J. A., Hamilton, G., Bradley, B. B., Thai, C., Le, B., Unjia, M., Wicherts, D., Ferneyhough, Z., Pillai, A., Koirala, et al
  2024; 309: 123816
- **A scalable synthesis of adjuvanting antigen depots based on metal-organic frameworks.** *Chemical science*
  Ehrman, R. N., Brohlin, O. R., Wijesundara, Y. H., Kumari, S., Trashi, O., Howlett, T. S., Trashi, I., Herbert, F. C., Raja, A., Koirala, S., Tran, N., Al-Kharji, N. M., Tang, et al
  2024; 15 (8): 2731-2744
- **In vivo biocompatibility of ZIF-8 for slow release via intranasal administration.** *Chemical science*
  Kumari, S., Howlett, T. S., Ehrman, R. N., Koirala, S., Trashi, O., Trashi, I., Wijesundara, Y. H., Gassensmith, J. J.
  2023; 14 (21): 5774-5782
- **Rip it, stitch it, click it: A Chemist's guide to VLP manipulation.** *Virology*
  Wijesundara, Y. H., Herbert, F. C., Kumari, S., Howlett, T., Koirala, S., Trashi, O., Trashi, I., Al-Kharji, N. M., Gassensmith, J. J.
  2022; 577: 105-123
- **Direct Correlation between Donor-Acceptor Distance and Temperature Dependence of Kinetic Isotope Effects in Hydride-Tunneling Reactions of NADH/NAD+ Analogues.** *The Journal of organic chemistry*
  Bai, M., Koirala, S., Lu, Y.
  2021; 86 (11): 7500-7507
- **Substituent Effects on Temperature Dependence of Kinetic Isotope Effects in Hydride-Transfer Reactions of NADH/NAD+ Analogues in Solution: Reaction Center Rigidity Is the Key.** *Organic letters*
  Maness, P., Koirala, S., Adhikari, P., Salimraftar, N., Lu, Y.
  2020; 22 (15): 5963-5967

PRESENTATIONS

- Supramolecular Approaches for Molecular Imaging Applications - North American Supramolecular Chemistry Meeting (4/22/2026)
- Invited Oral Presentation – Molecular Imaging Research - Southern Illinois University Edwardsville (4/9/2026)
- Molecular Probes for Imaging Applications - ACS Meeting in Miniature (4/15/2026)
- Imaging and Data Science Research Presentation - UT Dallas & UT Southwestern Imaging and Data Science Workshop (4/9/2026)