

Rupak Thapa, PhD

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Bio:

Dr. Rupak Thapa earned his Ph.D. in Molecular, Cellular & Systemic Physiology from the School of Medicine at Southern Illinois University, where his dissertation research identified and characterized novel regulators of human endometrial stromal fibroblast decidualization, including ATOH8, NR4A2, and the long non-coding RNA AC027288.3. He is currently a Postdoctoral Research Fellow in the Department of Pathology & Immunology at Baylor College of Medicine, where his research investigates the molecular mechanisms governing endometrial stromal cell decidualization and uterine receptivity, with a primary focus on the iron exporter SLC40A1 (ferroportin) and its role in oxidative stress, ferroptosis, and endometriosis-associated infertility. His work integrates primary human endometrial cell and organoid systems, mouse genetic models, and histochemical approaches, including immunohistochemistry, immunofluorescence, and confocal microscopy, alongside RNA-sequencing and omics analysis to define transcriptional and cellular networks underlying fertility and reproductive disease. Dr. Thapa is the recipient of the NIH/NICHD F32 Ruth L. Kirschstein Postdoctoral Individual Fellowship, the NIH/NICHD T32 Institutional Postdoctoral Training Fellowship, the Baylor College of Medicine Dean's Award of Excellence, and the Outstanding Dissertation Award from the Graduate School at Southern Illinois University. He has authored first-author publications in Biology of Reproduction, Cells, and Endocrinology, and has presented his research at national and international meetings, including the Society for the Study of Reproduction (SSR), the Texas Forum for Reproductive Sciences (TFRS), and the Gordon Research Conference on Mammalian Reproduction, where his poster received an outstanding Poster Award (2026).

Histochemical Society Statement

Histochemical and immunohistochemical approaches have been central to my research since graduate school, where I relied on immunofluorescence and confocal microscopy to resolve how specific regulators shape the decidualizing endometrial stromal cell. As a postdoctoral fellow, these techniques remain core to my work: I use immunohistochemistry and immunofluorescence to localize SLC40A1 and iron-handling machinery across the endometrium and to track how their expression changes in ferroptosis and endometriosis-associated infertility, pairing these spatial approaches with organoid models and mouse genetics to connect tissue-level structure to functional outcomes in fertility. I have seen firsthand how histochemistry bridges mechanistic cell biology and tissue-level physiology, and I value the Histochemical Society as a community that actively teaches and defends the principles of rigor, reproducibility, and careful interpretation of spatial data. If elected as a Council Member, I would bring the perspective of an early-career reproductive biologist to the Society's work: advocating for trainee-focused programming and mentorship, encouraging the adoption of multi-modal and spatial imaging methods within reproductive science, and helping recruit the next generation of histochemists from fields like mine where these tools are becoming increasingly essential. I am committed to supporting the Society's mission to advance histochemistry, promote its journal, and ensure new members find a welcoming, engaged home within HCS.