

New cancer drug shows promise in helping patients with blood cancer

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An immunology discovery from the laboratories at the University of Southampton has now been shown to improve the outcomes of a common type of blood cancer in patients.

Follicular lymphoma is a type of non-Hodgkin lymphoma and develops when the body makes abnormal white blood cells that fight infection, called B-lymphocytes. It can be slow-growing and does not always need to be treated straight away but when treatment is needed, it usually involves a combination of chemotherapy and a monoclonal antibody called rituximab.

Southampton scientists discovered that therapeutic antibodies against the CD20 target on a lymphoma could be divided into two types: type I, like rituximab, and type II, which had not been tested in patients.

Research showed that a type II reagent had different properties to rituximab, and that it might remain on the cancer cell longer than rituximab and therefore have a stronger effect.

Pharmaceutical company Roche developed the first therapeutic type II antibody, obinutuzumab, which has now confirmed Southampton scientists' hypothesis. It seeks out the CD20 protein on the surface of malignant B-cells and flags these cells for destruction by the body's killer cells.

The results of the phase III GALLIUM study, which involved 1,200

patients, have been published in the *New England Journal of Medicine* and show that combining obinutuzumab (Gazyva) with chemotherapy reduced the risk of disease progression or death in patients with [follicular lymphoma](#) by 34 per cent compared with rituximab (Rituxan) plus chemotherapy.

Professor Mark Cragg worked on the original discovery of type II anti-CD20 antibodies with Professor Martin Glennie in 2004, and in 2011 worked with Dr Sean Lim to show they stayed longer on the cell surface.

"It's been incredibly exciting to see our discoveries in the lab go all the way through to treating patients in clinical [trials](#)," he said. "It's been particularly rewarding to work with clinicians and the patients themselves to understand which types of lymphoma will respond best to which treatments.

"We have a great team in Southampton that allows our pre-clinical discoveries to move quickly to phase I and phase II trials, but to see it at phase III and having the great results that the GALLIUM trial has had is really heartening."

Julie Davis, from Chandler's Ford, took part in the trial, which was led by King's College London, after multiple tumours were found to be growing in her groin and under her arms.

Six months of combined antibody and chemotherapy treatment reduced the largest of the tumours from 10cm to 0.5cm and, following a further 18 months of treatment with just the trial drug, Julie was given the news that she had no active lymphoma. Julie is now living drug-free and has returned to the activities she loves, taking time out to travel and regularly walking dogs for her neighbours in the beautiful countryside close to her home.

Julie said: "The response from day one was amazing. It felt like there was a little Pac-Man munching away at the tumours and I was going to be the one to win.

"For me, taking part in a clinical trial turned something as negative as cancer into a positive. I never realised there was such amazing research going on right on my doorstep, and I am humbled that I, in some small way, might be able to help make a positive difference to the future of cancer treatment.

"A cancer diagnosis changes your life in many ways, both mentally and physically. You need to readjust and find a new normal. After taking part in the GALLIUM trial at Southampton I feel very positive for the future."

Dr Andy Davies, of the University of Southampton and one of the lead investigators of the GALLIUM study, adds: "This new type of antibody treatment for lymphoma has been developed from immunology research in Southampton which began more than 10 years ago, when we started to find out how these antibodies work. We have much more to do in many different types of cancer, but this is a great example of how discovery science can work through into better treatments for our patients."

It is this type of detailed research to better understand new drugs and combinations with immunotherapy that will be taking place in the University of Southampton's new Centre for Cancer Immunology.

The centre, which is being built at Southampton General Hospital and due to open in early 2018, will be the first of its kind in the UK to focus exclusively on immunotherapy. It will bring together world-leading specialists and its aim is to accelerate research progress and conduct more [clinical trials](#).

Provided by University of Southampton

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