

Junting Li

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EDUCATION

Imperial College London

Master of Research (MRes) in Molecular & Cellular Biosciences

Sep. 2025 – Sep. 2026

London, UK

- Two 6-month research projects

University of California, Los Angeles

Summer Sessions

Aug. 2025 – Sep. 2025

Los Angeles, US

- Coursework: R, Biostatistics

Université Paris Cité

Master 1 in Sciences, Technology, Health (Sino-French Joint Program with SJTU)

Jan. 2023 – Dec. 2024

Paris, France

- Focus: Oncology, Cell biology

Shanghai Jiao Tong University

Bachelor of Science in Medical Laboratory Technology

Sep. 2021 – Jun. 2025

Shanghai, China

- GPA 3.79/4.0 (88.85/100)

- Core Courses: Molecular biology, Biochemistry, Immunology, Genetics, Microbiology, Hematology, Clinical Laboratory

RESEARCH EXPERIENCE

Biochemical and cellular characterization of UBE3C for covalent drug discovery

MRes Researcher, Biochemistry & Chemical Biology

Apr. 2026 – Sep. 2026

Advisor: [Prof. David Mann](#), Imperial College London, UK

Established complementary biochemical, structural, and cell-based approaches to investigate the druggability and cellular function of the HECT ubiquitin ligase UBE3C.

- Expressed and purified wild-type and single-cysteine UBE3C proteins from *E. coli* using immobilized metal-affinity chromatography and size-exclusion chromatography (SEC) for downstream covalent-fragment studies.
- Quantified covalent engagement of the fragment CL_455 using a quantitative irreversible tethering (qIT) assay, demonstrating reproducible kinetic selectivity for UBE3C over glutathione across three compound concentrations (REF = 3.44-3.78).
- Optimized initial hanging-drop crystallization conditions for UBE3C and obtained UV-positive microcrystalline materials, providing starting conditions for future X-ray crystallography and compound co-crystallization.
- Evaluated wild-type, IQ-domain deletion, and catalytically inactive C1051W UBE3C using BioE3 ubiquitination and NeutrAvidin pull-down assays, observing weak free-UBE3C E3 activity and no preferential VPS34 enrichment under the tested conditions.
- Developed an AHA pulse-chase and click-chemistry workflow in HEK293T cells to monitor newly synthesized protein degradation, demonstrating progressive loss of AHA-labelled proteins over a 15-hour chase as a foundation for future degradation proteomics.

Biochemical characterization of a disease-associated DC-SIGNR variant

MRes Researcher, Biochemistry & Molecular Biology

Oct. 2025 – Mar. 2026

Advisors: [Prof. Kurt Drickamer](#) & [Dr. Maureen Taylor](#), Imperial College London, UK

Investigated how an ME/CFS- and long COVID-associated cysteine variant of the viral receptor DC-SIGNR alters receptor oligomerization and multivalent viral glycoprotein recognition.

- Constructed biotin-tagged 6.5-repeat cysteine and wild-type DC-SIGNR extracellular-domain variants, and expressed and purified proteins from *E. coli*.
- Developed and optimized a rapid centrifugal diafiltration-based protein renaturation strategy, improving recovery of functional DC-SIGNR tetramers compared with conventional dialysis.
- Demonstrated formation of stable 6.5-Cys/7.5-WT hetero-oligomers through co-renaturation, SEC, and streptavidin immobilization of biotin-tagged complexes.
- Characterized oligomeric stability by SEC, showing that the non-covalent 6.5-repeat wild-type receptor remained tetrameric across the tested concentrations and exhibited stability comparable to the cysteine variant.
- Quantified viral glycoprotein binding using solid-phase binding assays and found that the 6.5-Cys variant bound HIV gp120 with approximately two-fold higher affinity than the corresponding 6.5-repeat wild-type control ($K_D = 3.7 \pm 0.3$ nM vs. 7.8 ± 0.9 nM).

Single-cell Strand-seq data processing and sister-chromatid exchange (SCE) analysis in human cell lines

Research Intern, Genetics & Genomics

Aug. 2025 – Sep. 2025

Advisor: [Dr. Yi Yin](#), Department of Human Genetics, University of California, Los Angeles, US

Investigated PARP inhibitor-associated changes in sister-chromatid exchange and genomic instability using high-throughput single-cell Strand-seq (sci-L3).

- Processed single-cell Strand-seq data from NovaSeq runs by executing multi-stage pipelines on the Hoffman2 HPC cluster, converting raw FASTQ files into aligned BAMs and generating breakpoint visualizations for SCE analysis.
- Analyzed and quantified SCE events across single cells using custom scripts, facilitating the comparative analysis of PARPi-treated BJ cell line and cancer cell lines.
- Explored the potential source of genomic instability by correlating SCE breakpoint maps with nascent transcription (GRO-seq) datasets.
- Learned sci-L3 Strand-seq pre-sequencing workflows, including cell lysis, nuclei isolation, IVT reactions, barcode preparation, PCR setup, Tn5 transposome assembly, and DNA quantification, to generate barcoded nuclei for downstream sequencing.
- Mastered Illumina DNA library preparation, including end-repair, adaptor ligation, and PCR enrichment, ensuring high-quality libraries for single-cell Strand-seq experiments.

Functional and molecular characterization of Discs Large Homolog 5 (DLG5) in gastric cancer (GC)

Research Assistant, Molecular, Cell & Cancer Biology

Nov. 2023 – Dec. 2024

Advisor: [Prof. Lisong Shen](#), Clinical Laboratory, Shanghai Jiao Tong University School of Medicine, China

Investigated the functional role of DLG5 in gastric cancer cells and its relationship with malignant phenotype of gastric cancer and autophagy.

- Characterized DLG5 expression and its association with clinical prognosis in GC by conducting TCGA-based analysis, qRT-PCR, Western blotting, and IHC.
- Performed DLG5 overexpression and knockdown experiments and assessed their effects on GC cell proliferation and migration.
- Evaluated autophagy-associated cellular changes following DLG5 perturbation using MDC fluorescence staining.
- Analyzed RNA-seq data and KEGG pathway enrichment to identify candidate signaling pathways and autophagy-related genes associated with DLG5 regulation.

Evaluating HIV positive screening rate and screening reagent performance

Research Analyst, Clinical Epidemiology

Apr. 2023 – May. 2024

Advisor: [Prof. Hui Chen](#), Clinical Laboratory, Xinhua Hospital Affiliated to SJTU School of Medicine, China

Conducted a 10-year retrospective analysis of more than 702,000 HIV screening records to characterize temporal trends in screening positivity and evaluate the diagnostic performance of commonly used HIV immunoassays.

- Identified and statistically validated a significant downward trend in the HIV confirmed-positive rate over the 10-year period.
- Characterized the epidemiological profile of positive cases, finding a 3.4:1 male-to-female ratio, high prevalence (68.4%) in the 20-49 age group, and a 25.1% co-infection rate with syphilis.
- Evaluated the performance of HIV screening reagents, achieving an AUC of 0.973 for chemiluminescence assays and high accuracy for colloidal gold methods.

PUBLICATION

- **Li, J. (First author)**, Zhang, P., Liu, Y., et al. Trends in the positivity rate of human immunodeficiency virus screening and evaluation of screening reagent performance in a tertiary hospital in Shanghai from 2012 to 2022. *Chinese Journal of Infectious Diseases*, 2024, 42(6): 363–367. doi: 10.3760/cma.j.cn311365-20231225-00194

SKILLS

- **Computational & Data Analysis:** Linux/Bash, R, GraphPad Prism, SPSS.
- **Molecular & Cell Biology:** Cloning, Mammalian cell culture, Transfection, qRT-PCR, Western blotting, Co-IP, NeutrAvidin pull-down, IHC, DNA/RNA extraction.
- **Biochemistry:** Bacterial protein expression and refolding, Affinity chromatography, SEC, CuAAC click chemistry, Protein crystallization, Solid-phase binding assays, qIT covalent-binding assays, Nuclear/cytoplasmic fractionation.
- **Genomics:** Strand-seq, NGS library prep, Single-cell sequencing analysis, GRO-seq integration.
- **Database & Visualization:** TCGA, GEO, KEGG, GEPIA2, HPA, NCBI, cBioPortal; PyMOL, ImageJ, CaseViewer, Adobe Illustrator.

HONORS & AWARDS

- Undergraduate Excellence Scholarship, Shanghai Jiao Tong University (**Overall rank 1/20**, 2023-2024)
- **First Prize** of Mindray Bio-Medical Scholarship (**Academic rank 1/74**, 2023-2024)
- Roche Diagnostic Education Fund Scholarship (**National award**, 2022-2023)
- Undergraduate Excellence Scholarship, Shanghai Jiao Tong University (**Overall rank 1/20**, 2022-2023)
- Third Prize in the third **National** Medical Laboratory Technology College Students Virtual Diagnosis Skills Competition (Aug. 2024)