

New drug cocktail unlocks potential of new leukemia treatment

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A new combination of drugs, tested by University of Manchester scientists, has significantly enhanced the survival of laboratory mice with lymphoma.

According to the team, the effect of Obinutuzumab—a first-line treatment for non-Hodgkin lymphoma and leukemia—is significantly enhanced when combined with drugs that stimulate the [immune system](#).

The research is published in the journal *Leukemia* and funded by the Kay Kendall leukemia Fund and Cancer Research UK in collaboration with Roche Pharmaceutical Research and Early Development.

"As a result of these findings, treatment for leukemia and lymphoma may be improved by using this novel combination of drugs," said the University's Professor Tim Illidge who led the research.

"We were excited when we discovered that combining obinutuzumab with TLR7 activation significantly enhanced survival of animals with lymphoma by effectively eradicating tumours.

"Clearly, more work needs to be done to assess the impact of this combination on humans—but this study is nevertheless very promising."

According to the team, the combination treatment is also able to prevent tumours from returning.

It's success, they add, was down to the activity of "Natural Killer cells—a component of the innate immune system— and 'CD4 helper T-cells' which can activate a number of immune system functions.

The team tested a drug which stimulates a powerful immune response through a protein called TLR7, which is usually activated when we suffer from viral infection.

The drug is routinely used to treat patients with non-Hodgkin [lymphoma](#) and [leukemia](#) and has revolutionised the outcome for patients with B cell malignancies.

And in the laboratory they are also to examine if there are ways to improve treatments further.

Dr Eleanor Cheadle, a Postgraduate Research Fellow on the team added: "While the combination therapy was highly effective, CD8 killer T-cells did not play a major role in the therapy.

"Given the important role that killer T-cells can play in long term protection from tumour regrowth, we are looking at ways to enhance activation of these cells after obinutuzumab therapy."

Dr Justine Alford, Cancer Research UK's senior science information officer, said: "This study in cells and mice may have found a new way to tap into the power of the immune system and boost a type of immunotherapy for blood cancers.

"Now the challenge will be to develop this potential treatment further and find out if it has similar results in people with cancer."

More information: E J Cheadle et al. A TLR7 agonist enhances the antitumor efficacy of obinutuzumab in murine lymphoma models via

NK cells and CD4 T cells, *Leukemia* (2017). [DOI: 10.1038/leu.2016.352](https://doi.org/10.1038/leu.2016.352)

Provided by University of Manchester

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