doi: 10.4172/1948-5956.10000S3

OMICS Group Conferences
Accelerating Scientific Discovery

International Conference & Exhibition on
Cancer Science & Therapy
15-17 August 2011 Las Vegas, USA

Individual chemosensitivity test for personalized therapy in cancer patients

Jianping Gong, Dong dong Yu and Jichao Qin

Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, P.R. China

To avoid or minimize the side effects and improve the effectiveness of chemotherapeutic agents in advanced gastric cancer and colorectal cancer (CRC) patients, we have developed an *in vitro* model to determine the response of the cells, which were dissociated from surgical tumor samples, to combination chemotherapeutic agents. In additional, a xenograft model was further applied to test the results from *in vitro* studies. If consistent results were obtained, we will explore whether the above experimental systems can finally be indicator(s) to achieve personalized chemotherapy for individual cancer patients. For the sake of simplicity, we refer to Individual Chemosensitivity Test (ICT) as both *in vitro* and *in vivo* experimental systems described above.

The detailed protocol of ICT was described as the following. Fresh surgical tumor samples from individual patients were dissociated into single cells, and then some of the cells were cultured *in vitro* and treated with combined chemotherapeutic agents in two different chemotherapeutic regimens, i.e., Oxaliplatin and Irinotecan-based combination therapies, which are two often-used primary or neoadjuvant or adjuvant chemotherapeutic regimens for gastric cancer and CRC patients. After incubated for 6-8 hours, the cells were harvested to examine the response to the combined chemotherapeutic agents by evaluating the percentage of apoptosis and proliferation. On the other hand, some of the cells from the fresh surgical tumor specimens were implanted in immunodeficient mice (i.e., nude mice), when the tumors became palpable, the same combined chemotherapeutic agents as *in vitro* studies were administered via tail vein injection. After about a month, the individual tumors were harvested and weighed. In *in vivo* experimental system, the response of the cells to the given agents was assessed by monitoring the tumor growth in nude mice upon administration of chemotherapeutic agents. Until now, 21 surgical specimens (9 Gastric cancer and 12 CRC specimens) were conducted for ICT, and encouragingly, the results *in vitro* were highly consistent with those from *in vivo* experimental system.

In brief, we are taking the steps to apply 'right' chemotherapeutic regimens for individual cancer patients based on the results from ICT. Our ultimate goal is to attain personalized chemotherapy for individual cancer patients.

Biography

Jianping Gong has earned his M.D and Ph.D degrees from Tongji Medical College of Huazhong University of Science and Technology in China, and received postdoctoral training from New York Medical College for more than 3 years. Currently, he is a distinguished professor and director of gastrointestinal surgery division in Tongji Hospital, Tongji Medical College of Huazhong University of Science and Technology in China.