New trial of personalised cancer treatment begins in Oxford

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(Medical Xpress)—The first human trial of a pioneering personalised cancer treatment developed at Oxford University will begin this week, with the potential to tackle a wide range of late-stage cancers.

A major challenge in drug development is that all cancer patients

respond differently to treatment, making it difficult to know how best to treat each patient. For the first time, a phase I trial in Oxford will investigate not only a new drug, called CXD101, but also a new test to predict which patients could be successfully treated by this class of drug.

'When patients' cancers do not respond to a treatment, this can cost tens of thousands of pounds and cause patients to suffer side effects for nothing,' said lead researcher Professor Nick La Thangue of Oxford University's Department of Oncology. 'Personalised medicine promises to prevent this by predicting how well a patient will respond to a drug before administering it and this is exactly what this trial will do. This is really the shape of things to come, and avoids the problem of testing drugs on patients who have little chance of benefiting from the treatment.'

The drug and associated test were first developed at Oxford University and are now being developed by spin-outs Celleron Therapeutics and Oxford Cancer Biomarkers, founded by Professors La Thangue and David Kerr and set up by the University's technology transfer company Isis Innovation. The new clinical trial is being carried out by Oxford University Hospitals NHS Trust.

The test measures levels of a protein called HR23B that could determine the effectiveness of CXD101 and similar drugs. The trial will involve 30-40 cancer patients, the first set of whom will be given increasing doses of CXD101 to determine the most effective dose. The second cohort of patients will then be tested for HR23B, and those with high levels of the protein will be treated with the best dose of CXD101.

CXD101 is a next-generation histone deacetylase (HDAC) inhibitor, a class of drug that kills cancer cells by blocking the vital functions of HDAC enzymes. HDAC enzymes are important for cell multiplication, migration and survival, so blocking them can stop tumours from growing

and spreading, and even kill cancer cells entirely.

'HDAC inhibitors have had limited success in the past, but CXD101 works in a completely new way and has great potential to treat many different cancers,' said Professor La Thangue. 'Our previous research suggests that high levels of the HR23B protein make tumours more vulnerable to HDAC inhibitors, so we will now be putting this into practice to identify the patients who are most likely to benefit from CXD101. Any cancer could be high in HR23B, from breast cancers to blood cancers, so we are screening a broad range of patients to identify anyone who might benefit.'

The trial is a unique collaboration between Oxford University, Oxford University Hospitals NHS Trust, Celleron Therapeutics, Oxford Cancer Biomarkers and the ECMC (Experimental Cancer Medicine Centre) network. The Oxford ECMC, jointly funded by Cancer Research UK and the National Institute for Health Research, is led by Mark Middleton, Professor of Experimental Cancer Medicine at Oxford University's Department of Oncology, clinical lead for the CXD101 trial.

'This trial marks a lot of firsts – the first time the hospital has sponsored a trial of a new agent, the first time we will trial a predictive test along with a new drug, the first time CXD101 will be taken by patients, and even the development of the trial is new,' said Professor Middleton. 'We are working closely with the spin-outs to deliver the trial using a new model that allows the companies to set up the trial faster. This risk-sharing model encourages innovation, accelerates drug development and will bring benefits to UK plc in the long run.'

Provided by Oxford University