

ZHAO Yiming

+852 52724806 yzhaogk@connect.ust.hk



EDUCATION

The Hong Kong University of Science and Technology

PhD in Life Science

The Hong Kong PhD Fellowship Scheme (2024)

Aug 2024 - present
Hong Kong

Sun Yat-sen University

Biotechnology and Applications base class School of Life Sciences

GPA: 3.7 / 4.0

Aug 2020 - Jun 2024
Guangzhou

Sun Yat-sen University Outstanding Student Scholarship (2021, 2022, 2023) and Sun Yat-sen University Scholarship (2022)

RESEARCH INTEREST

Physical and function of TMC1 in auditory hair cells

The central role of hearing as a vital conscious sensation in humans, emphasizing the mechanotransduction (MT) process in which hair cells in the inner ear convert mechanical vibrations into neural signals. Despite decades of intensive studies characterizing the biophysical properties of Mechanoelectrical transduction (MET) channel, its molecular identity remains elusive. The recent focus on transmembrane channel-like protein 1 (TMC1) has sparked debates regarding its precise function in hair-cell MET channel. Some studies propose TMC1 as the pore-forming component, while others suggest it may act as a regulatory accessory protein.

RESEARCH EXPERIENCE

The Role of CDK1 in the Nuclear Lamina Disruption Induced by AcMNPV

China Undergraduate Life Science Contest, CULSC (2022) Team leader

- Won the National Third Prize and Guangdong Province Second Prize.
- As the team leader, I led the team to complete the whole project. We explored the role of CDK1 in the nuclear envelope disassembly process in two methods: explicit inhibition and chemical inhibition. We used various experimental methods including PCR, Western blotting, and immunofluorescence to achieve the experimental objectives and ultimately wrote the paper for this project.
- The results showed that treatment with CDK1 inhibitor Roscovitine reduced the degree of AcMNPV-induced nuclear lamina depolymerization, suggesting that CDK1 may also be involved in the phosphorylation of nuclear lamina during baculovirus infection, and speculating that the depolymerization of the nuclear lamina during mitosis, herpes virus infection and baculovirus infection has a very conservative mechanism of action all, that is, CDK1 participates in the nuclear lamina phosphorylation, which induces depolymerization of the nuclear lamina.

Expression, prognosis and immune analysis of pyroptosis-related gene GSDME in pan-cancer

- Explored the mRNA expression and prognostic value of GSDME, the correlation between GSDME expression and the degree of immune invasion in cancer through multiple databases such as TCGA, TIMER, Kaplan-Meier plotter, and GEPIA. Also we performed GO and KEGG enrichment analysis on genes similar with GSDME, retrieved the proteins interacting with GSDME by STRING, and writes papers based on this.
- Found that among the four cancers (HNSC, KIRP, LIHC, LUSC) with high expression of GSDME, only the survival rate of KIRP was improved at high expression, GSDME worsens survival for the other cancers. In view of the various adverse side effects of chemotherapy in previous clinical treatment, it may cause inflammatory, and intervention in GSDME-mediated cell pyroptosis may become a new therapeutic approach to reduce toxic side effects.
- Confirmed that GSDME expression in cancer is significantly different and can be used as a good diagnostic marker. GSDME can increase chemotherapy sensitivity, which can be considered to screen for GSDME high-expression cancers as preferred therapeutics.

MISCELLANEOUS

- **Computer skills:** R language.

Languages: English (IELTS 7), Mandarin(native).