STFC-funded hybrid technology, evolved from space physics, combines gamma and optical imaging to improve the accuracy of cancer diagnosis.

Background
Sentinel node biopsy is routinely used for cancer staging. This procedure is usually carried out using a non-imaging, gamma probe which detects a radioactive tracer injected inside the body to search for any abnormalities within the system. This is done during surgery. Since a non-imaging probe is used, the nodes can be missed, leading to misdiagnosis. With over 1,383,000 worldwide incidence of breast cancer and 277,000 worldwide incidence of pancreatic cancer, new cameras will improve and reduce the cost of cancer detection.

Reduce Surgical Trauma and Improve Patient Outcomes
STFC’s External Innovations and Global Challenges team funded a Challenge Led Applied Systems Programme (CLASP) which encouraged collaboration between the Universities of Leicester and Nottingham to produce a hybrid camera. Currently, imaging equipment such as gamma cameras and scanners are large instruments. The Universities’ spinout company, Gamma Technologies Ltd (GTL), is developing compact, high resolution hybrid cameras to offer versatility to surgical procedures. The camera combines optical and gamma imaging and is a mobile, point-of-care technology which will advance nuclear imaging by allowing imaging procedures at the bedside, in operating theatres and in intensive care units.

This revolutionary technology will ensure quick and improved diagnosis of cancer as well as allowing a less traumatic surgical investigation once a patient has been diagnosed. The camera can also be used to gain a visualisation of drug delivery inside the patient’s body during cancer therapy.

Imaging studies are currently underway for a range of clinical applications including thyroid, lymphatic drainage and lacrimal drainage. Gamma Technologies Ltd has raised over £250K first stage venture funding as a result of the CLASP project. An independent market research suggests that the camera has a potential market of £400M worldwide.

CLASP helped us to develop a plan for the commercialisation of our product as well as perform vital research
– John Lees, Technical Director and Project Manager, GTL

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