Researchers pursuing arthritis protein

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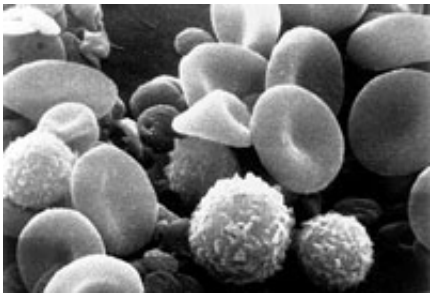

The healthy blood cells stem from the blood bank at Rigshospitalet in Copenhagen, and more than 50 donors have been examined with the same result. Credit: Blood cells, Bruce Wetzel, Harry Schaefer, National Cancer Institute.

Researchers at the University of Copenhagen have investigated a special protein that appears in inflammatory diseases such as arthritis, inflammatory bowel disease and psoriasis. The findings have just been published in the scientific journal *PLOS ONE*.

Chronic inflammation poses something of a mystery for researchers. If we become infected, the body immediately takes steps to repair and tidy it up. This process manifests itself as inflammation, which stems from a high level of activity in the immune cells, the body's defence against bacteria and viruses. But it does not always go according to plan. Every so often, the body's immune system over-reacts, and the inflammation develops into a chronic condition, resulting in diseases such as arthritis, inflammatory bowel disease and psoriasis. However, researchers are now a step closer to understanding what happens when the immune system

over-reacts and causes chronic inflammation.

"Through analysing blood cells, we have observed that a particular protein called TL1A can get healthy cells to behave like those we see in chronic inflammation. This is bringing us closer to unlocking the mystery of inflammation," says Kirsten Reichwald, PhD student at the Department of Veterinary Disease Biology, Faculty of Health and Medical Sciences, University of Copenhagen. The results have been published in *PLOS ONE*.

Biological treatment fights arthritis

Today, doctors can use so-called biological medicines for treating arthritis, which has radically changed the outlook for patients. Biological treatment works by impeding the harmful substances that are partly responsible for advancing the chronic inflammation in the body. Almost 40 per cent of arthritis patients experience a positive effect when taking biological medicines.

"Existing biological treatment means that doctors today can halt the diseases instead of just relieving the symptoms," explains Kirsten Reichwald.

However, in order to block the right substances, doctors need detailed information about the processes that cause chronic inflammation. The researchers therefore studied cells from 50 blood donors from the blood bank at Rigshospitalet in Copenhagen, and concluded that the protein TL1A has a key role in the development of the inflammation.

"Our latest findings tell us, that the TL1A protein takes part in driving the inflammation, and therefore it makes sense to try and block the protein with biological medicines," says Kirsten Reichwald, who hopes that her future research will help to provide even more specific

knowledge about inflammation.

What the researchers did

The researchers studied blood cells from blood donors in a proinflammatory environment with and without the TL1A protein. Analysed how the cells had developed, how they grew, and whether they resembled those that the researchers see in chronic inflammation. The healthy blood cells stem from the blood bank at Rigshospitalet in Copenhagen, and more than 50 donors have been examined with the same result.

More information: dx.plos.org/10.1371/journal.pone.0085793

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