Ye Yifang

EDUCATION

National University of Singapore — **Singapore**
Master of Science, Major: Chemical Engineering — Aug 2023 - June 2024
Bachelor of Engineering（Honor）, Major: Chemical Engineering — Aug 2019 - June 2023

ETH Zurich — **Zurich, Switzerland**
Exchange student — Jan 2022 – Aug 2022

RESEARCH EXPERIENCE

Chinese University of Hong Kong Summer Undergraduate Research — **Hong Kong**
Research Assistant — *Jun 2023 - Aug 2023*

- Identified novel transcript isoforms in Colorectal Carcinoma by Long-Read Direct RNA-Sequencing under the supervision of Professor Ting Fung Philos CHAN
- Extracted RNA from tumour and normal colon tissue collected from patients and sequence the transcriptome by Nanopore direct RNA sequencing
- Employed nanopore direct RNA-sequencing methods in Colorectal Carcinoma tissues for real-time analysis and and development of targeted and personalized treatment strategies
- Led wet lab procedures, including DNA extraction, Optical Genome Mapping(OGM), and utilized R programming to evaluate the pattern of molecules
- Gained proficiency in bioinformatics tools such as IGV(Integrative Genomics Viewer) software to visualize and analyze genomic data and explore potential therapeutic avenues

NUS Mechanobiology Institute Internship — **Singapore**
Research Assistant — *Jul 2022 - May 2023*

- Initiated an independent research project on the effects of mechanical constraints on the stability and interactions of biomolecules like R-loops with Professor Jie YAN
- Investigated G-quadruplex formation and R-loop structure formation within negatively supercoiled DNA in single-molecule studies under different conditions
- Applied advanced magnetic tweezer techniques to manipulate and analyze the behavior of R-loops, explaining the intricate molecular mechanisms governing their stability
- Conducted data analysis to observe trends and variations on experimental data sets and thereby digging the potential of R-loops in genomic stability and gene expression regulation
- Provided updates on the research progress, discussed the direction of the project and shared experimental results with other lab members and PHD students in weekly team meetings

PROJECT EXPERIENCE

National University of Singapore (NUS) Graduate Program — **Singapore**
Researcher — *Sept 2023 - Present*

- Investigated the potential of metal nanoclusters as nanozymes for catalyzing to address sustainability and human health challenges with Professor Jianping XIE
- Engineered ultrasmall metal nanoparticles with a core size of 3 nm or less to function as nanozymes for high-efficiency and high-selective catalysis
- Leveraged chemical and topological structures of metal nanoclusters to enhance their catalytic efficiency and selectivity
- Designed hierarchical structures at the atomic level to simulate the catalytic performance of natural enzymes and overcame the stability issues
- Developed novel nanozymes through the innovative design of metal nanoclusters applications in demanding industrial sectors such as clean energy, environmental management and biomedicine