



Novel lung cancer stem cell markers

PI : Prof. Pan-Chyr Yang

Department of Internal Medicine, National Taiwan University.

Experience:

- From 1993 to Present; Professor, Department of Internal Medicine, College of Medicine, National Taiwan University
- From 2006 to Present; Academician, Academia Sinica
- From 2013 to Present; President, National Taiwan University



Market Needs:

Lung cancer still leads the cancer mortality worldwide. Even with the EGFR-TKI targeting therapy and intensive chemotherapy, most of the lung cancer patients are still suffering from the extremely poor long-term survival due to drug-resistance, recurrence, and metastasis; these are the major characteristics and key roles of cancer stem cell (CSC) theory. Since CSCs within inherent high resistance to chemotherapeutic agents, that leads to recurrence and poor long-term survival in lung cancer patients. The novel CSC biomarkers and CSC-targeting agents are urgent for developing new therapeutic strategies on anti-lung cancer.

Our Technology:

The present invention is to provide markers for isolating stem cells in lung cancer cells. We have identified LCSC1; as well as, LCSC2, as the novel LCSC markers via correlating the gene expression profiling and proteomic data with the clinical relevance. Sorting the LCSC1⁺LCSC2^{hi} population from lung cancer cell lines or primary culture of malignant pleural effusion from patients with lung adenocarcinoma could generate xenograft tumors as few as 100 cells in NOD-SCID mice with increasing TIF *in vivo*; also, showing higher stemness gene expression (Nanog and Oct3/4) and sphere-forming ability *in vitro*. Sphere forming assay showed that the sphere generated from LCSC1 cells were significantly dose-dependent inhibited in the presence of a specific LCSC1 antibody in primary lung cancer cells. It could suggest LCSC1 is a therapeutic target for anti-cancer therapy by targeting lung CSCs

Strength:

The benefit of the isolated lung stem cells were be provide anti-cancer diagnostic and therapeutic drug screening platform, and to identify the specific small molecules and neutralization antibody for inhibiting the growth of LCSCs. The LCSCs markers were as novel prognostic markers in clinical use. Not only prognostic molecular markers but also therapeutic target. By targeting on LCSC could kill LCSCs, it would helpful for lung cancer treatment through combine LCSC targeting agents with conventional therapy.

Competing Products:

Intellectual Properties:

Contact (do not need to fill out):

Center for Industry-Academia Cooperation, NTU

Tel: 02-3366-9945, E-mail: ntuciac@ntu.edu.tw

This information herein is intended for potential license of NTU technology only. Other usage of all or portion of this information in whatever form or means is strictly prohibited. Kindly contact us and we will help to achieve your goal the best we can.