

Richa Verma

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Biomedical Researcher with 8+ years' experience in drug delivery, inflammation, and metabolic disease models. Skilled in *in vitro* and *in vivo* studies, HPLC, histology, and cellular biology

WORK EXPERIENCE

Research Associate (Postdoctoral)

Oct 2025 – present

Dr. V. Appanna and Dr. S. Tharmalingam, Laurentian University and NOSM • Sudbury, Ontario

- Investigating microbiome-derived siderophores for selective Ga³⁺ binding and recovery in mining/leachate-like matrices.
- Coordinating cross-lab efforts, including a project on microbial N₂O metabolism and mitigation.

Research Associate

Nov 2024 – Jun 2025

Dr. Rui Wang, York University • Toronto, Ontario

- Leading research on gasotransmitters in adipose tissue metabolism, focusing on peptide-based delivery systems and inflammation.
- Supervising and training graduate students in cell culture, HPLC, and molecular biology techniques.
- Managed lab operations and instrumentation and served as first author on a study published in Nature Communications Biology.

Treasurer and Vice Chair and Secretary

May 2016 - May 2017

Pharmaceutical Scientists Students' Chapter, Creighton University • Omaha, United States

- Managed budgeting, financial reporting, and fund allocation for chapter events and initiatives.
- Organized meetings, recorded minutes, and maintained official records for the executive board.
- Coordinated professional development events, seminars, and workshops to engage students in pharmaceutical sciences.
- Acted as liaison between students, faculty, and external collaborators to support chapter goals.
- Led membership drives and outreach efforts to grow chapter visibility and participation.

Product trainer and Product manager

Apr 2012 - Feb 2015

La Nutraceuticals • Lucknow, India

- Delivered product demos and training to healthcare professionals and sales teams.
- Supported new product launches with monographs and marketing input.
- Conducted field visits to address client queries and gather market insights.
- Collaborated with R&D and sales to align messaging with product performance.
- Earned consistent praise from physicians and pharmacists for clear, effective training.

TEACHING EXPERIENCE

Graduate Teaching Assistant

Oct 2015 - Dec 2021

Laurentian University • Sudbury, Ontario/ Creighton University • Omaha, United States

- Assisted Pharm. D students in dispensing and patient care lab.
- Prepared and taught biology classes (BIOL 1506 and 1507).
- Conducted teaching tutorials, labs, experiments, and review sessions.
- Monitored online discussion forums and provided feedback.

- Invigilated exams
- Taught and mentored over 150 undergraduate students through labs, tutorials, and academic support over multiple semesters.

EDUCATION

PhD Biomolecular Sciences

Oct 2017 - Oct 2024

Laurentian University • Sudbury, Ontario

- Role of Hydrogen Sulphide (H₂S) in adipogenesis, adipocyte metabolism, and lipid regulation.
- Investigated molecular pathways of lipid storage, lipolysis, and energy expenditure in adipose tissue.
- Conducted in vivo (mouse model) and in vitro (murine adipocytes) studies.
- Supervising and training graduate students in cell culture, HPLC, and molecular biology techniques.

MS Pharmaceutical Sciences

Sep 2015 - Jul 2017

Creighton University • Omaha, United States

- Developed a sustained-release, microparticle-based hydrogel for controlled H₂S delivery in glaucoma treatment, which later secured NIH funding through an NEI proposal ranking in the top 5th percentile.

BSc Zoology, Botany, Chemistry

Jun 2008 - Jun 2011

Lucknow University • Lucknow, India

- Investigated UV-induced stress responses in cyanobacteria by analyzing protective compounds (scytonemin, MAAs, EPS) through microbial culture, biochemical assays, and spectrophotometry for potential antioxidant and dermatological applications.

Technical Skills

- **Cell Biology & Molecular Techniques:** Microbial and Mammalian Cell culture (primary, adherent, non-adherent), stem cell isolation, PCR, SDS-PAGE, Western blotting, immunohistochemistry (cryosectioning, immunoblotting).
- **Animal Research:** Mouse handling, breeding, and injections (intraperitoneal and subcutaneous).
- **Analytical & Biochemical Methods:** HPLC method development (optimization, validation, troubleshooting), UV-Vis and FTIR spectroscopy, biochemical assays for lipid/protein quantification.
- **Histology & Imaging:** Cryosectioning, immunofluorescence, microscopy, staining, and image analysis using ImageJ.
- **Drug Delivery & Peptide Synthesis:** Biodegradable polymer-based drug delivery systems, peptide amphiphile synthesis and purification
- **Computational & Data Analysis:** Python (basic), ImageJ, Excel (statistics & visualization)

Certifications

- **Workplace Hazardous Materials Information System (WHMIS)** – Laurentian University, **2018**
- **Animal Care Training** (CCAC Modules, Animal Handling, IP Injections, Facility Procedures) – Laurentian University, **2018**
- **ICH Good Clinical Practice (E6 R2)** – Global Health Training Centre, **2025**

PUBLICATIONS

- Verma, R., Fu, M., Arif, H.M., Yang, G., Kaur, K., Matson, J.B., Wu, L., and Wang, R., 2025. Localized delivery and retention of hydrogen sulfide causing regional lipid accumulation in mouse adipose tissues in vivo. *Communications Biology*, 8(1), 963.
- Mhatre, S., Rai, A., Ali, H., Patil, A., Singh, N., Verma, R., Auden, J., Chandler, C., Dash, A., Opere, C. and Singh, S., 2024. Comparison of colorimetric, spectroscopic and electrochemical techniques for quantification of hydrogen sulfide. *BioTechniques*, 76(2), pp.71-80.
- Verma, R., Fu, M., Yang, G., Wu, L. and Wang, R., 2023. Hydrogen sulfide promotes adipocyte differentiation, hyperplasia, and hypertrophy. *Engineering*, 20, pp.36-48.
- Jin, Z., Zhang, Q., Wondimu, E., Verma, R., Fu, M., Shuang, T., Arif, H.M., Wu, L. and Wang, R., 2020. H2S-stimulated bioenergetics in chicken erythrocytes and the underlying mechanism. *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology*, 319(1), pp.R69-R78.
- Verma, R., Akhtar, Y. and Singh, S., 2017. A review of patents on therapeutic potential and delivery of hydrogen sulfide. *Recent Patents on Drug Delivery & Formulation*, 11(2), pp.114-123.

CONFERENCES

- Verma, R., Fu, M., Arif, H.M., Yang, G., Kaur, K., Matson, J.B., Wu, L., Wang, R. "Localized delivery and retention of hydrogen sulfide causing regional lipid accumulation in mouse adipose tissues in vivo." Canadian Oxidative Stress Consortium, Toronto, ON, June 2025
- Mhatre, S., Ali, H., Patil, A., Verma, R., Opere, C., Singh, S. "Comparative Evaluation of Colorimetric, Chromatographic, and Electrochemical Techniques for Hydrogen Sulfide Quantification." *American Association of Pharmaceutical Scientists*, Boston, MA, October 2022.
- Verma, R., Fu, M., Wu, L., Wang, R. "The Effects of Hydrogen Sulfide on Adipocyte Differentiation and Mitotic Clonal Expansion." *Canadian Physiological Society Symposium, University of Toronto*, Toronto, ON, 2019.
- Verma, R., Singh, S. "A Novel Microparticle-Based In-Situ Gelling System for Sustained Delivery of Hydrogen Sulfide." *American Association of Pharmaceutical Scientists*, San Diego, 2017.

- Verma, R., Singh, S. "Extending Period of Detection and Quantification of Hydrogen Sulfide in an In Vitro Releasing Medium." *American Association of Pharmaceutical Scientists*, Denver, CO, 2016.
- Patil, A., Verma, R., Dash, A.K., Singh, S. "Development and Validation of a Simple HPLC Method for Quantification of GYY 4137 – A Hydrogen Sulfide Donor." *American Association of Pharmaceutical Scientists*, Denver, CO, 2016.