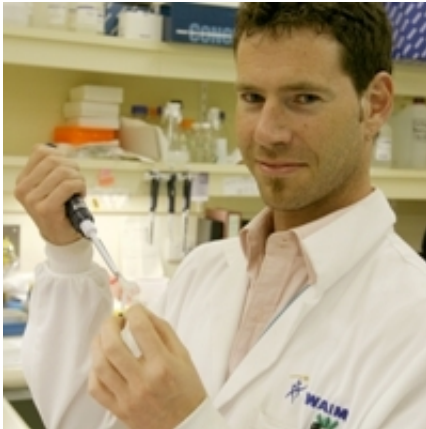


Enzyme 'Lyn' linked to anaemia

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New research by a team including experts from the UWA-affiliated Western Australian Institute for Medical Research (WAIMR) has proved a link between an enzyme known as "Lyn" and the blood disorder anaemia.

Anaemia is a deficiency in the number or quality of red blood cells. It can have wide-ranging serious effects on patients.

New findings proving the link with the Lyn enzyme could be used in the future to fast-track treatments for patients who suffer specific types of anaemia.

Lead author Associate Professor Evan Ingley heads WAIMR's Cell

Signalling group, which has an interest in understanding the signalling networks or "information highways" of cells - in this case the processes needed for [stem cells](#) to make mature red blood cells.

The research team - including Professor Wendy Erber, of UWA's School of Pathology and Laboratory Medicine, and Associate Professor Margaret Hibbs, of Monash University - explored the complicated biochemistry that occurs in the body when it's making red blood cells. The process involves a naturally occurring protein, EPO, which has gained notoriety as an [illegal drug](#) in competitive sports such as cycling.

"EPO is an important growth factor, which is produced by the kidneys and is needed in the process of turning stem cells into a healthy number of mature red blood cells," Associate Professor Ingley said.

"In this study, we were particularly interested in an enzyme called Lyn, which is activated during this process and which is necessary for EPO to make red blood cells," he said.

The research explored the effects on red blood cells if too much of the Lyn enzyme was produced.

"The red blood cells with hyperactive Lyn looked very different to normal blood cells," Associate Professor Ingley said. "There were changes to the structure of the red [blood cells](#) resulting in lower numbers of [red blood cells](#) than that needed for [good health](#)."

He said drugs that turned off the Lyn [enzyme](#) were already available in the treatment of leukaemia. The study showed there was the potential for them to be used in other diseases in which severe anaemia was a problem.

"Maybe we could fast-track these particular drugs in clinical trials on

patients where their anaemia is caused by too much Lyn activity," he said. "This paper has created an interesting model for such diseases."

The American Society of Hematology has published the paper, "Gain of function Lyn induces anaemia: appropriate Lyn activity is essential for normal erythropoiesis and Epo receptor signaling," in its latest edition of the journal, *Blood*.

Provided by University of Western Australia

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