

Scientists seek out cancer cells hiding from treatment

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Scientists hope to improve leukaemia treatment by investigating how cancer cells use 'hiding places' in the body to avoid chemotherapy drugs.

Each year 300 British children are diagnosed with acute [lymphoblastic leukaemia](#), a cancer of the blood. The majority respond well to current therapies, but the disease returns in a quarter of patients. The long term outlook for [adults](#) is much worse, with initial treatments being effective in fewer than half of all patients.

Now, researchers from Imperial College London will begin a three year project to explore how some cancer cells evade treatment, thanks to new funding from [blood cancer](#) charity Leukaemia & Lymphoma Research.

Lead researcher, Dr Cristina Lo Celso, Lecturer in Immunology in Imperial's Department of Life Sciences, said: "We believe that some evasive cancer cells hide in protective compartments inside the body while patients receive treatment. If we understand where the cancer cells hide, we will be able to develop better ways to treat patients by eliminating all cancer cells and avoiding disease relapse."

Blood cells are produced in the bone marrow, where they grow and take on a variety of forms within compartments called niches inside bones. Dr Lo Celso's team believe that in the bones of Leukaemia patients, some of these compartments have been 'hijacked' by leukaemia cells, where they serve as effective hiding places during treatment. "Once we can see how this happens drugs can be developed that target the hiding

places. This will have a dramatic impact on the design of new drugs for blood cancers like acute lymphoblastic leukaemia," she said.

Dr Lo Celso and colleague Dr Edwin Hawkins will use high powered microscopes in Imperial's Facility for Imaging by Light Microscopy (FILM) to observe [cancer cells](#) using fluorescent light. They will use this technique to track the movement of the evasive leukaemia cells in laboratory mice and hope to learn where these cells go during cancer treatment.

Professor Chris Bunce, Research Director at Leukaemia & Lymphoma Research, said: "Leukaemia occurs when the machinery that controls how blood cells grow and die breaks down. We now know that both normal blood cells and leukaemia cells are produced by a small number of stem cells that live inside compartments in our bone marrow. Understanding how these leukaemia cells hide from powerful anti-cancer drugs is vital to creating treatments for patients that will work faster and prevent the disease from returning."

Provided by Imperial College London

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