MedicalXpress

# Therapeutic target could lead to the development of new treatments for specific blood cancers

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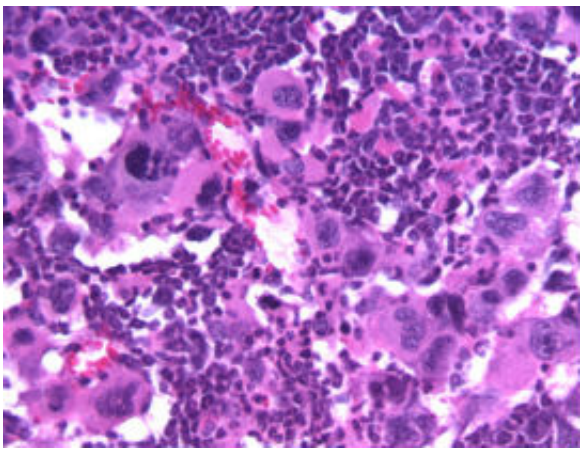

Diseased bone marrow. Credit: Dr Ian Hitchcock

Scientists at the University of York have identified a therapeutic target which could lead to the development of new treatments for specific blood cancers.

The study, by researchers from the Centre for Immunology and Infection at York working with scientists in the Department of Medicine at Stony Brook University in the USA, could lead to improved therapies for a group of haematological cancers called myeloproliferative neoplasms (MPNs).

These are characterised by increases in one or more blood cell types, usually red blood cells, which carry oxygen around the body or platelets, which clot the blood and stop us from bleeding and bruising easily.

Tight control of the number of blood cells in circulation in the body is important for good health but, in the majority of MPN patients, a mutation in a protein called JAK2 causes blood cells to proliferate too quickly.

The team at CII—a research centre established jointly by the University of York's Department of Biology and Hull York Medical School—discovered that the protein molecule Mpl, which receives chemical signals from outside the cell, is a prerequisite for the development of mutant JAK2 disease.

Using laboratory models, they found that 'switching off' half the gene in the Mpl receptor reduced its expression with the result that the disease did not develop. The research is published in the journal *Blood*.

Dr Ian Hitchcock, of CII, said: "This is potentially important medically because it means we can target Mpl. If you can disrupt its activity you have a completely novel treatment for the disease. We found that it is unnecessary to get rid of the receptor entirely, you just need to reduce its expression to have a significant effect on the development of MPN."

**More information:** "The thrombopoietin receptor, MPL, is critical for development of a $JAK2V_{617}F$-induced myeloproliferative neoplasm" DOI: dx.doi.org/10.1182/blood-2014-07-587238

Provided by University of York