Medical Xpress

Blood test could match cancer patients to best treatments

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UK-funded scientists have developed a blood test that could help pair cancer patients with the most suitable therapy for their disease and then track the tumour's progress to see if the treatment is working, according to research published today in *Clinical Cancer Research*.

Using the blood test throughout a patient's treatment gives a 'running commentary' of what is happening to tumours - giving scientists the lowdown on how well the treatment is working, how the cancer is changing and whether it is becoming resistant to treatment. It is the first time a blood test has been used in this way during clinical trials of targeted drugs, proving that the technique can monitor cancer simply and quickly.

The scientists and clinicians, from The Institute of Cancer Research, London, and The Royal Marsden in London, looked at almost 160 blood samples from 39 cancer patients with different types of late-stage cancer.

The test filters out tumour DNA from a patient's blood to be analysed for genetic faults. Based on the results, researchers can match the faults to targeted cancer treatments which then home in on cancer cells carrying these mistakes.

Tumour samples, known as biopsies, are usually only taken at the beginning of treatment, meaning that doctors may be using out-of-date information about how the genetic makeup of a patient's disease is

changing in response to treatment. But this approach could provide real-time updates, as well as helping doctors identify patients who are suitable for clinical trials of new drugs.

Study leader Professor Johann de Bono, from The Institute of Cancer Research, London, and The Royal Marsden, said: "Tumours and the gene faults that drive them are unique and constantly evolving. It's crucial that we understand these changes so doctors can choose the best treatments for each patient.

"We need to do more research, but this approach could have a huge impact on how we make treatment decisions, also potentially making diagnosis and treatment quicker, cheaper and less invasive."

Dr Kat Arney, Cancer Research UK's science information manager, said: "Blood tests like these are the future of cancer treatment and this study proves that they can work in practice - helping us to diagnose, analyse and monitor tumours more easily.

"Thanks to research like this we're developing new ways to shake the genetic foundations that underpin cancer and save more lives."

More information: J. S. Frenel et al. Serial Next-Generation Sequencing of Circulating Cell-Free DNA Evaluating Tumor Clone Response To Molecularly Targeted Drug Administration, *Clinical Cancer Research* (2015). DOI: 10.1158/1078-0432.CCR-15-0584

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