Zhixin Lei

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Education and Research Experience

Postdoctoral Fellow Apr. 2023-Present

Peng Yin Lab, Wyss Institute, Harvard University, Boston, USA

Research associate Feb. 2021-Mar. 2023

Chengqi Yi Lab, Peking University, Beijing, China

Unbiased genome-wide off-target profiling of DdCBEs and ABEs.

Ph.D., Integrated Biology Sep. 2015-Jan. 2021

Peking-Tsinghua Center for Life Sciences, Peking University, Beijing, China

Development of an unbiased detection method, Detect-seq, for evaluating the genome-wide off-target effect induced by CBEs.

Development of a locus-specific detection method for pseudouridine.

B.Eng., Biological Engineering Sep. 2011-Jun. 2015

College of Chemical Engineering, Sichuan University, Chengdu, China

Publications

(#: Co-first author)

1. Zhixin Lei#, Haowei Meng#, Xichen Rao, Huanan Zhao and Chengqi Yi. Detect-seq, a chemical labeling and biotin pulldown approach, enables unbiased and genome-wide off-target evaluation of programmable cytosine base editors. ***Nature Protocols***. (AIP)
2. Zhixin Lei#, Haowei Meng#, Yuan Zhuang#, Qinguo Zhu and Chengqi Yi. (2023). Chemical and biological approaches to interrogate off-target effect of genome editing tools. ***ACS Chemical Biology***. 18(2):205-217.
3. Zhixin Lei#, Haowei Meng#, Lulu Liu#, Huanan Zhao#, Xichen Rao, Yongchang Yan, Hao Wu, Min Liu, Aibin He and Chengqi Yi. (2022). Mitochondrial DNA base editor induces substantial off-target mutations in the nuclear genome. ***Nature***. 606(7915):804-811.
4. Zhixin Lei#, Haowei Meng#, Zhicong Lv#, Menghao Liu, Huanan Zhao, Hao Wu, Xiaoxue Zhang, Lulu Liu, Yuan Zhuang, Kailin Yin, Yongchang Yan and Chengqi Yi. (2021). Detect-seq reveals out-of-protospacer editing and target-strand editing by cytosine base editors. ***Nature Methods.*** 18, 643-651. (**Cover article**)
5. Zhixin Lei, Chengqi Yi. (2017). A Radiolabeling-Free, qPCR-Based Method for Locus-Specific Pseudouridine Detection. ***Angewandte Chemie International Edition***. 56(47): 14878- 82. (**Highlighted by F1000 Faculty**)

Selected Honors and Awards

2020	Outstanding Graduates, Peking University
2018	Presidential Scholarship of Peking University
2018	Merit Student, Peking University
2014	Outstanding Graduates, Sichuan University
2014	Excellent Student, Sichuan University
2013	National Scholarship of China

Presentations and Posters

Genome Engineering Seminar Series at Harvard Medical School, 2022, online. (Invited speaker)

Deaminet 2022 in Palm Springs – The 3rd International Conference on Base Editing, 2022, online. (3-min video of oral presentation)

Genome Engineering Seminar Series at Harvard Medical School, 2021, online. (Invited speaker)

The 3rd Peking University Graduate Student Forum for Advanced Interdisciplinary Studies, 2019, Beijing, China. **Runner-up in the Oral Presentation Competition**. (Oral presentation)

RNA Biology, CSH Asia, 2018, Suzhou, China. **Best Poster Award**. (Poster)

Expertise and Skills

Next-generation Sequencing for RNA biology and genome editing:
Sequencing methods for various types of chemical modifications on DNA and RNA.

Chemical labeling:
Chemical labeling reactions for detecting varied types of chemical modifications.

Programming skills:
Python, Perl, Linux and R.