Speaker information

General Information

Name	Huang-Ju Tu	
Email	hjt@tmu.edu.tw	
Contact Number	+886-2-66202589 ext. 11185	
Affiliation	College of Medical Science and Technology/ Graduate Institute of Cancer Biology and Drug Discovery	
Education Background	2008-2016 Ph.D. in Pharmacology / National Taiwan University 2003-2007 B.S. in Pharmacy / Kaohsiung Medical University	
Professional Appointment	Postdoctoral researcher	
Research Interest	Cancer Biology, Neuroscience, Drug discovery	

Recent Publications

1. Huang CC, Hsu CM, Chao MW, Hsu KC, Lin TE, Yen SC, **Tu HJ**[#], Pan SL[#]. In silico identification of a novel Cdc2-like kinase 2 (CLK2) inhibitor in triple negative breast cancer. *Protein Sci*. 2024 Jun;33(6): e5004. ([#]: Corresponding Author)

2. **Tu HJ**, Su CJ, Peng CS, Lin TE, HuangFu WC, Hsu KC, Hwang TL, Pan SL. Urolithin A exhibits a neuroprotective effect against Alzheimer's disease by inhibiting DYRK1A activity. *J Food Drug Anal.* 2023 Jun 15;31(2):358-370

3. Liu YM*, **Tu HJ***, Wu CH, Lai MJ, Yu SC, Chao MW, Wu YW, Teng CM, Pan SL, Liou JP. Ring-opening of five-membered heterocycles conjugated 4-isopropylresorcinol scaffold- based benzamides as HSP90 inhibitors suppressing tumor growth in vitro and in vivo. *Eur J Med Chem*. 2021 Jul 5; 219:113428 (*: Co-First Author)

4. Hsieh YL*, **Tu HJ***, Pan SL, Liou JP, Yang CR. Anti-metastatic activity of MPT0G211, a novel HDAC6 inhibitor, in human breast cancer cells in vitro and in vivo. *Biochim Biophys Acta Mol Cell Res*. 2019 Jun;1866(6):992-1003 (*: Co-First Author)

5. **Tu HJ**, Lin YJ, Chao MW, Sung TY, Wu YW, Chen YY, Lin MH, Liou JP, Pan SL, Yang CR. The anticancer effects of MPT0G211, a novel HDAC6 inhibitor, combined with chemotherapeutic agents in human acute leukemia cells. *Clin Epigenetics*. 2018 Dec 29;10(1):162

Honors & Awards

1. 2023 Taipei Biotech Award - Technology Transfer Award
2. 2021 1st Taiwan x Berkeley Public Health Innovation Acceleration Program
3. 2021 Future Tech Award
4. 2021 Taipei Medical University Doctoral Outstanding Research
5. 2020 17th National Innovation Award
6. 2020 SmartLabs Innovation Challenge
7. 2019 Stanford SPARK Biomedical-Innovation & Entrepreneurship Training Course
8. 2019 Berkeley Skydeck global acceleration program
9. 2019 RESI Conference 2nd Winner Award

Entrepreneurial Experience

Dr. Tu is actively involved in founding TARK Biopharma, a spin-off company from Taipei Medical University. The company specializes in developing a selective HDAC6 inhibitor for cancer treatment. Dr. Tu has played a pivotal role in fundraising efforts, successfully securing a seed fund in 2019 and an angel fund in 2023, raising a total of 1.2 million USD.

Speaker information

Speech Topic and Abstract

Title:
AI-Driven Drug Design Platform for the Discovery and Optimization of Novel Kinase Inhibitors

Abstract:
The development of novel kinase inhibitors has become a pivotal focus in cancer treatment, driven by the need for targeted therapies with higher efficacy and reduced side effects. Traditional drug discovery methods are often time-consuming and costly, presenting significant challenges in the rapid identification and optimization of potential drug candidates. The application of AI in drug discovery leverages advanced machine learning and deep learning techniques to streamline the discovery and optimization of kinase inhibitors.

Our platform integrates vast datasets, utilizing cutting-edge algorithms to rapidly screen large chemical libraries, identify promising compounds, and optimize their properties to enhance efficacy and reduce adverse effects. Additionally, we collaborate closely with medicinal chemists and pharmacologists, providing timely feedback that allows us to continually refine and train the AI system. We present case studies demonstrating the successful application of our platform in discovering and optimizing novel kinase inhibitors, showing improvements in both efficiency and accuracy compared to traditional methods. Our preliminary results indicate that the AI-driven approach not only reduces the time and cost associated with drug discovery but also enhances the precision of candidate selection, thereby increasing clinical success.

Our AI platform represents a significant advancement in drug discovery technology, offering a promising avenue for developing effective treatments for cancer and other diseases. Future directions will focus on refining its predictive accuracy and expanding the platform's capabilities to compound toxicology profiles.