Jinrou Li

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EDUCATION

Peking University (PKU) Beijing, China
***B.S. in Life Sciences* (Rank 7/130, GPA 3.8/4.0)** *Sep 2020 – Jul 2024 (expected)*

- **Relevant Curriculum:** Genetics (A, Top3 in class), Cell Biology(A), Genetics Lab(A), Current topics on Genetics(91), Molecular Biology (91), Biochemistry (90), Current topics on Biochemistry(100), Biostatistics (94), Journal Club of the Frontier for Life Sciences (96.5), Selected Readings on Frontiers of Science and Technology-1 (94), Selected Readings on Frontiers of Science and Technology-2 (94), Selected Readings on Frontiers of Science and Technology-3 (97), Selected Readings on Frontiers of Science and Technology-4(98)

- **Technical Skills:**
- Experimental Skills:
  - Cloning
  - Tissue Culture: human cell lines (HEK293T), insect cell lines (Sf9, Sf21, Hi5)
  - Cellular: Immunostaining, Confocal imaging
  - Mouse Experiments: Brain Dissection, Cryosection
  - Biochemistry: Western Blot, Co-Immunoprecipitation, Protein Purification, Recombinant Protein Production (Baculovirus-Insect System)
  - RNA Technology: *in-vitro* transcription, RT-qPCR
  - Translation: Polysome Profiling, *in-vitro* Translation
  - Structural: X-ray Crystallography
- Programming Skills: Python, Linux, R
- Language:
  - TOEFL 112 / 120 (30 Reading 30 Listening 25 Speaking 27 Writing)
  - GRE 329 / 340 (159 Verbal 170 Quantitative 3.5 Analytical Writing)

RESEARCH APPOINTMENTS

Cancer Immunology & Virology, Dana-Farber Cancer Institute, Harvard Medical School Boston, MA
Undergraduate Visiting Researcher Advisor: Prof. Amy S.Y. Lee *Jul 2023 - present*

School of Life Sciences, Peking University Beijing, China
Undergraduate Researcher Advisor: Prof. Yan Song *Feb 2022 - present*

HONORS & AWARDS SELECTION

- 87 Excellent Undergraduate Research Project Scholarship 2023.4
- **Best Oral Presenter** of the 9TH Symposium for Undergraduate Honor Program in Biology 2022.9
- The Third Prize of Peking University Scholarship 2021-2022
- Award for Academic Excellents 2021-2022
- Award for Academic Excellents 2020-2021

SELECTED PROJECTS

Multi-Level Studies of Non-Canonical Translation by Eukaryotic Initiation Factor 3 (eIF3)

Cancer Immunology & Virology, Dana-Farber Cancer Institute, Harvard Medical School *Boston, MA*
Supervisor: Dr. Amy S.Y. Lee *Jul 2023 – present*

Structure determination of human eIF3 subunit d (eIF3d) cap-binding domain

- Generated eIF3d TEV mutants suitable for X-ray crystallography structural studies through bioengineering.
- Used baculovirus-insect cell expression system to purify recombinant eIf3 complex.
- Currently working on protein crystallization.

Exploring the regulatory role of eIF3d C terminal

- Discovered that C deletion mutant for eIF3d (delC) had a ~10 fold higher mRNA cap-binding ability and loss of selectivity. Designed different C terminal mutants and to study the regulatory role of C terminal on eIf3d cap-binding.
- Currently designing experiments to capture intramolecular interaction between eIf3d C terminal and the RNA -binding tunnel of eIF3d cap-binding domain..

Figuring out the components of non-canonical 48S preinitiation complex

- Developed a method to effectively purify the 48S preinitiation complex in eIF3-mediated non-canonical translation initiation from cell lysates through polysome profiling and biotinylated RNA pull-down.
- Currently optimizing the purification on different RNA targets and preparing 48S complex samples for mass spectrometry.

Expanded skill sets in RNA and structure biology. Became proficient in making scientific hypotheses and validating with rigorous experiments. Capable of starting a new project independently.

Investigating Function of *Prox1* in Mammalian Nervous System

Peking University, School of Life Sciences, Beijing, China
Supervisor: Dr. Yan Song *Feb 2022 – Jul 2023*

- Discovered Prox1's function of specifying neural stem cell identity through liquid-liquid phase separation (LLPS) in the mouse model.
- Carried out independent research to elucidate the mechanism under the collaboration of Prox1 and epigenetic histone modifiers for rapid and specific gene suppression.

Acquired rich experience on basic cellular, biochemistry and genetics experiments, especially on mice experiments. Started to lead an independent project, accumulating experience in experiment design, trouble-shooting, scientific writing and presentation.
Awarded with 87 Excellent Undergraduate Research Project Scholarship and The Best Oral Presenter of the 9TH symposium for Undergraduate Honor Program in Biology for this project.

HOSTED SEMINARS

- **Remember Me(thylation) for centuries: transgenerational epigenetic inheritance**
  Undergraduate Honor Program in Biology, Peking University *2023.4*
  Supervisor: Dr. Qing Li
  Mechanisms behind epigenetic inheritance, especially focus on DNA methylation: how and why can epigenetic information be passed across generations? Is DNA sequence the only inheritance material?
- **Mitochondrial DNA base editing tools**
  Undergraduate Honor Program in Biology, Peking University *2022.11*
  Supervisor: Dr. Peng Du
  Recent applications of non-CRISPR base editors in mitochondrial genome, its future development and therapeutic potential.
- **Role of mitochondria in cell fate decisions during neurogenesis**
  Undergraduate Honor Program in Biology, Peking University *2022.5*
  Supervisor: Dr. Yan Song
  Influence of mitochondria morphology and metabolism on neural fate decision, mitochondria associated neural diseases and current treatments.
- **Of infection and autoimmunity: dual roles CD8+T cells play in human diseases**
  Undergraduate Honor Program in Biology, Peking University *2021.12*
  Supervisor: Dr. Jiazhi Hu
  CD8+T cells' different phenotypes in cancer and autoimmunity, the crucial biological functions of the balance between the dual roles.