



Pin-Yuan Chen

Taiwan

Dr Pin-Yuan Chen is a highly esteemed professor in the school of medicine at Chang Gung University, Taiwan. He holds a Ph.D. in Clinical Medicine from Chang Gung University and has an extensive background in neurosurgery, with significant contributions to the field of brain tumor treatment and awake craniotomy. Dr Chen currently serves as the head of the Department of Surgery at Keelung Chang Gung Memorial Hospital. His research focuses on innovative brain tumor therapies, including drug delivery systems and tumor immunotherapy. He has published over 100 research papers, many of which are in high-impact journals such as the *Neuro-Oncology*, *ACS Nano*, *Proceedings of the National Academy of Sciences of the USA*, and *science advances*. Dr Chen is also an active member of several professional societies, including the Taiwan Neuro-Oncology Society and the American Society of Neuro-Oncology, and has received multiple awards for his clinical innovations and academic contributions.

Topic: Developing Novel Nano-Therapeutics for Glioma Treatment

Glioblastoma (GBM) is a highly malignant brain cancer characterized by consistent recurrence even after chemotherapy and radiotherapy. To address this, we are developing novel nano-therapeutics that enhance drug concentration and provide radio-sensitizers specifically within the tumor region, minimizing systemic side effects. Using convection-enhanced delivery (CED), we could directly administer bioengineered nano Virus-like particles (VLPs) into brain tumors. It was designed to incorporate imaging reporters, load chemo-drugs, and accommodate an RNA scaffold called broccoli light-up three-way junction (b-3WJ). This scaffold contains two siRNA/miRNA sequences and a light-up aptamer, enabling gene silencing in radioresistant GBM cells. Through CED infusion of TrQ β @b-3WJLet 7g siEGFR, followed by 2Gy radiation, we significantly extended median survival to over 60 days, compared to 31 days with irradiation alone. These findings underscore the potential of RNAi-based genetic therapeutics and the efficacy of CED infusion in enhancing chemotherapy or radiotherapy for GBMs.