YU WANG

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QUALIFICATIONS OVERVIEW

- Dedicated cancer researcher committed to advancing translational cancer research and passionate about bridging the gap between scientific discoveries and practical applications in oncology.
- Strong background in molecular biology and immuno-oncology, complemented by detail-oriented skills in literature review, data analysis, and computer programming, along with exceptional problem-solving capabilities that lead to novel and effective solutions to complex biological questions.
- Experienced collaborative worker with a history of cultivating positive rapport with colleagues.

EDUCATION

University of Illinois Urbana-Champaign (UIUC), Champaign, IL — Expected Graduation Fall 2025
Doctor of Philosophy in Molecular and Integrative Physiology, with focus in Immuno-oncology
Advisor: Dr. Erik R. Nelson
PhD Thesis: The role of Liver Receptor Homolog 1 (LRH-1) in regulating breast cancer progression by modulating the immune response

University of Illinois Urbana-Champaign (UIUC), Champaign, IL — 2017 – 2019
Master of Science in Library and Information Science, with focus in Bioinformatics
Advisors: Dr. Vetle I. Torvik & Dr. Erik R. Nelson
MS Thesis: Literature-Based Discovery of Known and Potential New Mechanisms for Relating the Status of Cholesterol to the Progression of Breast Cancer

Indiana University (IUB), Bloomington, IN — 2015 – 2017
Bachelor of Science in Molecular Biology

RESEARCH EXPERIENCE

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN ▪ CHAMPAIGN, IL, USA

Graduate Research Assistant (Molecular and Integrative Physiology) — *2020 – Present*

- Investigated the role of Liver Receptor Homology 1 (LRH-1) in regulating neutrophil functions relevant to cancer progression
- Applied both in vitro and in vivo methodologies to design and execute hypothesis-driven experiments, enhancing the robustness of research findings
- Developed RNA sequencing analysis pipelines for the laboratory, incorporating advanced network analysis techniques such as Weighted Gene Co-expression Network Analysis (WGCNA) to derive meaningful insights
- Collaborated effectively with colleagues within the laboratory and across departments to drive interdisciplinary research initiatives and share knowledge
- Mentored and supervise 4 undergraduate student researchers in experiment setup, execution, and data analysis, enhancing their practical skills and research competencies

Research Technician (Molecular and Integrative Physiology) — *2019 – 2020*

- Managed rodent husbandry and handling, including manual restraint, injections, tumor measurement, and necropsy, ensuring adherence to ethical and regulatory standards
- Conducted physical, chemical, and biological laboratory experiments, supporting data acquisition from cell cultures, mouse studies, and genotyping to advance research objectives
- Set up appropriate instruments, materials, and apparatuses; operate laboratory equipment required for genotyping
- Collaborated with colleagues on various tasks, including data collection and analysis, to enhance research outcomes and foster a team-oriented environment

Research Assistant (Library and Information Science) — *2019 – 2020*

- Leveraged biomedical expertise to assist in training machine learning models across various projects, enhancing predictive accuracy in healthcare applications
- Facilitated research on treatment entity annotation for breast cancer and diabetes, contributing to the development of datasets used in machine learning algorithms
- Reviewed and analyzed abstracts from PubMed research papers, meticulously identifying and extracting treatment references to create high-quality training data for machine learning applications

- Utilized the 'Brat' tool to annotate treatment entities, ensuring precise classification according to established thesis guidelines, demonstrating strong attention to detail
- Collaborated with interdisciplinary teams to advance research methodologies, contributing to the integration of machine learning techniques in biomedical studies

Graduate Researcher (Library and Information Science) *2018 – 2019*

- Proposed and completed master's-level thesis research on the correlation between breast cancer and cholesterol
- Applied literature-based discovery (LBD) methodologies to extract and analyze data from scientific literature, uncovering potential mechanisms linking cholesterol and breast cancer through data-driven insights
- Utilized the Arrowsmith website and PubMed to perform comparative analysis of research studies, leveraging text mining techniques to aggregate relevant data on how cholesterol influences breast cancer progression
- Formulated and tested hypotheses regarding cholesterol and breast cancer associations, employing analytical reasoning and modeling to propose new research directions and inform future studies

INDIANA UNIVERSITY ▪ BLOOMINGTON, IN, USA

Undergraduate Research Assistant *2016 – 2017*

- Discovered gene interaction of the bacterial butyrate synthesis pathways (acetyl-CoA, glutarate, 4-aminobutyrate, and lysine pathways) between microbial species (Firmicutes, Proteobacteria, Fusobacteria, etc.) and their hosts through literature review
- Utilized PathVisio to visualize gene interaction pathways, creating informative graphical representations that facilitated the understanding of complex biological relationships for data-driven research insights
- Developed proficiency in Linux for managing gene sequence data, enhancing data processing capabilities and ensuring efficient handling of large genomic datasets in research projects

SHANGHAI JIANG WAN HOSPITAL ▪ SHANGHAI, CHINA

Laboratory Assistant of Bacteria Culture *December 2014*

- Identified the type of infections through analysis of the patients' excreta, including sputum, blood, and urine
- Acquired in-depth understanding of testing procedures and implementation in infection classification, as well as ways to make culture medium to test for the presence of bacteria and to understand the mechanism by which bacteria form a culture
- Collaborated with mentors and colleagues

SHANGHAI MODERN PHARMACEUTICAL CO., LTD. ▪ SHANGHAI, CHINA

Biochemistry Laboratory Assistant *Summer 2014*

- Conducted extensive quality control analysis of the structure of drug particles and purity by utilizing spectrum technology including nuclear magnetic resonance (NMR) spectroscopy and mass spectrometry (MS)
- Broadened knowledge of the process of medication manufacture as well as the ways of using specialty machines

AWARDS/HONORS/FELLOWSHIPS/GRANTS

Outstanding poster presentation at Nuclear Receptors at the Intersection of Cancer and Engineering symposium	*September 2024*
AACR – Gilead and Kite Scholar-in-Training Award	*February 2024*
Ann Nardulli Graduate Travel Award	*March 2023*
Early Career Forum Travel Award (ENDO 2023)	*February 2023*
MCB Fellowship, University of Illinois Urbana-Champaign, Champaign, IL	*Fall 2020*

PUBLICATIONS

Manuscript in review/preparation

Wang, Y., Bendre, S. V., Krauklis, S. A., Steelman, A. J., Nelson, E. R. (2024). The role of cholesterol metabolism and homeostasis in immune regulation and cancer pathophysiology [Manuscript in review].

Krawczynska, N., **Wang, Y.**, Lim, K., Das Gupta, A., Nelczyk, A. T., Abughazaleh, M., Bendre, S. V., Kochaya, L. I., Schane, C. P., Fei, Y., Hernandez, A. G., Drnevich, J., Chan, J., Dobrucki, L. W., Boppart, M. D., Ostrander, J., Nelson, E. R. (2024). Neutrophils exposed to a cholesterol metabolite secrete extracellular vesicles that promote epithelial-mesenchymal transition and stemness in breast cancer cells. [Manuscript in review]. bioRxiv doi: https://doi.org/10.1101/2024.08.02.606061

Wang, Y., Duong, B., Krawczynska, N., Bendre, S.V., Schane, C. P., Weisser, E., Kochaya, L. I., Fei, Y., Das Gupta, A., Gamage, H. E. V., Nelczyk, A. T., Nelson, E. R. (2024). The role of Liver Receptor Homolog 1 (LRH-1) in regulating breast cancer progression by modulating the immune response [Manuscript in preparation].

Refereed Publications

Das Gupta, A., Park, J., Sorrells, J. E., Kim, H., Krawczynska, N., Pradeep, D., **Wang, Y.**, Gamage, H. E. V., Nelczyk, A. T., Boppart, S. A., Boppart, M. D., Nelson, E. R. (2024). 27-Hydroxycholesterol Enhances Secretion of Extracellular Vesicles by ROS-Induced Dysregulation of Lysosomes. *Endocrinology*, *165(11)*, bqae127.

Singh, D. K.*, Cong, Z.*, Song, Y. J.*, Liu, M., Chaudhary, R., Liu, D., **Wang, Y.**, Prasanth, R., KC, R., Lizarazo, S., Akhnoukh, M., Gholmalamdari, O., Moitra, A., Jenkins, L. M., Bhargava, R., Nelson, E. R., Van Bortle, K., Prasanth, S. G., Prasanth, K. V.

(2024). MANCR lncRNA modulates cell-cycle progression and metastasis by cis-regulation of nuclear Rho-GEF. *Molecular and Cellular Biology, 44(9)*, 372–390.
**These authors contributed equally to this work.*

Gamage, H. E. V.*, Shahoei, S. H.*, **Wang, Y.**, Jacquin, E., Weisser, E., Bautista, R. O., Henn, M. A., Schane, C. P., Nelczyk, A. T., Ma, L., Das Gupta, A., Bendre, S. V., Nguyen, T., Tiwari, S., Tjoanda, E., Krawczynska, N., He, S., Albright, S. T., Farmer, R., Smith, A. J., Fink, E. C., Chen, H., Sverdlov, M., Gann, P. H., Boidot, R., Vegran, F., Fanning, S. W., Hergenrother, P. J., Apetoh, L., Nelson, E. R. (2024). NR0B2 re-educates myeloid immune cells to reduce regulatory T cell expansion and progression of breast and other solid tumors. *Cancer Letters, 597*: 217042.
**These authors contributed equally to this work.*

Gamage, H. E. V., Albright, S. T., Smith, A. J., Farmer, R., Shahoei, S. H., **Wang, Y.**, Fink, E. C., Jacquin, E., Weisser, E., Bautista, R. O., Henn, M. A., Schane, C. P., Nelczyk, A. T., Ma, L., Das Gupta, A., Bendre, S. V., Nguyen, T., Tiwari, S., Krawczynska, N., He, S., Tjoanda, E., Chen, H., Sverdlov, M., Gann, P. H, Boidot, R., Vegran, F., Fanning, S. W., Apetoh, L., Hergenrother, P. J. and Nelson, E. R. (2024) . Development of NR0B2 as a therapeutic target for the re-education of tumor associated myeloid cells. *Cancer Letters*, *597*: 217086.

Nelczyk, A. T., Ma, L., Das Gupta, A., Gamage, H. E. V., McHenry, M. T., Henn, M. A., Kadiri, M., **Wang, Y.**, Krawczynska, N., Bendre, S.V., He, S., Shahoei, S. H., Madak-Erdogan, Z., Hsiao, S., Saleh, T., Carpenter, V., Gewirtz, D. A., Spinella, M. J., Nelson, E. R. (2022). The Nuclear Receptor TLX (NR2E1) Inhibits Growth and Progression of Triple-Negative Breast Cancer. *Biochim Biophys Acta molecular basis of disease, 1868(11)*:166515.

Nelson, A. T., **Wang, Y.**, & Nelson, E. R. (2021). TLX, an Orphan Nuclear Receptor With Emerging Roles in Physiology and Disease. *Endocrinology, 162(11)*, bqab184.

CONFERENCE PRESENTATIONS

Oral presentations

Shahoei, S. H., Nelson, A. T., Henn, M. A., Mathews, A. E., Chen, J. J., Vembar, V., Vardanyan, A., Ma, L., **Wang, Y.**, Apetoh, L., & Nelson, E. R. (2020). *Small Heterodimer Partner modulates antigen presenting myeloid cells to impair regulatory T cell expansion, promoting anti-tumor immunity in models of breast cancer*. ENDO 2020, The Annual Endocrine Society Meeting. Oral Presentation OR05

Blitz Talk

Wang, Y., Duong, B., Tjoanda, E., Krawczynska, N., Bendre, S.V., Gamage, H. E. V., Nelczyk, A. T., Das Gupta, A., Nelson, E. R. (May 2023). *The role of Liver Receptor Homolog 1 (LRH-1) in regulating breast cancer progression by modulating the immune response.* Poster session presented at the Eighth Midwest Tumor Microenvironment Meeting (TME), West Lafayette, IN

Poster presentations

Wang, Y., Duong, B., Krawczynska, N., Bendre, S.V., Schane, C. P., Weisser, E., Kochaya, L., Fei, Y, Das Gupta, A., Gamage, H. E. V., Nelczyk, A. T., Nelson, E. R. (Sept 2024). *The role of Liver Receptor Homolog 1 (LRH-1) in regulating breast cancer progression by modulating the immune response.* Nuclear Receptors at the Intersection of Cancer and Engineering symposium, Urbana, IL.

Wang, Y., Duong, B., Krawczynska, N., Bendre, S.V., Schane, C. P., Weisser, E., Kochaya, L., Fei, Y, Das Gupta, A., Gamage, H. E. V., Nelczyk, A. T., Nelson, E. R. (April 2024). *The role of Liver Receptor Homolog 1 (LRH-1) in regulating breast cancer progression by modulating the immune response.* AACR Annual Meeting 2024, San Diego, CA.

Wang, Y., Duong, B., Krawczynska, N., Bendre, S.V., Schane, C. P., Weisser, E., Kochaya, L., Fei, Y, Das Gupta, A., Gamage, H. E. V., Nelczyk, A. T., Nelson, E. R. (October 2023). *The role of Liver Receptor Homolog 1 (LRH-1) in regulating breast cancer progression by modulating the immune response.* 9th Great Lakes Nuclear Receptor Conference, Buffalo, NY.

Wang, Y., Nelczyk, A. T., Gamage, H. E. V., Krawczynska, N., Das Gupta, A., Bendre, S.V., Nelson, E. R. (June 2023). *The role of Liver Receptor Homolog 1 (LRH-1) in regulating breast cancer progression by modulating the immune response.* ENDO 2023, The Annual Endocrine Society Meeting.

Wang, Y., Duong, B., Tjoanda, E., Krawczynska, N., Bendre, S.V., Gamage, H. E. V., Nelczyk, A. T., Das Gupta, A., Nelson, E. R. (May 2023). *The role of Liver Receptor Homolog 1 (LRH-1) in regulating breast cancer progression by modulating the immune response.* Poster session presented at the Eighth Midwest Tumor Microenvironment Meeting (TME), West Lafayette, IN

Wang, Y., Nelczyk, A. T., Gamage, H. E. V., Krawczynska, N., Das Gupta, A., Bendre, S.V., Nelson, E. R. (October 2022). *The role of Liver Receptor Homolog 1 (LRH-1) in regulating breast cancer progression by modulating the immune response*. Poster session presented at the 2022 MCB Retreat, Champaign, IL

Wang, Y., Nelson, E. R. (May 2022). *The role of Liver Receptor Homolog 1 (LRH-1) in regulating breast cancer progression by modulating the immune response*. Poster session presented at the Seventh Midwest Tumor Microenvironment Meeting (TME), Kansas city, KS

Wang, Y., Nelson, E. R. (2021). *The role of Liver Receptor Homolog 1 (LRH-1) in regulating breast cancer progression by modulating the immune response.* Poster session presented at the 2021 Tissue Microenvironment (TiME), Champaign, IL

Wang, Y., Torvik, V. I., & Nelson, E. R. (September 2019). *Literature-Based Discovery of Known and Potential New Mechanisms for Relating the Status of Cholesterol to the Progression of Breast Cancer.* Poster session presented at the 2019 MCB Retreat, Champaign, IL

Wang, Y., Torvik, V. I., & Nelson, E. R. (May 2019). *Literature-Based Discovery of Known and Potential New Mechanisms for Relating the Status of Cholesterol to the Progression of Breast Cancer.* Poster session presented at the Fifth Midwest Tumor Microenvironment Meeting (TME), Notre Dame, IN

TEACHING EXPERIENCE

Graduate Teaching Assistant for MCB 402, Systems and Integrative Physiology	*Spring 2024*
Graduate Teaching Assistant for MCB 402, Systems and Integrative Physiology	*Spring 2023*
Mentor of undergraduate research assistants	*2020 – Present*

TECHNICAL ACUMEN

***In Vitro*:**	mammalian cell culture | immune-oncology cell assays | multicolor flow cytometry | ImageStream flow cytometry | nucleofection | transfection | immunofluorescence | confocal microscope | RNA/DNA extraction | PCR | qPCR | western blotting | protein purification | SDS-PAGE | DNA cloning | primer design
***In Vivo*:**	syngeneic mouse tumor models | rodent husbandry and handling | sample/tissue collection | bioluminescence imaging
Languages:	R | Python | Shell | SQL
Operating Systems:	Mac OS | Windows | Linux
Tools:	RStudio | PyCharm | VS Code | IGV | PathVisio | Arrowsmith | Brat
Databases:	BLAST

INVENTION DISCLOSURE

Nelson ER, **Wang Y** (2024). Liver Receptor Homologue 1 (LRH-1) regulation of myeloid immune cell function to treat cancer, infections and autoimmune disorders. Filed at the University of Illinois. [Pending]

TRAINING & CERTIFICATION

10X Single Cell RNA-Seq analysis Workshop Series, HPCBio, UIUC	*Fall 2021*
Bulk RNA-Seq Analysis Workshop Series, HPCBio, UIUC	*Spring 2021*

LEADERSHIP EXPERIENCE

BioCosmo – Board Member	*2023 – Present*
UIUC Chinese Students and Scholars Association (CSSA) – Board Member	*2022-2023*
MCB Graduate Student Association – Board Member	*2021-2022*

LANGUAGES

English: Fluent
Chinese: Native