

Sensitive detection method analyzes circulating tumor cells in patients with lung cancer

January 9 2012

Researchers have developed a method to analyze circulating tumor cells in the blood of patients with non-small cell lung cancer. This method, which can analyze a sample size as small as three cells, may allow clinicians to track cancer progress and treatments and could help them develop new therapies.

"We have developed an extremely sensitive test that could be able to detect mutations present in [circulating tumor cells](#) (CTCs), and we are hoping that from their characterization, we would be able to understand diagnostic, prognostic and predictive markers," said Heidi S. Erickson, Ph.D., assistant professor of thoracic/head and neck [medical oncology](#) at the University of Texas MD Anderson Cancer Center.

Erickson presented the findings at the AACR-IASLC Joint Conference on [Molecular Origins](#) of [Lung Cancer](#): Biology, Therapy and Personalized Medicine, held Jan. 8-11, 2012.

Even though researchers have found that the presence of CTCs in the blood of patients with lung cancer is associated with short survival, clinicians have had no way to analyze the actual CTCs because their levels were so small.

In this study, Erickson and colleagues showed the effectiveness of using high-throughput matrix-assisted laser desorption/ionization time-of-

flight mass spectrometry single nucleotide polymorphism analysis (MALDI-TOF MS SNP) — an extremely sensitive analysis using a mass spectrometer — to analyze and determine the exact genetic mutations present in DNA from a few malignant cells that can be applied to CTC samples.

Identifying these mutations would allow clinicians to track progress of genetic changes and thus monitor the cancer and the effectiveness of any treatments being administered. It could also enable researchers to identify ways in which the cancer develops and possibly identify new therapy targets. This analysis method also benefits the patient in the way samples are taken.

"By being able to collect a blood sample from a patient instead of having to do a biopsy, we'll have an opportunity to monitor the patient throughout treatment in an easier way," said Erickson.

The researchers showed the method works by "spiking" a blood sample with a cell line containing a known specific mutation. They then used the MALDI-TOF MS SNP method to test the sample and found the cancer cell line mutation they had used.

Collection and purification methods of CTC samples are not yet perfected. When they are, the researchers will test samples from actual patients with lung cancer, Erickson said.

Provided by American Association for Cancer Research

Citation: Sensitive detection method analyzes circulating tumor cells in patients with lung cancer (2012, January 9) retrieved 27 April 2024 from <https://medicalxpress.com/news/2012-01-sensitive-method-circulating-tumor-cells.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.