Xinjing Tang, Professor

State Key Laboratory of Natural and Biomimetic Drugs,
School of Pharmaceutical Sciences
Peking University, Beijing, China
Tel: +86-10-82805635
Email: xinjingt@bjmu.edu.cn

2009- Present	PI, State Key Laboratory of Natural and Biomimetic Drugs, School of Pharmaceutical Sciences, Peking University
2003-2009	Postdoctoral Researcher, University of Pennsylvania, USA
2002 PhD	Technical Institute of Physics and Chemistry, Chinese Academy of Sciences
1997 BS	Shandong University

Research Interests:

Nucleic Acid Chemical Biology, Nucleic Acid Drug Development, Circular oligonucleotides, Gene silencing, Gene editing

Selected Publications:

1. Jianfei Xu†, Xiaoran Zhao†, Xingxing Liang, Dongyang Guo, Jing Wang, Qian Wang*, **Xinjing Tang*** Development of miRNA- based PROTACs targeting Lin28 for breast cancer therapy, ***Sci. Adv.*** **2024**, 10, eadp0334.
2. Yu Zhang, Di Feng, Guanqun Mu, Qian Wang, Jing Wang, Yun Luo, and **Xinjing Tang***, Light-triggered site-directed RNA editing by endogenous ADAR1 with photolabile guide RNA, ***Cell Chem Biol.*** **2023** 30, 672–682
3. YingJie Sun, WenDa Chen, Ji Liu, JunJin Li, Yu Zhang, WeiQi Cai, Li Liu, **XinJing Tang***, Jian Hou*, Ming Wang*, and Liang Cheng*, A Conformational Restriction Strategy for the Control of CRISPR/Cas Gene Editing with Photoactivatable Guide RNAs; ***Angew Chem Int Ed.*** **2023**, 62, e202212413
4. Xiaoxuan Su, Wenxiao Ma, Boyang Cheng, Qian Wang, Zefeng Guo, Demin Zhou, **Xinjing Tang*** Efficient Inhibition of SARS-CoV-2 Using Chimeric Antisense Oligonucleotides through RNase L Activation, ***Angew Chem Int Ed***. **2021**, 60, 21662–21667
5. Yu Zhang[§], Xinyu Ling[§], Xiaoxuan Su, Shilin Zhang, Jing Wang, Pingjing Zhang, Wenjian Feng, York Yuanyuan Zhu, Tao Liu, **Xinjing Tang*** Optical Control of CRISPR-Cas9 system for gene editing using photolabile crRNA. ***Angew Chem Int. Ed***. **2020**, 132, 21081-21085.

Nucleic acid drugs for targeting RNA and protein degradation

Xinjing Tang

State Key Laboratory of Natural and Biomimetic Drugs, School of Pharmaceutical Sciences,

Peking University, Beijing 100191, China

Abstract

Nucleic acid drugs have been promising therapeutic agents for targeting different targets. Here we presented a kind of oligonucleotide chimera for targeting RNA and Protein degradation. We first constructed chimeric oligonucleotides comprising antisense oligonucleotide and a 5'-phosphorylated 2'-5' poly(A)4 (4A2-5) to degrade envelope and spike RNAs of SARS-CoV-2. The oligonucleotide sequence was used for searching and recognizing target viral RNA sequence, and the conjugated 4A2-5 was used for guided RNase L activation to sequence-specifically degrade viral RNAs, indicating a promising antiviral agent based on the nucleic acid-hydrolysis targeting chimera (NATAC) strategy. We also developed a series of miRNA-based Lin28A-miRNA proteolysis-targeting chimeras (Lin28A miRNA-PROTACs) for efficient Lin28A degradation through a ubiquitin- proteasome–dependent mechanism, resulting in up-regulation of mature let- 7 family, further exerting inhibitory effects on cancer cell proliferation and migration, and increase its sensitivity to chemotherapy. This study displays an effective miRNA-based PROTACs to degrade Lin28A and inhibit tumor growth, providing a promising therapeutic avenue for cancer treatment with miRNA-based therapy.