Chen Hanlin

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EDUCATION BACKGROUND

Sichuan University, (985 & 211 Projects University) **Chengdu, China**

Medicinal Chemistry 2022/09-2025/06(expected)

- **Average Score: 84.5/100 (Top 10 % of the grade)**
- **Core Modules:** Green Synthesis of Pharmaceuticals (88), Advanced Drug Synthesis (88), Monograph on Medicinal Chemistry (85), Advanced Medicinal Chemistry Laboratory Technology(83)

Chengdu University of TCM **Chengdu, China**

Traditional Chinese Pharmacology (Bachelor) 2018/09-2022/06

- **GPA: 3.52/4.0 (Top 6% of the grade)**
- **Core Modules:** Instrumental Analysis (95), Biochemistry (95), Analytical Chemistry (90), Pharmacology (91)
- **Thesis:** Phenothiazine-conjugated-benzoeindolium as a novel mitochondria-targeted fluorescent probe for detection of hypochlorite and its derivatives.

PUBLICATIONS

[1] Chen H L, Wu M J, Tang P* and Chen F E*, Iridium-Catalyzed Asymmetric, Complete Hydrogenation of Pyridazinium Salts under Batch and Flow: Sustainable Synthesis of ACE Inhibitor Cilazapril. **(In Preparation)**

[2] Yang Z, **Chen H L**, Wan L X, et al., Sustainable synthesis of long-acting local anesthetics ropivacaine and levobupivacaine under batch and continuous flow via asymmetric hydrogenation, *Org. Chem. Front.*, **2024**, 11, 2891-2896. *https://doi.org/10.1039/D4QO00072B*

[3] Zheng D B, Zhang T R, Hang Y, **Chen H L**, et al., Phenoxazine-conjugated-benzoeindolium as a novel mitochondria-targeted fluorescent probe for turn-on detection of sulfur dioxide and its derivatives in vivo, *Microchemical Journal*, **2022**, 175, 107192. *https://doi.org/10.1016/j.microc.2022.107192*

PROJECT EXPERIENCE

Iridium-Catalyzed Asymmetric, Complete Hydrogenation of Pyridazinium Salts under Batch and Flow: Sustainable Synthesis of ACE Inhibitor Cilazapril.

Graduate Researcher | Advisor: Prof. Pei Tang 2024/03-present

- Accomplished the **first fully asymmetric hydrogenation** of pyridazinium salts, using mild conditions without the use of additives, adhering to green chemistry principles and minimizing the waste.
- Achieved a yield rate of **up to 98%** and enantiomeric excesses **up to 98%**; flow reactions are currently under investigation.
- Developing an efficient synthesis route for **cilazapril intermediate**, with ongoing data collection and manuscript preparation.

Direct Asymmetric Reductive Amination for the Synthesis of Chiral β-Aminotetralins.

Graduate Researcher | Advisor: Prof. Pei Tang 2023/09-2024/03

- Developed a **novel metal-catalyzed asymmetric reductive amination** of β-tetralones, thereby accomplishing the synthesis of complex chiral amines with pharmaceutical relevance.
- Implemented the novel method in the chiral **synthesis of dopamine receptor Rotigotine**.
- Achieved various chiral β-aminotetralins with good yields and high enantioselectivity.

Orally delivered berberine derivatives for dual therapy in diabetic complications with MRSA infections

Research assistant | Advisor: Prof. Pei Tang 2022/06-2022/12

- Synthesized a novel series of berberine derivatives featuring alkyl radicals with varying chain lengths integrated at the C8 and C12 positions.
- **Modified berberine's structure** to enhance its antibacterial effects while retaining hypoglycemic activity.

- Identified and obtained BBR derivatives with **dual targeting potential** for diabetic complications and MRSA infections, presenting a novel clinical therapeutic strategy.
- Outcome: *Contributed to a publication in **Chin. Chem. Lett.**, 2024 (in press).* https://doi.org/10.1016/j.cclet.2024.109917

Iridium-Catalyzed Asymmetric Hydrogenation of Pyrimidinium Salts under Batch and Flow.

Research assistant | *Advisor: Prof. Pei Tang* 2022/06-2023/06

- Employed **high-pressure reaction kettles** for asymmetric hydrogenation experiments enabling the efficient and complete hydrogenation of pyrimidinium salts, yielding fully saturated piperidines.
- Applied in a **continuous flow system** which enhances its practicality and facilitates large-scale production.
- Collected and organized experimental data, supporting the preparation of the supplementary information.
- Outcome: *Contributed to a publication in **Green Chemistry**, 2024, 26, 317–322.* https://doi.org/10.1039/D3GC04364A

Phenothiazine-conjugated-benzoeindolium as a novel mitochondria-targeted fluorescent probe for detection of hypochlorite and its derivatives.

Undergraduate Researcher | *Advisor: Prof. Yuyu Fang* 2021/09-2022/05

- Synthesized **a new fluorescent probe** and demonstrated that fluorescent probe possesses advantages including high sensitivity and selectivity, rapid response time, mitochondrial targeting capabilities, and photostability.
- Completed the writing and defense of the undergraduate thesis.

RELEVANT RESEARCH SKILLS

- Proficient in a range of experimental techniques, including silica gel column chromatography and high-yield synthesis through precise manipulation of anhydrous reactions.
- Experienced in operating high-pressure reaction kettles and familiar with continuous flow reaction procedures.
- Skilled in utilizing literature search tools to extract relevant information from scholarly articles and patents.
- Demonstrated ability to independently devise compound synthesis routes, conduct feasibility experiments, and ensure the reliability and accuracy of experimental data.
- Proficient in operating **LC-MS, HPLC, NMR**, and other advanced analytical instruments, with expertise in analyzing and interpreting complex graphs and data sets.

EXTRA-CURRICULAR ACTIVITIES

Individual photographer 2018/10-present

- Proficient in **DSLR camera** use and professional software such as Photoshop and Lightroom.
- Managed a Weibo account as a photography blogger from 2021 to 2022, achieving over 2,000 followers.
- Built a portfolio of over **200 satisfied business clients**; developed photography into a side business.

Leader of the official photography studio of the school 2019/09-2020/09

- Provided photographic materials for the school's official media accounts (WeChat, TikTok) and led a team of 35 members in capturing images of various school events and landscapes.

AWARDS AND HONORS

Sichuan University Scholarship Award (top 10%, 4000 CNY) 2022-2024
Annual 'Outstanding Graduate Student' Honor by Sichuan University 2023
Excellent Undergraduate Graduate of Sichuan Province 2022
Second Prize Scholarship of Chengdu University of TCM (top 5%, 800 CNY) 2019-2021

SKILLS

Technical Skills: MestReNova, Chemdraw, Zotero, Microsoft Office, Adobe Ps, Adobe Lr;
Languages: Mandarin (Native), English (IELTS: 6.0)