Tu M. Ho – CV

tuhominh4925@gmail.com | (210) 636-7089 | Fayetteville, NC
LinkedIn: linkedin.com/in/tu-ho-aa92a9200

RESEARCH INTERESTS

Ph.D. candidate in synthetic organic chemistry with strong training in multi-step synthesis, route design, and scale-up of bioactive small molecules. Experienced in reaction development, purification, and structural characterization (NMR, LC-MS, HPLC), with demonstrated contributions to structure–activity relationship studies, lead optimization, and process-oriented reaction troubleshooting. Seeking to apply synthetic expertise to both drug discovery and API development, contributing to innovative therapeutics through efficient design, scalable chemistry, and cross-functional collaboration.

EDUCATION

Ph.D. in Chemistry | *Expected November 2025*
University of Texas at San Antonio **|** GPA 3.95

B.S. in Biochemistry | *December 2021*
University of Texas at San Antonio **|** GPA 3.65 **|** Cum Laude

RESEARCH EXPERIENCE

Graduate Research Assistant, UTSA **|** Advisor: Dr. Francis Yoshimoto
2022 - Present

- **Designed and executed multi-step syntheses of heterocyclic steroidal scaffolds to inhibit human cytochrome P450 8B1**, a therapeutic target to treat obesity, contributing to structure–function and mechanistic studies. In particular, a copper-catalyzed condensation of propargylamine and a C12-oxo steroid furnished a pyridine fused in the C-ring of the steroid to test the hypothesis that a truncated steroid ligand would fit in the active site of P450 8B1. The new truncated analogs were experimentally confirmed to fit in the active site of P450 8B1 through UV-Vis binding studies with the purified protein.
- **Synthesized hyocholic acid, a bile acid biomarker relevant in diabetes through a Rubottom oxidation at C6 of the steroid moiety.** A subsequent derivatization technique using $NaIO_4$ was developed to analyze bile acids (e.g., hyocholic acid) to enable LC-MS-based differentiation of isomers, supporting metabolic profiling tools for chemical biology applications. With the new derivatization method using $NaIO_4$, new hyocholic acid-containing bile acids were discovered in ox bile, a nutritional supplement used to facilitate digestion.
- **Developed a regio- and stereoselective hydroxylation strategies at the C14β-position of the steroid backbone via (i) singlet oxygen-mediated photooxidation or (ii) vinylogous Rubottom oxidation**, enabling the synthesis of hoodigogenin A, a natural product with appetite-suppressant properties.
- Expressed and purified recombinant human P450 enzymes (8B1, 3A4) to support mechanistic and structure-based studies in collaboration with structural biologists.

PUBLICATIONS

- **Ho, T.M**.; Arman, H.D.; Yoshimoto, F.K. Synthesis of Hyocholic Acid and Its Derivatization with Sodium Periodate to Distinguish It from Cholic Acid. *Steroids*, 2023, 197, 109260.
- **Ho, T.M**.; Elizondo, A.I.; Urbiola, J.G.; Varela, K. Resendez, A.; Oliver, T.; Plasencia, B.; Yoshimoto, F.K. Analysis of Food Extracts with Thin Layer Chromatography: A STEM Outreach Activity. *J. Chem. Educ*. 2024, 101, 5082-5088.
- Arman, H.D.; **Ho, T.M.**; Varela, K.; Veliz, C.S.; Zanni, R.B.; Rodriguez, A.; Wang, Z.; Yoshimoto, F.K. Harnessing the Topics of Cytochrome P450 Enzymology and Artemisinin to Teach a Semester-Long Biochemistry Laboratory Course. *J. Chem. Educ*. 2023, 100, 6, 2233–2242.

- Yoshimoto, F.K.; Guerrero, S.Q.; **Ho, T.M**.; Arman, H.D. Synthesis of 6β-Hydroxy Androgens from a 3,5-Diene Steroid Precursor to Test for Cytochrome P450 3A4-Catalyzed Hydroxylation of Androstenedione. *Steroids*, 2023, 199, 109298.
- **Ho, T.M**.; Yoshimoto, F.K. Lipase-Catalyzed Acetylation of Racemic Citronellol and Determination of Enantioselectivity through Derivatization by: (i) Esterification or (ii) Oxidation-Hydrolysis. protocols.io, 2025, DOI: dx.doi.org/10.17504/protocols.io.e6nvw83kdvmk/v1.

TEACHING EXPERIENCE

Graduate Teaching Assistant, UTSA

- Instructed undergraduate students in Organic Chemistry I & II and Biochemistry II laboratory courses, providing support in experimental design, data interpretation, and lab safety.
- Taught and supervised Elementary Organic & Biochemistry Lab for non-majors and pre-health students, emphasizing foundational techniques and real-world applications.
- Delivered pre-lab lectures, graded lab reports, and offered individualized academic support to enhance student performance and engagement.

HONORS AND AWARDS

- **American Chemical Society (ACS) Future Pharma Innovators** | 2025 – National award with mentorship from pharmaceutical scientists and travel support to present research at Fall ACS Meeting.
- **Outstanding Graduate TA** | 2025 – Recognized for excellence in undergraduate lab instruction.
- **Jesse, Kenneth, and Edna Abrams Award** | 2023 – Award for 1st year Ph.D. excellence in chemistry.

PRESENTATIONS

- **Ho, T.M.** (presenter); Offei, S.D.; Yoshimoto, F.K. *Synthesis of Hoodigogenin A from dehydroepiandrosterone.* Poster to be presented at the ACS Fall 2025 National Meeting – Future Pharma Innovators and GCI Roundtable Sessions; Washington, D.C.
- **Ho, T.M.** (presenter); Offei, S.D.; Yoshimoto, F.K. *Progress towards the synthesis of telocinobufagin*. Poster presentation at the Women in Catalysis and Synthetic Chemistry Symposium, Austin, TX, November 2023.
- **Ho, T.M.** (presenter); Yoshimoto, F.K. *A Deuterium-Labeling Study to Explore the Conversion of Chenodeoxycholic Acid to Cholic Acid by Human Cytochrome P450 8B1.* Poster Presentation at the Texas Enzyme Mechanisms Conference, Austin, TX, June 2023.