Antibody Targeted Therapy for Lung and Prostate Tumors

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Technology description

Lung cancer is the most common cause of cancer-death in both men and women in the United States. Despite refinements in platinum-based chemotherapy and several newly approved targeted agents, the median overall survival of patients with advanced, unresectable, non- small cell lung cancer (NSCLC) is only 20 months. Current antibody-based therapies directed to targets such as epidermal growth factor receptor (EGFR) and vascular endothelial cell growth factor (VEGF) provide limited clinical benefit to some NSCLC patients. However, these therapies have been effective in a small subset of patients or have been incrementally beneficial to progression-free survival. Therefore, new therapeutic approaches are essential if significant advances are to be made in the treatment of NSCLC.
Researchers at the University of California, Davis have discovered that CD22, a membrane glycophosphoprotein, is a target for therapeutic intervention in lung and prostate cancer. They have characterized the expression of CD22 in lung cancer including lung cancer cell lines and patient specimen samples and show that an anti-CD22 monoclonal antibody (Hb22.7) originally developed for the treatment of non-Hodgkin lymphoma effectively binds lung cancer cells. These antibodies bind to the extracellular domain of CD22 and are internalized, then induce signal transduction processes and display cytotoxicity in lung cancer cell, significant reduction of tumors in xenograft models, inhibit the development of pulmonary metastasis and extend overall survival.
Anti-CD22 monoclonal antibodies for the treatment of lung and prostrate cancers.

Additional Information

Publication

CD22 antigen is broadly expressed on lung cancer cells and is a target for antibody-based therapy.
Tuscano JM, Kato J, Pearson D, Xiong C, Newell L, Ma Y, Gandara DR, O'Donnell RT. Cancer Res. 2012 Nov 1;72(21):5556-65. doi: 10.1158/0008-5472.CAN-12-0173. Epub 2012 Sep 17.

Additional Technologies by these Inventors

Fermented Wheat Germ Extract And Its Purified Low Molecular Weights Proteins For Treatment Of Lung Cancer

Application area

Anti-CD22 antibodies show great promise in the treatment of lung and prostate cancer.

Advantages

Unlike other antibodies, or even other anti-CD22 antibodies, which serve solely to target treatments, such as radiation and chemicals, to cancer cells, these antibodies block ligand binding and directly induce apoptosis in cancer cells.
Because the mechanism of action of these antibodies is known, they can be rationally combined with other agents.
In mouse xenograft models, treatment with anti-CD22 antibodies shows increased tumor volume reduction and superior cure and survival rates compared to traditional treatments.
Treatment with anti-CD22 antibodies does not cause toxic side effects in mouse xenograft models.
NCI RAID program funded humanization of the HB22.7 is completed.

Institution

University of California, Davis

Inventors

Robert O'Donnell
Joseph Tuscano

叶先生

电 话：021-65679356

手 机：13414935137

邮 箱：yeyingsheng@zf-ym.com