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Targeting Aspartate Transcarbamoylase: A Versatile Approach to Multispecies Drug and Herbicide Discovery

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Appendix

List of publications and Acknowledgements

LIST OF PUBLICATIONS

- i. **Xiaochen Du**, Vidhisha Sonawane, Bidong Zhang, Chao Wang, Bram de Ruijter, Alexander S. S. Dömling*, Norbert Reiling*, and Matthew R. Groves*. Inhibitors of Aspartate Transcarbamoylase Inhibit Mycobacterium tuberculosis Growth. *ChemMedChem*. **2023** 18(17): e202300279.
- ii. **Xiaochen Du**, Ran Zhang, Matthew R Groves*. Fragment Screening in the Development of a Novel Anti-Malarial. *Crystals*. **2023**, 13, 1610.
- iii. **Xiaochen Du**, Charia Grillo, Torsten Möhlmann*, Santiago Ramón-Maiques*, A. S. S. Dömling* and Matthew R Groves*. Non-competitive Inhibitors of Arabidopsis thaliana Aspartate Transcarbamoylase lead to Impaired Root Growth. (*Manuscript preparation*)
- iv. **Xiaochen Du**, Chao Wang, Chiara Grillo, Siyao Chen, Alexander S. S. Domling*, Matthew R Groves*. The Potential of Aspartate transcarbamoylase as drug target in multiple diseases and herbicides. (*Manuscript preparation*)
- v. Chao Wang[†], Bidong Zhang[†], Yingying Cong, **Xiaochen Du**, Lidia Visser, Angel J Ruiz-Moreno, Lili Zhang, Fulvio Reggiori*, Alexander S S Dömling* and Matthew R Groves*. Small-Molecule Allosteric Inhibitors of Human Aspartate Transcarbamoylase Suppress Proliferation of Bone Osteosarcoma Epithelial Cells. (*Manuscript submitted*)
- vi. Chao Wang[†], Bidong Zhang[†], Arne Krüger, **Xiaochen Du**, Lidia Visser, Alexander S S Dömling*, Carsten Wrenger*, and Matthew R Groves*. Discovery of Small-Molecule Allosteric Inhibitors of PfATC as Antimalarials. *J. Am. Chem. Soc.* **2022**, 144(41), 19070–19077.
- vii. Eman Abdelraheem, Max Lubberink, Wenjia Wang, Jingyao Li, Atilio Reyes Romero, Robin van der Straat, **Xiaochen Du**, Matthew Groves*, and Alexander Dömling*. Multicomponent Macrocyclic IL-17a Modifier. *ACS Med. Chem. Lett.* **2022**, 13(9), 1468-1471.
- viii. Chao Wang, Arne Krüger, **Xiaochen Du**, Carsten Wrenger*, and Matthew R. Groves*. Novel highlight in malarial drug discovery: aspartate transcarbamoylase. *Frontiers in Cellular and Infection Microbiology*. 12 (2022): 841833.
- ix. Rei Yan Sun Liu, Felipe Wakasuqui, **Xiaochen Du**, Matthew R. Groves*, and Carsten Wrenger*. Lipoic acid metabolism as a potential chemotherapeutic target

against *Plasmodium falciparum* and *Staphylococcus aureus*. *Frontiers in Chemistry*. 9 (2021): 742175.

- x. **Xiaochen Du**, Jiafeng Yu, Jing Gong, Manzoor Zaman, Olga P. Pereshivko*, and Vsevolod A. Peshkov*. Gold-Catalyzed Post-Ugi Cascade Transformation for the Synthesis of 2-Pyridones. *European Journal of Organic Chemistry*. 2019, (14), 2502-2507.
- xi. **Xiaochen Du**[†], Jianjun Huang[†], Anton A. Nechaev, Ruwei Yao, Jing Gong, Erik V. Van der Eycken, Olga P. Pereshivko*, and Vsevolod A. Peshkov*. Gold-catalyzed post-Ugi alkyne hydroarylation for the synthesis of 2-quinolones. *Beilstein Journal of Organic Chemistry*. 2018, 14(1), 2572-2579.
- xii. Huang, Jianjun[†], **Xiaochen Du**[†], Kristof Van Hecke, Erik V. Van der Eycken, Olga P. Pereshivko*, and Vsevolod A. Peshkov*. Ugi Reaction Followed by Intramolecular Diels–Alder Reaction and Elimination of HCl: One-Pot Approach to Arene-Fused Isoindolinones. *European Journal of Organic Chemistry*. 2017, (30),4379-4388.

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Time flies, and in the blink of an eye, four years have passed. During my PhD studies, I learned a lot, and also changed a lot, not only in positive side, but also maybe negative side. But this is life, the only thing what I need to do is enjoy it. Life always gives us a lot, and we continue to learn in life.

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Li, the first trip I took in Europe was with you, you made a detailed plan and organized everything. I am so happy and luck to meet you in our lab. We walked outside in Groningen, shared happy and sad moments in our lab. You are sincere to people, and always find easy ways for cooking. I wish you enjoy life. I know you are a good swimmer, and I also swim much better than before. Maybe someday in future we can swim together. **Xiaofang**, you clearly understand that life is not always happiness, but you always maintain a positive attitude, which is so great! I admire your attitude towards life. And you are warm-hearted and full of energy, keeping going and do what you want; this is your life!

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It's time to say goodbye, and also embrace a new start. I wish myself to enjoy everything in the following time of my life, to do what I want to do and to be myself.

Xiaochen
Groningen
April 2024

About the author

Xiaochen Du was born on July 29th, 1991, in Zhangjiakou, Hebei, China. In July 2016, she attained her bachelor's degree in chemistry from Cangzhou Normal University. Following her undergraduate studies, Xiaochen started her master's program in Organic Chemistry under the guidance of Prof. Vsevolod Peshkov at Soochow University in September 2016 and graduated in July 2019. In October of the same year, she moved to the Netherlands to pursue her Ph.D. studies in the Drug Design group at the Department of Pharmacy, University of Groningen, under the supervision of Prof. Matthew R. Grove. Throughout her Ph.D. journey, she shifted her focus to Biology, exploring a new area of research. As of April 2024, Xiaochen is poised to graduate with her Ph.D.