CTAP III is a novel blood-based biomarker for detecting lung cancer

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Technology description

Using a novel approach to biomarker discovery that used the same subject as his/her own control to identify elevated proteins in the pulmonary venous effluent draining the tumor vascular bed compared to matched systemic arterial blood, we have identified Connective Tissue-Activating Peptide III (CTAP III) as a novel blood-based biomarker to detect pre-clinical lung cancer up to 29 months before clinical diagnosis. Furthermore, CTAP III was found to decrease in patients who are cured by surgery but remains elevated in those who later developed recurrent disease.
Lung cancer is the most common cause of cancer deaths worldwide with more than 1.2 million people dying of the disease annually. The overall 5-year survival is only 16%. However, if lung cancer is diagnosed and treated in the pre-invasive and early invasive stage (Stage 0/IA), the 5-year survival is 70-90%. In patients with larger lung cancer and those with spread to regional lymph nodes within the lung, surgical resection still offers a chance of cure but 50% will develop tumour recurrence despite what appears to be complete surgical removal. Adjuvant chemotherapy improves survival in these patients. However, to cure one additional patient over and above surgical resection alone, it is necessary to treat 10 to 20 patients. For patients that do not benefit from chemotherapy, side-effects negatively influence the quality-of-life and are associated with a 1% risk of fatal toxicity. A promising strategy to reduce lung cancer mortality is to detect lung cancer early and offer adjuvant chemotherapy only to those with microscopic residual disease after surgical resection. Currently, there are no diagnostic tests available to reliably detect lung cancer at the earliest pre-clinical stage or monitor patient outcome after treatment with curative intent.

Application area

CTAP III is a novel blood-based biomarker with the potential to detect pre-clinical lung cancer up to two years prior to clinical presentation.

Institution

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