Wedd Jammal

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EDUCATION

Uppsala University - Dept of Chemistry

Doctor of Philosophy - Organic Chemistry Oct 2026 – Present

Doctoral research within the ERC-funded *ReImagiN₂* project, supervised by Prof. Eszter Borbas.

- Design and synthesis of peptoid-based ligands and lanthanide complexes.
- Development of lanthanide photocatalysts for N_2 and CO_2 reduction.
- Exploration of N_2 functionalization and N_2/CO_2 co-reduction for organic synthesis.
- Investigation of reaction mechanisms, electron-transfer processes, and catalytic selectivity.
- Development of sustainable photochemical and electrochemical methods.

Uppsala University - Dept of Chemistry for Life Sciences

Master of Science in Chemistry - Organic Chemistry Aug 2024 - Jun 2026

- Organic chemistry & organic synthesis, molecular quantum mechanics, NMR spectroscopy.

Uppsala University

Master of Science Programme in Pharmacy Sep 2018 - Jan 2024

- **Main areas**: microbiology, toxicology, analytical chemistry, physical chemistry, organic chemistry, biochemistry, physiology, medicinal chemistry, pharmacognosy, pharmacology, clinical trial methodology, galenic formulation.

WORK EXPERIENCE

Junior Scientist

HyEnGen AB May 2025 - Aug 2025

- Synthesis, purification, and characterization of organic and metal–organic compounds.
- Development of new electrode materials through immobilization of metal catalysts onto various types of conductive substrates.
- Analysis and evaluation of the synthesized electrode materials.

Intern in Organic Chemistry

Uppsala University - Dept of Chemistry Aug 2024 - Mar 2025

- Synthesis of paramagnetic Ln-tagged carbohydrates.
- Product analysis with NMR and mass spectrometry.
- Investigation of residual dipolar couplings present in solution.

Pharmacist

Apotek Hjärtat & Kronans Apotek Feb 2024 - Apr 2025

- Safe dispensing of medications.
- Health-related patient counseling.
- Managing the stock of medications and related supplies.
- Collaboration with healthcare professionals to optimize patient care.

Research Assistant in Pharmacology

Uppsala University - Dept of Pharmaceutical Biosciences Aug 2022 - Nov 2022

- Documentation of experimental conditions and outcomes.
- Supervising and conducting overnight shifts at the sleep lab.
- Analysis of acquired data.
- Assisting Dr. Benedict in teaching and mentoring medical students.
- Calibration of different instruments required for the study.
- Conducting research studies involving human participants.
- Handling and storage of biological samples.

PROJECTS

Total Synthesis of Arborisidine via a Titanium(III)-Catalyzed Coupling Nov 2025 - Aug 2026

- Participation in retrosynthetic planning, with a focus on addressing oxidative issues encountered in previous synthetic approaches.
- Development of a seven-step route toward arborisidine featuring a titanium(III)-catalyzed imine–nitrile coupling as the key C–C bond-forming step.
- Synthesis and characterization of key intermediates using NMR, MS, and IR.
- Optimization of the titanium(III)-catalyzed imine–nitrile coupling, including reaction conditions and purification strategies.

Deuterium Labeling of Ketamine to improve its Oral Bioavailability and Antidepressant Efficacy Feb 2023 - Jun 2023

- Synthesis of racemic ketamine (4 steps).
- Synthesis of racemic norketamine (7 steps).
- Synthesis of novel deuterated compound d3-ketamine (7 steps).
- Synthesis of novel compound ketamine carbonate (4 steps).
- Liquid ammonia distillation.
- Product analysis (TLC, LC-MS, GC-MS, IR, NMR).

ADDITIONAL EXPERTISE

Skills:

- R & Rstudio.
- PyMOL.
- Multi-step organic synthesis.
- Mass spectrometry MRM/SRM.
- Liquid-Liquid extraction and solid phase extraction.
- Chromatography (HPLC, UHPLC, GC)
- Recrystallization and enantiomeric resolution
- Quantitative proteomics
- SDS-PAGE
- Retrosynthetic analysis and design.
- 1D & 2D NMR spectroscopy.
- Recombinant protein expression
- Cell harvesting and lysis
- Western blotting
- Protein extraction
- FT/IR spectroscopy.
- Glovebox and Schlenk-line techniques

Languages: English, Swedish, Arabic, Spanish

INVITED TALKS

Uppsala Psychedelic Conference 2023 | Network for Psychedelic Sciences

Presented my Master's project to an audience of 100 attendees. The forum highlighted ongoing research on potential psychiatric disorder treatments in Sweden.

REFERENCES

Ruzal Sitdikov, PhD | KTH university

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