

New drug combination shows promise in tackling leukaemia treatment resistance

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Early testing of a new drug combination that attacks the most common form of leukaemia on multiple fronts has shown great promise in targeting cancer cells.

Researchers from the University of Southampton, who were funded by the blood cancer charity Bloodwise, believe that the combination could overcome the problem of resistance to currently available drugs. The research was carried out in collaboration with researchers at the MD Anderson Cancer Center and Portola Pharmaceuticals in the USA.

Chronic lymphocytic leukaemia (CLL) is the most common form of leukaemia, with over 4,000 cases in the UK every year. At the moment CLL is incurable, but in recent years, B-cell receptor (BCR) inhibitors have revolutionised treatment. However, some patients can become resistant to these types of drugs, and new therapies are much needed.

One of the reasons for drug resistance is that cancer cells are able to retreat from the blood into the bone marrow, spleen or lymph nodes, where they are protected by surrounding cells that send 'stay alive' signals. By using drugs that attack multiple cancer pathways at once, or combining drugs that have different mechanisms of action, researchers hope to overcome the problems of resistance.

The scientists treated [blood cells](#) from CLL patients in the laboratory with a new drug called cerdulatinib, which blocks SYK and Jak, two key cell signalling pathways that promote [cancer cell growth](#). Cells were

treated with cerdulatinib alone, or combined with an existing leukaemia drug called venetoclax, which targets leukaemia cells with a specific genetic alteration.

At drug concentrations that would be achievable in patients, cerdulatinib not only blocked the signals that tell [cancer cells](#) to grow, but also reversed the protective effect of the surrounding tissues, causing the cells to self-destruct. When researchers combined cerdulatinib with venetoclax, even more cancers cells were killed than by either drug alone.

The findings are published in the journal *Clinical Cancer Research*.

More information: M. D. Blunt et al. The dual Syk/JAK inhibitor cerdulatinib antagonises B-cell receptor and microenvironmental signaling in chronic lymphocytic leukemia, *Clinical Cancer Research* (2016). [DOI: 10.1158/1078-0432.CCR-16-1662](https://doi.org/10.1158/1078-0432.CCR-16-1662)

Provided by Bloodwise

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