Enzymatic approach for targeted treatment of intestinal inflammation

When the immune system attacks a person’s own intestines, this leads to chronic inflammation and considerable pain and discomfort for patients suffering from the disease. Together with researchers from the US and France, a team of researchers at Friedrich-Alexander Universität Erlangen-Nürnberg (FAU) has discovered a potential new approach to treatment. The results have been published in the journal Gastroenterology.

Ulcerative colitis is a chronic inflammatory bowel disease which leads to diarrhoea, intestinal bleeding and cramps. It is generally triggered by an excessive immune reaction. Within the context of the collaborative research centre (CRC) 1181 Switching points for resolving inflammation, researchers from FAU led by Dr. Markus Neurath, Chair of Internal Medicine I and director of Department of Medicine 1– Gastroenterology, Pneumology and Endocrinology and PD Dr. Dr. Benno Weigmann have now discovered that the production of inflammatory cytokines by T-cells can be prevented and the inflammatory reaction stopped by specifically blocking the enzyme ITK in cases of ulcerative colitis. ‘Our experimental analyses of enzyme ITK demonstrated that blocking this specific enzyme using inhibitors or siRNA was effective in treating murine chronic intestinal inflammation, plausibly making it an attractive treatment option for humans in future,’ explains Kristina Lechner, doctoral candidate in Dr. Weigmann’s working group.

In the Collaborative Research Centre (SFB) 1181 ‘Checkpoints for resolution of inflammation’ at FAU, researchers from various areas of medicine and biology are investigating the basic mechanisms underlying the resolution of inflammatory responses and their clinical relevance.

wissenschaftliche Ansprechpartner:
Prof. Dr. Markus Neurath
Chair of Internal Medicine I
Phone: +49 9131 85 35204
markus.neurath@uk-erlangen.de

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