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Mutation-driven modulation of GPCR pharmacology in cancer: insights from adenosine and serotonin receptors

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List of publications

Part of this thesis

Feng, C., Ooms, J. F., Danen, E. H. J., Heitman, L. H. (2025). GPCR-G protein signalling and its mutational landscape in cancer-Driver or passenger. *British journal of pharmacology*, 182(17), 3975–3989.

Feng, C., Liu, R., Brooks, R., Wang, X., Jespers, W., Gorostiola González, M., van Westen, G. J. P., Danen, E. H. J., Heitman, L. H. (2024). The effect of cancer-associated mutations on ligand binding and receptor function - A case for the 5-HT_{2C} receptor. *European journal of pharmacology*, 985, 177081.

Feng, C., Wang, X., Jespers, W., Liu, R., Zamarbide Losada, S. D., Gorostiola González, M., van Westen, G. J. P., Danen, E. H. J., Heitman, L. H. (2022). Cancer-Associated Mutations of the Adenosine A_{2A} Receptor Have Diverse Influences on Ligand Binding and Receptor Functions. *Molecules*, 27(15), 4676.

Feng, C., Bhugwansing, K., Danen, E. H. J., Heitman, L. H. Kinetic profiling of novel A_{2A}AR agonists and antagonists leads to finely tuned ligand binding for cancer-associated mutants. *Manuscript in preparation*.

Feng, C., Danen, E. H. J., Heitman, L. H. Antagonism of adenosine A_{2A}AR and A_{2B}AR in breast cancer cell lines inhibits their growth. *Manuscript in preparation*.

Oral and poster communications:

- 2024 **EFMC-ACSMEDI MedChem Frontiers** (poster)
Utrecht, the Netherlands
- 2023 **LACDR Spring Symposium** (poster)
Leiden, the Netherlands
- 2022 **ONCODE annual scientific meeting** (poster)
Amsterdam, the Netherlands
- 2022 **ULLA summer school** (poster)
Uppsala, Sweden
- 2022 **FIGON Dutch Medicines Day & EUFEPS Annual meeting** (poster)
Leiden, the Netherlands
- 2022 **LACDR Spring Symposium** (poster)
Leiden, the Netherlands
- 2021 **LACDR Spring Symposium** (poster)
Leiden, the Netherlands
- 2020 **LACDR Spring Symposium** (poster prize)
Leiden, the Netherlands

Curriculum vitae

Chenlin Feng was born on July 15th, 1992, in Luoyang, He'nan province, China. From 2010 to 2015, he studied at Shandong University, school of public health and obtained his bachelor's degree. From 2016 to 2019, he joined the master's program of Peking Union Medical College under the supervision of Prof.dr. Jiandong Jiang and obtained his master's degree in pharmacology. His master projects focused on pharmacodynamic evaluation of natural products in colorectal cancer treatment using both in vitro and in vivo models, and the mechanism of action including gut microbiota regulation. He was awarded the outstanding graduate of 2019.

In September 2019, he moved to Leiden, the Netherlands to perform his PhD research at Leiden Academic Center for Drug Research, under the supervision of Prof. Dr. Laura Heitman and Prof. Dr. Erik Danen. His PhD program was sponsored by the China Scholarship Council until August 2023 and afterwards sponsored by Leiden University and ONCODE institute. His projects focused on ligand-target interaction and modulation of G protein-coupled receptor pharmacology in cancer, with special interests in characterization of cancer-associated mutations in adenosine A_{2A} receptor and serotonin 5-HT_{2C} receptor. From April 2025 to August 2025, he worked as a postdoc researcher in Prof. Dr. Laura Heitman's group to continue the investigation of targeting adenosine receptors in breast cancer treatment.

At the moment of writing this paragraph, Chenlin is exploring his next career steps, seeking to apply his research expertise, scientific curiosity, and passion for drug development.

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At the end of my PhD, I want to express my gratitude to many people. But before that, I want to take a moment to encourage myself. I still remember my very first day as a PhD candidate, on September 17th, 2019, when Lia welcomed me at the reception and guided me through the Gorlaeus building to the lab. There I met my supervisors and new colleagues, full of excitement for the years that lay ahead. Looking back, I was perhaps overly optimistic about what it meant to pursue a PhD. Even though I believed I was ready for the challenge, there were many moments when I doubted whether I could truly make it. Today, I am grateful that I did not give up and that I have made it to the finish. More importantly, I am deeply thankful for the support of so many wonderful people, without whom my growth and accomplishments would not have been possible.

I would like to thank my promotors, Laura and Erik, for giving me the opportunity to embark on this unique journey. During our first online interview on January 30th, 2019, Laura asked me whether I would feel sad about leaving my family and friends behind to pursue a PhD in a faraway country. My answer was certainly yes. What I did not know then is that, six years later, I would have built a family here and gained more cherished friends. The more happiness and memories we share, the more reluctant I am to accept the long distance between China and the Netherlands. Thank you for your guidance and constant support. You taught me what it takes to be an independent researcher, a patient mentor, and a hardworking and supportive team member. Thank you for always being willing to listen, for sharing your experiences and wisdom, and for consistently respecting my opinions and encouraging me through every small step, no matter it was a success or a moment of trial and error.

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