The 2nd Symposium on Drug Discovery

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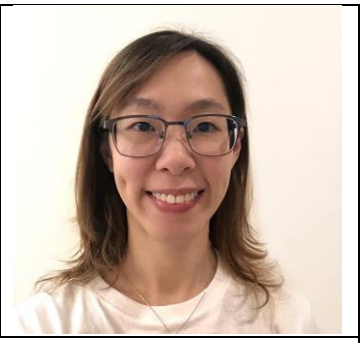
Speaker information

General Information

Name	Shu Hui Wong	
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Affiliation	Taipei Medical University (TMU)	
Education Background	Bachelor of Science with Honours (Distinction) - National University of Singapore (NUS), Singapore (2012-2016) Dual Master of Science – Taipei Medical University (TMU), Taiwan (2018-2019), and Institut de recherches cliniques de Montréal (IRCM), Université de Montréal (UdeM), Canada (2019-2020) Ph.D. of Science - Taipei Medical University (TMU), Taiwan (2020-2024)	
Professional Appointment	Ph.D. student	
Research Interest	Molecular Virology, Viral Oncolytics, and Anti-tumor Immunology	

Speaker information

Recent Publications

1. Wong SH, Jassey A, Wang YJ, Wang WC, Liu CH, and Lin LT*. Virus-Like Particle Systems for Vaccine Development Against Viruses in the Flaviviridae Family. Vaccines (Basel). 2019 Sep 20; 7(4). pii: E123.

2. Tai CJ, Liu CH, Pan YC, Wong SH, Richardson CD, and Lin LT*. Chemovirotherapeutic Treatment Using Camptothecin Enhances Oncolytic Measles Virus-Mediated Killing of Breast Cancer Cells. Sci Rep. 2019 May 1; 9(1):6767.

3. Tai CJ, Jassey A, Liu CH, Tai CJ, Richardson CD, Wong SH, and Lin LT. Targeting Autophagy Augments Berberine-Mediated Cell Death in Human Hepatoma Cells Harboring Hepatitis C Virus RNA. Cells. 2020 Apr 8; 9:908.

4. Liu CH, Wong SH, Tai CJ, Tai CJ, Pan YC, Hsu HY, Richardson CD, and Lin LT. Ursolic Acid and Its Nanoparticles Are Potentiators of Oncolytic Measles Virotherapy against Breast Cancer Cells. Cancers. 2021 Jan 4; 13(1):136.

5. Liu CH, Lu CH, Wong SH, and Lin LT. Update on Antiviral Strategies Against COVID-19: Unmet Needs and Prospects. Front. Immunol. 2021 Feb 5; 11:616595.

6. Kuo YT, Liu CH, Wong SH, Pan YC, Lin LT. Small molecules baicalein and cinnamaldehyde are potentiators of measles virus-induced breast cancer oncolysis. Phytomedicine. 2021 Aug; 89:153611.

7. Liu CH, Hu YT, Wong SH, and Lin LT. Therapeutic Strategies against Ebola Virus Infection. Viruses. 2022 Mar 11; 14(3):579.

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Speech Topic and Abstract

Title:
Synergistic Effect of Chemovirotherapy Using Pathway-Targeted Small Compounds in Combination With Oncolytic Measles Vectors for Anticancer Treatment of Glioblastoma Multiforme

Abstract:
Despite overall improved cancer survivorship today, highly aggressive malignancies like glioblastoma multiforme (GBM) of the brain remain mostly fatal with short survival time. New generation immunotherapeutic anticancer oncolytic viruses (OV), featuring targeting specificity, excellent safety, and multi-modal mechanisms of actions capable of overcoming tumor immunosuppression and eliciting adaptive immunity protection, have demonstrated promising clinical efficacy including for GBM. Oncolytic Measles Virus (MV) notably gained highlight due to its natural receptor tropism for Nectin-4, a newfound tumor-associated and prognostic biomarker selectively overexpressed by numerous adenocarcinomas, albeit not yet elucidated for brain tumors like GBM. Nectin-4 is thus a potential tumor-specificity target, and we propose and show indeed that wild-type strain Nectin-4-targeting oncolytic MV can be utilized against GBM. We additionally obtained bioinformatics finding of Nectin-4 upregulation with prognostic significance in GBM and other brain cancer patients. Nonetheless considering as OV monotherapy can often face limited efficacy, we furthermore couple Nectin-4-targeting oncolytic MV with in-house synthesized pathway-targeted small molecule therapeutics, and report novel synergistic 'chemovirotherapy' combinations with potentiated GBM killing in vitro. Ongoing work is in progress to examine underlying mechanisms, and demonstrate in vivo preclinical safety and anti-GBM potency of our Nectin-4-targeting oncolytic MV and its chemovirotherapy approach to support future translation onto human patients. Our current findings provide a proof-of-concept of wild-type strain oncolytic MV suitability for GBM, as well as a foundation for novel GBM therapeutic targeting via Nectin-4. Our work aims to help expand the currently limited treatment options for GBM, and possibly also benefit other Nectin-4-marked tumors.