Novel lung cancer stem cell markers: CDX1

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Experience:

- Professor, Graduate Institute of Toxicology, NTUCM (2013-)
- Professor, Genome and Systems Biology (GSB) Program, NTU-Academia Sinica joint program (2013-)
- Associate Professor, Graduate Institute of Toxicology, NTUCM (2009-2012)

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 CDX1, as the novel LCSC markers via correlating the gene expression profiling and proteomic data with the clinical relevance. Sorting the $CDX1^{+}$ 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 50-100 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*.

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.

Contact (do not need to fill out):

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