Tsann-Long Su et al., Pharm Anal Acta 2015, 6:1
http://dx.doi.org/10.4172/2153-2435.S1.024

OMICS International
Pharmaceuticalconferences.com

5th International Conference and Exhibition on

Pharmaceutics & Novel Drug Delivery Systems

March 16-18, 2015 Crowne Plaza, Dubai, UAE

Early preclinical study of bo-1978 for the treatment of Non-Small Cell Lung Carcinoma (NSCLC), in combination with Gefitinib

Tsann-Long Su[1], **Te-Chang Lee**[1], **Han-Chung Wu**[1] and **Hsing-Pang Hsieh**[2]
[1]Academia Sinica, Taiwan
[2]Institute of Biotechnology and Pharmaceutical Research, Taiwan

Lung cancer causes one third of death from cancer worldwide. In clinical, surgery, radiation therapy, chemotherapy, and targeted therapy are commonly used for the treatment of the malignancy. However, the success of these agents is limited due to the emerging of drug resistance. Thereby, there is an urgent need to discover novel agents with improved efficacy and safety profiles for the treatment of lung cancers. We have recently synthesized a series of indolizino[6,7-b]indoles, which were designed as a hybrid molecule containing biologically active β-carboline (topoisomerase I and II inhibitory moiety) and bis(hydroxymethyl)pyrrole (DNA cross-linking moiety) for antitumor studies. Of these derivatives, we found that BO-1978 exhibited potent therapeutic efficacy against various non-small-cell lung carcinoma (NSCLC) cells both *in vitro* and in the tumor xenograft or orthotopic models. Remarkably, we found that the combination treatment of BO-1978 with gefitinib has enhanced efficacy against EGFR-mutated NSCLC and was superior to that of gefitinib or cisplatin alone in tumor bearing mice. Moreover, this hybrid molecule displayed topoisomerases I and II inhibitory effects and induced DNA interstrand cross-linking. The studies on the toxicity/safety in mice revealed that this agent has low toxicity to the host; no major pathology or blood biochemistry changes. We also demonstrated that BO-1978 has good pharmacokinetic (PK) profile in animal. These finding indicated that BO-1978 can be selected as a candidate for preclinical study, IND application, and eventually for clinical trial for the treatment of NSCLC patient.

Biography

Tsann-Long Su has completed his PhD from the Free University of Berlin, and then worked as a Postdoctoral Fellow at Schering AG, Berlin, Germany. He then moved to the Memorial Sloan-Kettering Cancer Center, New York, USA, and continued his research on developing antiviral and anticancer agents. Currently, he is working as a Research Fellow at the Institute of Biomedical Sciences, Academia Sinica, Taipei, Taiwan. His research interests include anticancer drug design and synthesis, pharmacology and phytochemistry.

tlsu@ibms.sinica.edu.tw