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Research interest: mainly gene and cell therapy

### 1. Biotechnology and Biotherapy

#### a. 腫瘤分解腺病毒 (oncolytic adenovirus)

已獲 mutant KRAS 特異性 oncolytic adenovirus 的四個專利, 積極準備進入臨床試驗中.

#### b. 用連結胰臟癌導向人工配體的聚乙二醇化包裹腫瘤分解腺病毒, 增加胰臟癌的趨性. Increasing tropism of oncolytic adenovirus toward pancreatic cancer by artificial ligand-conjugated pegylated oncolytic adenoviruses.

#### c. Using AAV vector gene transfer to attenuate gluconeogenesis in cancer cells for sensitizing anti-angiogenesis cancer therapy.

### 2. Study on DNA repair

#### a. Synthetic death in cancer cells by combination of epigenetically-regulated cell cycle arrest and topoisomerase II-induced double strand-DNA repair.

#### b. Comparison of DNA repair capacities between induced pluripotent stem cells and normal hematopoietic progenitor cells.

### 3. Immunotherapy

#### a. T-cell activating signal activation coupled with oncolytic adenovirus.

Selected publication

Shih-Chang Lin, Wen-Chun Liu, Yu-Fen Lin, Yu-Hsuan Huang, Jin-Hwang Liu.

Heterologous prime-boost immunization regimens using adenovirus vector and

virus-like particles induce broadly neutralizing antibodies against H5N1 avian influenza viruses. *Biotechnol J.* 2013; 8(11):1315-22.

Chin-Cheng Liu, Jin-Hwang Liu\*, Suh-Chin Wu, Chueh-Chuan Yen, Wei-Shone Chen, Ying-Chieh Tsai (2009) A Novel E1B-55kD-Deleted Oncolytic Adenovirus Carrying Mutant KRAS-Regulated hdm2 Transgene Exerts Specific Antitumor Efficacy on Colorectal Cancer Cells. *Mol Cancer Ther*; 2010, 9(2): 450-60. (**Co-first author** and Correspondent) (IF: 5.599, 29/196 Oncology)

Jin-Hwang Liu\*, Yao-Yu Hsieh, Wei-Shone Chen, Yen-Ning Hsu, Gar-Yang Chau, Hao-Wei Teng, Kuang-Liang King, Tzu-Chen Lin, Chen-Hwai Tzeng, Jen-Kou Lin. Adjuvant oxaliplatin- or irinotecan-containing chemotherapy improves overall survival following resection of metachronous colorectal liver metastases. *Int J Colorectal Dis* 2010; 25(10):1243-9. (IF: 2.238, 51/198 Surgery)

Jin-Hwang Liu\*, Chin-Cheng Liu, Chueh-Chuan Yen, Jyh-Pyng Gau, **Wei-Shu Wang**, Cheng-Hwai Tzeng. PML and TAp73 interacting at nuclear body mediate imatinib-induced p53-independent apoptosis of chronic myeloid leukemia cells. *Int J Cancer* 2009;125:71-7. (IF: 6.198, 23/196 Oncology)

Jin-Hwang Liu\*, Suh-Chin Wu, Wei-Shone Chen, Chueh-Chuan Yen, Muh-Hwa Yang, Ying-Chieh Tsai and Po-Min Chen. An intron promotes the anti-*bcr-abl* activities of a retrovirally expressed ribozyme in chronic myeloid cells. *Biochem Bioph Res Commun.* 2004; 318: 764-772. (IF: 2.406, 39/72 Biophysics)

Jin-Hwang Liu\*, Chueh-Chuan Yen, Yu-Chen Lin, Jyh-Pyng Gau, Muh-Hwa Yang, Ta-Chung Chao, Liang-Tsai Hsiao, Wei-Shu Wang, Ying-Chieh Tsai and Po-Min Chen. Overexpression of Cyclin D1 in Accelerated-Phase Chronic Myeloid Leukemia. *Leukemia and Lymphoma* 2004; 45 (12):2419-25.

Jin-Hwang Liu, Zhao-Mei Mu, and Kun-Sang Chang. (1995) PML suppresses oncogenic transformation of NIH/3T3 cells by activated *neu*. *J. Exp. Med.*, 181, 1965-73. (IF: 14.5, 3/121, Medicine, Research & Experimental)

Mu Zhao-Mei, K-V Chin, Jin-Hwang Liu, G. Lozano and Kun-Sang Chang. (1994) PML, a growth suppressor disrupted in acute promyelocytic leukemia. *Mol. Cell. Biol.* 14(10), 6858-67.(IF: 5.32, 50/290 Biochemistry & Mol Biology)

#### Inventor of Patents

1. United States Patent, Patent no.: US 8,263,398 B2, Novo promoter and viral vector containing the same. Effective since Sep 11, 2012.

2. Patent issued by Taiwan, ROC: 中華民國專利, Patent no. I 391486號, 新穎起動子及包含其之病毒載體, 效期: 2013/04/01~ 2029/10/19.

3. Patent issued by PRC, 中國大陸第200910260793.X號發明專利, (核准日期:102年5月21日)事發明名稱: 新穎启动子及包含其之病毒载体. Effective since Dec 29, 2009 for 20 years.

4. Patent issued by Hong Kong, 香港第11108772.4號標準專利, A novel promoter and viral vector containing the same, Effective since Dec 29, 2009 for 20 years.