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## Cancer detection using an electronic nose: A preliminary study on detection and discrimination of cancerous cells (Conference Paper)

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### Abstract

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Lack of effective tools to diagnose lung cancer at an early stage has caused high mortality in cancer patients especially in lung cancer patients. Electronic nose (E-Nose) technology is believed to offer non-invasive, rapid and reliable analytic approach by measuring the odour released from cancer to assist medical diagnosis. In this work, using a commercial E-nose (Cyrano320), we aimed to detect the volatile organic compounds (VOCs) emitted by different types of cancerous cells. The lung cancer cell (A549) and breast cancer cell (MCF-7) were used for this study. Both cells were cultured using Dulbecco's Modified Eagle's Medium (DMEM) with 10% of Fetal Bovine Serum (FBS) and incubated for three days. The static headspace of cell cultures and blank medium were directly sniffed by Cyrano320. The preliminary results from this study showed that, the E-nose is able to detect and distinguish the presence of VOCs in cancerous cells with accuracy of 100% using LDA. To this end, the VOCs emitted from cancerous cells can potentially used as biomarker. © 2014 IEEE.

### Author keywords

Cyrano320 Electronic nose LDA Lung cancer cell Volatile organic compounds (VOCs)

### Indexed keywords

Engineering controlled terms: Biological organs Biomedical engineering Cell culture Cells Cytology Diagnosis Diseases Organic compounds Volatile organic compounds

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