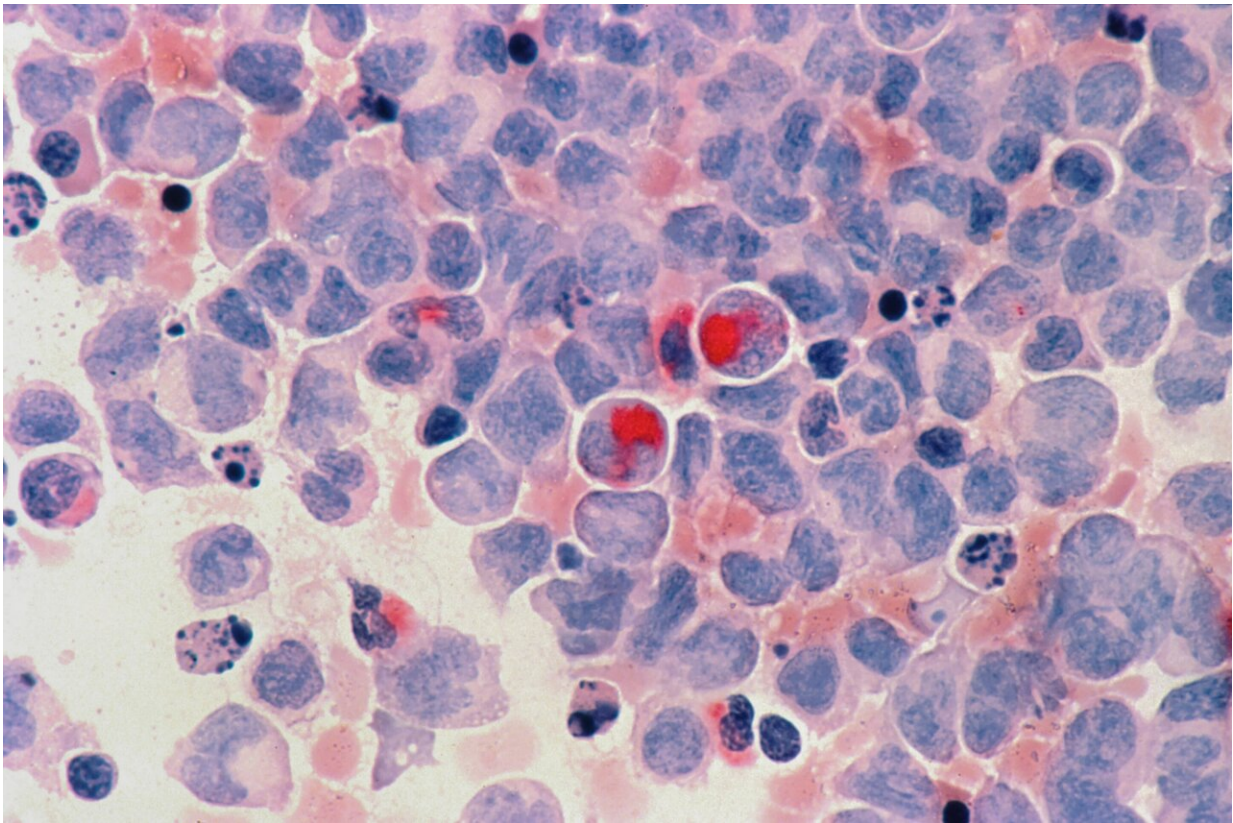


Fluorescent probe can track cancer drug progress, study shows

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Early diagnosis and treatment of cancer patients could be helped by new imaging technology that sheds light on the effectiveness of immunotherapy drugs.

Researchers say the fluorescent probe can track how tumors are responding to the drugs, which harness the body's immune system to fight disease. The light-sensitive technology is able to detect which key immune cells—a small group known as T cells—are involved in attacking tumors.

T cells generate a [toxic protein](#) known as granzyme B, which can kill [cancer cells](#). This protein can also chop the probe in half and release a fluorescent light signal, which lets scientists know that the [immune system](#) is fighting against the cancer.

A team from the University of Edinburgh says the approach will assist clinicians in the development of treatment plans.

Further development of the tool could help detection of tiny changes inside the body's tissues, making it easier to monitor the effectiveness of anti-cancer treatments, researchers say. Doctors could use the technology in the future to monitor quickly how [cancer patients](#) are responding to treatment, by directly tracking the activity of T cells in tissue biopsies or in [blood samples](#). This could allow doctors to make immediate changes to treatment plans, which help to clear the cancer faster and avoid potential side effects of non-effective treatments.

The study is published in the journal *Nature Communications*. It was funded by the European Commission, the Engineering and Physical Sciences Research Council, the Medical Research Council, Cancer Research UK and others.

Professor Marc Vendrell, of the University of Edinburgh's Centre for Inflammation Research, says that "this is an important advance in our abilities to study the role that T cells play in tumors. We hope this technology will accelerate the design of personalized therapies for cancer patients and make them more effective against all tumors."

More information: Jamie I. Scott et al, A fluorogenic probe for granzyme B enables in-biopsy evaluation and screening of response to anticancer immunotherapies, *Nature Communications* (2022). [DOI: 10.1038/s41467-022-29691-w](https://doi.org/10.1038/s41467-022-29691-w)

Provided by University of Edinburgh

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