

# DIYUN SUN

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## EDUCATION

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School of Life Science and Technology, ShanghaiTech University	2018.09 – 2022.06
<i>Bachelor of Biological Science</i>	
UC Berkeley International Study Program	2021.08 – 2022.05
Department of Biochemistry and Biophysics, Texas A&M University	2022.08 – Current

## RESEARCH EXPERIENCE

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**Biochemical and structural investigation into mouse Z-DNA binding protein 1 (ZBP1)** 2023.01 – Current

**Supervisor:** Pingwei Li, Professor in Department of Biochemistry and Biophysics, Texas A&M University

- Expressed and purified ZBP1 from BL21 cells with a Sumo-His6 tag
- Tested the stoichiometry of ZBP1 and nucleic acid binding using EMSA and FPLC
- Generated 2D classification showing tight binding of ZBP1 to Z-DNA at a 3Å resolution

**In silico reconstruction of L-desuccinylase (L-DS) evolution in prokaryotic cell wall synthesis pathway** 2022.05 – 2022.08

**Supervisor:** Margaret Glasner, Associate Professor in Department of Biochemistry and Biophysics, Texas A&M University

- Constructed a narrowed sequence similarity network based on E-value and neighborhood connectivity to one L-DS
- Predicted nodes function by operon analysis and HMMER search in their genome context, built phylogenetic trees that indicated coevolution of L-DS with other two core enzymes in the pathway

**Mutagenesis of a thermophilic enzyme *Pf*TrpB for better performance in mesophilic system** 2021.02 – 2021.08

**Supervisor:** Jian Li, Assistant professor in School of Physical Science and Technology, ShanghaiTech University

- Identified possible mutagenesis sites in *Pf*TrpB by multiple sequence alignment with its mesophilic homologs
- Expressed 22 single-site mutants or their combinations in the cell-free system, characterized enzyme activities with tryptophan production measured by HPLC

## TECHNICAL SKILLS

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**Expression System:** *E. coli*, Insect Sf9 cells, Mammalian 293F cells

**Molecular Biology:** IFN  $\beta$  luciferase Assay, Cloning, RNA *in vitro* transcription and purification, Biotinylation

**Assays:** Gel filtration, EMSA, Pull-down, Native PAGE, SPR, HPLC, Cross-linking

**Computational:** Programming (Python, Bash), CryoSPARC, Cytoscape, Image J

## PUBLICATION

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Tang, Z., Zhao, J., Li, Y., Tomer, S., Selvaraju, M., Tien, N., Sun, D., Johnson, D., Zhen, A., Li, P., Wang, J. (in press) Structural and Biological Evaluations of a Non-Nucleoside STING Agonist Specific for Human STING-A230 Variants. *Journal of Medicinal Chemistry*.

## PERSONAL WEBSITE

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**Wix:** <https://sundy0.wixsite.com/my-site-2>

**Github:** <https://github.com/sandylovescandy/Glasner-Lab>