Science and Technology in Medicine

Research Project Proforma (School of Medicine)

Research Title:	**The diagnosis of lung cancer through breath analysis**
Keywords (up to 5)	**Lung cancer, breath analysis, SIFT-MS**
Supervisor: **Job Title:** **Department:** **Email Address:** **Telephone:** **Webpage link:**	Dr Josep Sulé-Suso Senior Lecturer and Associate Specialist in Oncology ISTM Josep.sulesuso@uhns.nhs.uk 01782-672571
Type of projects offered (delete as appropriate)	~~Intercalation (1 year)~~/Studentship (4-8 weeks)/~~Both~~

(1) Outline the broad aims of your research and its medical relevance (150 words):

The aim of this research is to identify Volatile Organic Compounds (VOCs) released by lung cells (malignant and not) to be used in the diagnosis of lung cancer and to assess tumour response to treatment.

Lung cancer is associated with a poor prognosis and one of the reasons is the fact this disease is diagnosed in advanced stages. The identification of VOCs in the breath of patients released by lung cancer cells could be exploited to

diagnose lung cancer in early stages and improve patients' prognosis. On the other hand, tumour response to treatment is presently assessed with imaging techniques (Chest X-ray, CT Scan, …). Therefore, the characterisation of VOCs released by lung cancer cells could be used to assess tumour response to treatment in a faster and cheaper way.

(2) Indicate the skills/techniques the student will learn (100 words)

The student will learn the basics of cell culture using lung epithelial cells, lung fibroblasts and lung cancer cells. The measurement of VOCs will be carried out using the Selected Ion Flow Tube Mass Spectrometry. The student will learn how this technique works. Also, input on the clinical application and the difficulties to translate this technology into clinical practice will be provided.

Please submit this form electronically to Prof Divya Maitreyi Chari on d.chari@keele.ac.uk by 31 July 2015