

Identification and the slignments of cancer-specific protein in lung tissues by capillary electrophoresis with laser-induced fluorescence

Rong Wang

Lanzhou General Hospital, China

Capillary electrophoresis with laser-induced fluorescence (CE-LIF) is used for the identification and alignments of cancer-specific protein in lung tissues. CE-LIF is an effective method for proteomics study cause its high resolution, little sample consuming and automatic. Currently a number of methods are employed to identify protein, with the most common being LC-MS/MS and two-dimensional (2D) gel electrophoresis. However, the most obvious disadvantages include hard to alignment directly and inconvenient to quantitative analysis. CE-LIF technology with cancer protein detection need optimize the conditions of capillary coating, running buffer and derivatization reagent. We developed the optimum separation methods for lung carcinoma and adjacent normal tissue protein. Additionally, we firstly used the similarity evolution system for fingerprint caparison. Optimum separation conditions were developed the protein separation for lung carcinoma and adjacent normal tissue protein, which included 0.25% Polyethylene oxide (PEO) as sieving matrix, pH 10 buffer for avoiding protein adoption, fluorescein isothiocyanate (FITC) as pro-column derivatization. Electrophoretic separation was accomplished using 15.0 kV constant voltage, in 15°C. reverse polarity, and 1 ×TBE buffer for 20min. Based on the analysis of migration time and peak area, we evaluated the similarity of tumor and adjacent normal protein by similarity evaluation system for chromatogrphic fingerprint of TCM.It was showed that Tumor proteins distinguish normal protein with 17.1% and the similarity is up to 80%. The molecular weights of differential proteins are almost below 150-200 kDa. It is indicated that these small molecular proteins in these scope are potential biomarkers to cancer diagnosis. Moreover, CE-LIF could become a sensitive electrophoresis method for protein analysis for cancer diagnosis in the clinic study.

Biography

Rong Wang has completed his Ph.D. at Lanzhou Institute of Chemical Physics, the Chinese Academy of Sciences and postdoctoral studies from Institute of Pharmacology and Toxicology, Academy of Military Medical Science. He is the Director of Master at Lanzhou University. He has finished the study on cancer diagnosis in the clinic. He is good at the analysis chemistry and biology, and bio-chromatography analysis.

wangrong-69@163.com

Electric vehicle with zero-fuel electromagnetic automobile engine

Rithula J.

Sri Sairam Engineering College, India

The main aim of the project is to design an electromagnetically reciprocating automobile engine. A four-stroke engine is used in the vehicle. The design involves the replacement of the spark plugs and valves by conductors and strong electromagnetic material. The piston is a movable permanent magnet and while an air core electromagnet is fixed at the top of the cylinder. When the electromagnet is excited by A.C. (Square Wave) supply, for same polarities these magnets will repel and for opposite polarities they will attract, thus causing the to and fro movement of the piston. So when the cylinders 1 & 4 of the four-stroke engine experience attraction of magnets due to which the piston moves upwards, repulsion takes place inside cylinders 2 & 3 in which the piston moves downwards and then during the next stroke vice-versa occurs. The to and fro movement of the piston is converted into a rotary motion by the crank shaft, which in turn is coupled to the wheels which causes the wheels to rotate. So with the help of the electromagnets and permanent magnets, the to and fro movement of the piston is obtained using the alternating attractive and repulsive force of the magnets, which is responsible for the movement of the vehicle. Thus we can run the electric vehicle without a motor and the energy is extracted in a clean way as it does not require fuels reducing the air pollution.

Biography

Rithula J. is currently pursuing her Bachelor's degree from Sri Sairam Engineering College, India. She has published paper in international journals and has presented papers in various national and international conferences. She is a member of the Institution of Engineering and Technology. Her areas of interest include electric vehicles, microprocessors and microcontrollers & electrical machines.

rithujohn17@gmail.com