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An update from Southampton Experimental Cancer Medicine Centre

March 2016

The world-leading researchers at the Experimental Cancer Research Centre in Southampton have been trialling new ways to give the immune system a boost using antibodies. These molecules are part of the immune system's natural arsenal and stick tightly to invading bacteria and viruses, tagging them for destruction. They can be engineered in the lab to specifically target cancer cells, and over the last 20 years an increasing number of antibody-based therapies have been making it in to the clinic.

New Hope for Patients

The Southampton ECMC, in partnership with Amgen Inc., has launched a new clinical trial to test a drug that could stop a patient's immune system from protecting tumours. This exciting development was announced on **24th February 2016**.

The teams are studying an experimental cancer drug from Amgen to find out if it removes the defence shield that hides cancer cells from the immune system. This Phase II trial, taking place at Poole Hospital, Southampton General Hospital, and the Clatterbridge Cancer Centre/Aintree University Hospital, looks at the effects of giving this drug to patients with a type of head and neck cancer known as squamous cell carcinoma (HNSCC), to determine whether it affects their immune response. This is a really exciting trial because the drug is being used in solid tumours for the first time. The researchers hope that after taking the drug, patients will have more cancer-fighting immune cells in their tumour.

Taking Immunotherapy to the Clinic

One of the major areas of interest at the Southampton ECMC is blood cancer. Non-Hodgkin lymphoma is the 6th most common cancer in the UK, and 9 in 10 cases are caused by faulty white blood cells known as 'B cells'. The antibody treatment rituximab sticks to B-cells and tags them for destruction. This has dramatically improved outcomes for patients, but unfortunately many become resistant to the treatment over time. Dr Andy Davies at the University of Southampton is piloting a trial of a second antibody known as DI-B4, which attaches to the cells in a slightly different way, and could provide an alternative option for patients who have developed resistance.

Another blood cancer being targeted at the ECMC is myeloma, and Dr Kim Orchard, also at the University of Southampton, is leading a trial to use the sticking power of antibodies to deliver treatments directly to cancer cells. With only one third of people diagnosed with this disease surviving ten years or more, there is an urgent need for new therapies.

Rather than targeting the cells for destruction, these antibodies each carry a radioactive substance. When they enter the body, they adhere tightly to cancer cells in the spleen and bone marrow, delivering a high dose of radiotherapy directly to where it is needed. With much lower doses reaching healthy tissues, this targeted treatment is less toxic than standard radiotherapy, and early successes in Southampton mean that the trial is now being expanded to other parts of the country.