The lung cancer stem cells marker, CDX1, as the novel anti-cancer therapeutic target

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Experience:

Lung cancer is still the most common occurring malignancies globally and could be worst in the coming future. Over a decade of developing the treatment strategy targeting on cancer cells, chemotherapy or even the target therapy could only prolong the survival of the patients; still, cannot rescue the life well. Considering the heterogeneity of the cancer cells and the tumor microenvironment, the cancer stem cells (CSCs) and the immune modulation could be the key of the tumor plasticity, recurrence, metastasis, and drug resistance.

Market Needs:

It is urgent and important to develop a novel target could inhibit CSCs and modulate the immune response in the tumor microenvironment for the patients with lung cancer. Such target could be blockade via specific antibody, small molecule, or other strategies; which could be benefit to eradicate the tumor cells alone or combination with chemotherapy, target therapy or immune checkpoint inhibitors.

Our Technology:

The present disclosure is based, at least in part, on the identification of CDX1 as a new therapeutic target of lung CSCs. CDX1 has been identified to be differentially present in CSCs and can functionally promote the cancer stemness and tumorous sphere formation. Whereas, blockade CDX1 with neutralized antibody can inhibit cancer cell proliferation, tumorous sphere formation in vitro and tumor initiation and tumor growth in vivo. Accordingly, one aspect of the present disclosure provides a novel target as the comprising therapeutic strategy for the anti-cancer therapy: Blockade of CDX1 by antibody can inhibit the sphere formation in vitro and reduce the tumor initiation and inhibit tumor growth in vivo xenograft mice model. Also, the different cleavage forms of CDX1, and the difference of the glycosylated CDX1 could also be the specific target for alone or combination with other chemotherapy, target therapy, or immune checkpoint therapy as the novel anti-cancer strategy.

Strength:

The immune checkpoint therapy for anti-cancer is the hottest topic in the market and it will be expected further via the combination-immune therapy in the coming future. Our advantage is that we have identified the novel immune regulator, CDX1, of the immune checkpoint for the combination therapy. Also, this novel target (CDX1) is also the key survival factor of lung CSCs. We can block CDX1 to inhibit the lung CSCs as well. Besides, we have identified the specific cleavage forms of CDX1 and glycosylated CDX1. Targeting on these modified CDX1 could show the higher specificity on targeting to the CSCs and the cancer immune responses.

Competing Products:

None

Intellectual Properties:

The applications of CDX1 as the lung CSC markers has been processed for applying the patent...

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