



CKAP4 PROTEIN MAY BE A NOVEL EARLY SERO-DIAGNOSTIC MARKER FOR LUNG CANCER

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Article Received on 12/04/2018

Article Revised on 02/05/2018

Article Accepted on 22/05/2018

Lung cancer is the second most common cancer in both sexes. It is present in advanced stages hence has high mortality rates. Many patients when come for checkup in clinics are already in advanced stages of lung cancer. To improve prognosis it's important to detect biomarkers involved in lung cancer. The most sensitive biomarker which has been seen in lung cancer is CKAP4 which was present in high level in patients than healthy individuals. The sensitivity of a diagnostic biomarker refers to the percentages of cases it manages to detect out of the total number of people who have the disease. CKAP4 has about 69% to 81% sensitivity in detecting lung cancer at lung cancer stage 1.

Six million new cases of lung cancer, or 12.7% of the world's total cancer incidence, were diagnosed in 2008. Lung cancer was estimated to cause 160,340 deaths in the United States in 2012, potentially accounting for 28% of all cancer deaths in the country. The global geographic distribution of lung cancer demonstrates marked regional variation, with age-standardized incidence rates ranging >60-fold in men and 30-fold in women. Lung cancer is the most common cancer in men worldwide with an age-standardized rate (ASR) of 33.8 per 100,000, and it is the fourth most frequent cancer in women (13.5 per 100,000).

Many causes of lung cancer have been identified, including active cigarette smoking^[3], exposure to secondhand cigarette smoke (passive smoking)^[4], pipe and cigar smoking^[5], occupational exposure to agents such as asbestos, nickel, chromium, and arsenic^[6], exposure to radiation, including radon gas in homes and mines^[7], and exposure to indoor and outdoor air pollution etc.

CKAP4 also historically known as CLIMP-63 (cytoskeleton-linking membrane protein 63), or just p63 (during the 90's) is an abundant type II transmembrane protein residing predominantly in the endoplasmic reticulum (ER) of eukaryotic cells and encoded in higher vertebrates by the gene CKAP4.

Dickkopf1 (DKK1) is a secretory protein that antagonizes oncogenic Wnt signaling by binding to the

Wnt Co-receptor low-density lipoprotein receptor-related protein 6 (LRP6). DKK1/CKAP4 signaling activated AKT by forming a complex between the proline-rich domain of CKAP4 and the Src homology 3 domain of PI3K, resulting in proliferation of normal cells and cancer cells. Expression of DKK1 and CKAP4 was frequent in tumor lesions of human pancreatic and lung cancers. CKAP4 is a potential therapeutic target for cancers that express both DKK1 and CKAP4.

Poorly differentiated squamous cell carcinoma had strong and widespread staining for immunohistochemical expression of p63. During morphologic evaluation, usually supported by immunohistochemical markers in routine work, 30–40% of tumors are accurately classified in small biopsy specimens, especially when the tumor is a poorly differentiated or is an undifferentiated carcinoma.

Lung cancer is showed up clinically in advanced stages and has high mortality rate around the world. CKAP4 protein is a sensitive biomarker that detected in patients with lung cancer stage 1. It helps to treat patients in early stages and reduced the mortality rates. It is mostly targeted for to cure cancer by chemotherapy.

No Conflict of Interest

No Funding

No Need for Ethical Approval

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