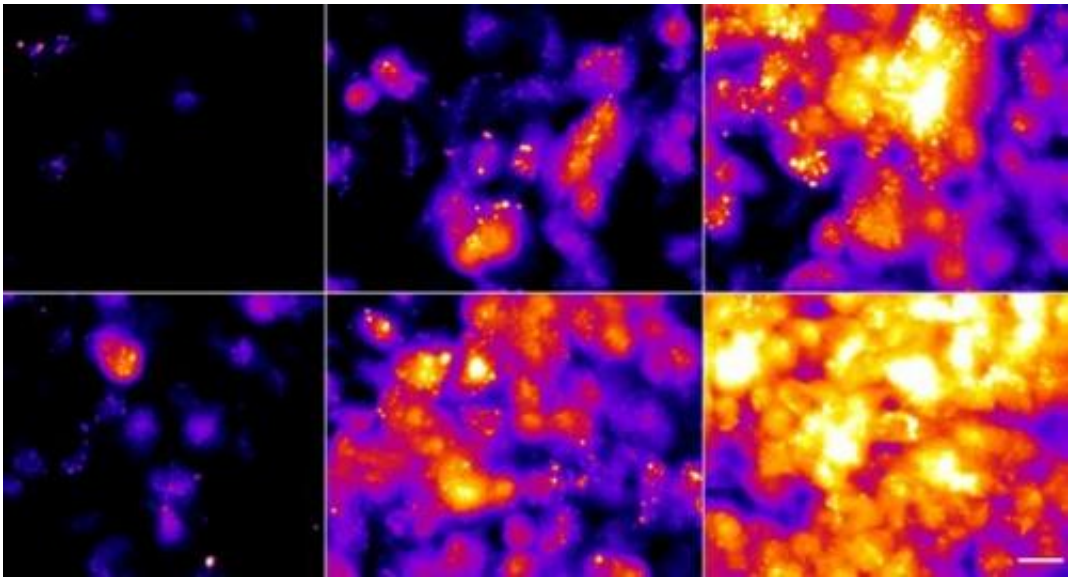
New kind of scan finds cancer's sleeper cells

March 4 2014



Cancer cells after being given a special sugar which highlights their energy stores when seen under a microsope.

Researchers have developed a new imaging technique that lights up cancer's sleeper cells, warning patients and doctors of a potential relapse according to a study published in *Cancer Research* today.

Cancer Research UK scientists at Imperial College London have developed a non-invasive scan which can detect dormant cancer cells in mice. Since most cancer treatments rely on targeting fast growing cells, these dormant cells can be resistant to therapy and are often responsible for cancers coming back.

Professor Eric Aboagye, senior author on the study, said: "The ability of cancer cells to escape treatment by entering these dormant states has stymied progress for the treatment of numerous different cancers. This technique has immediate potential in the clinic to assess how well drugs are working for patients, and to warn of potential relapses post-treatment."

Cancer cells can enter a sleeping state when they stop growing and instead store energy for future use – much more so than most normal healthy cells. But by using a radioactive molecule which mimics what our body uses to create energy, the researchers could measure the build up of these energy stores, known as glycogen, using positron emission tomography (PET scan).

Previous methods to examine energy stores in cancer cells all required invasive techniques involving biopsies which could only sample a small section of the tumour.

Nell Barrie, Cancer Research UK's senior science communications manager, said: "This method shows real promise as a tool for telling doctors how much of the cancer could possibly be escaping treatment. At the moment this method has only been used in mice, but this sort of technique can be adapted for the clinic to help save more lives."

More information: Witney T. et al. "A novel radiotracer to image glycogen metabolism in tumors by positron emission tomography." *Cancer Research* (2014). DOI: 10.1158/0008-5472.CAN-13-2768

Provided by Cancer Research UK