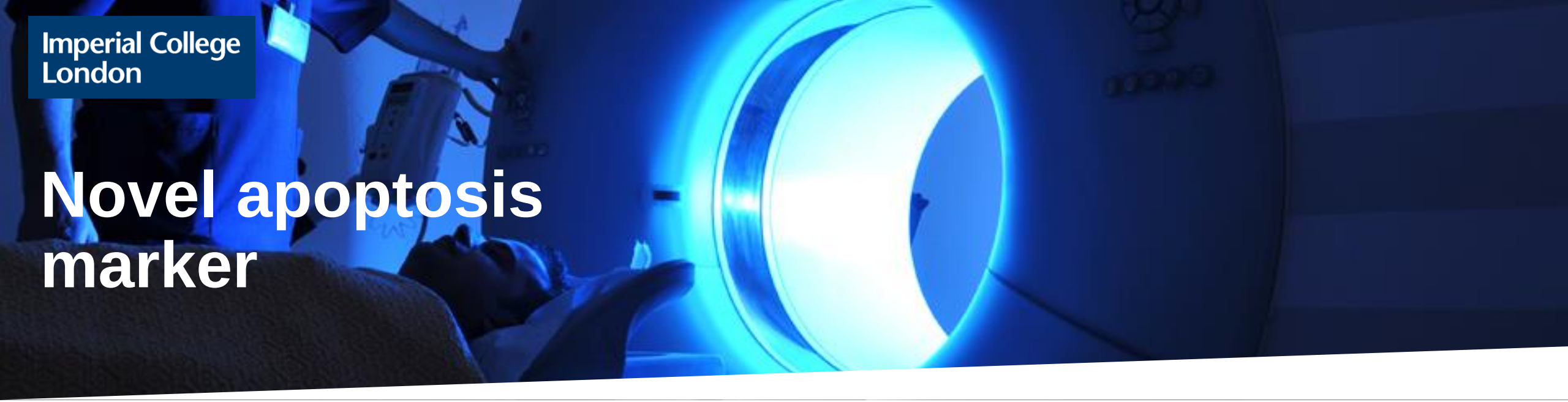

Novel apoptosis marker

Professor

Eric Aboagye

Eric Aboagye is Professor of Cancer Pharmacology & Molecular Imaging and Director of the CRUK-EPSRC-MRC-NIHR Comprehensive Cancer Imaging Centre. He is a leader in the medical imaging field, and an active participant in several global initiatives. He has acted as an advisor to GE-Healthcare, GSK, Roche and Novartis.

Overview

Routine clinical use of PET is based on FDG, a glucose analogue. FDG measures viable cell metabolism. However it lacks specificity and FDG imaging often misses less glycolytic/aggressive tumours. Accordingly, there is a need for tracers targeting specific biological processes and molecular pathways.

Effective anticancer therapy induces tumour cell death through apoptosis. Non-invasive monitoring of apoptosis during therapy may provide predictive outcome information and help tailor treatment. Since a majority of oncology therapies induce apoptosis it could be used as an early and specific signal of therapeutic efficacy.

A team at Imperial College, led by Eric Aboagye, developed a novel strategy for the detection of treatment efficacy with 18F-ICMT-11 PET in preclinical models of NSCLC with varying responses to carboplatin.

Technology

The team demonstrated 18F-ICMT-11 is a sensitive marker of chemotherapy-induced cell death in preclinical models of lymphoma, breast and colon cancer. They also showed that apoptotic, but not necrotic response of NSCLC to platinum-based therapy is detectable by 18F-ICMT-11.

These results establish 18F-ICMT-11 as a good pharmacodynamic marker of apoptosis and biomarker of efficacy even in the absence of tumour shrinkage.

Development stage

18F-ICMT-11 has been evaluated as a non-invasive biomarker assessing tumour apoptosis in locally advanced breast cancer pre- and post-first-cycle of chemotherapy, and in locally advanced lung cancer patients receiving chemotherapy as first-line treatment. The study highlights the potential use of 18F-ICMT-11 as a promising candidate for non-invasive imaging of caspase 3/7 activation.

Intellectual property

This technology is protected by a patent in EU and US, pending in Brazil, China and Korea, and published in Mexico, Japan and Russia.