

PRESS INFORMATION

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Chronic Colitis: New Model for Translational Research

Researchers at Fraunhofer IZI present a new, more expressive model for the preclinical investigation of chronic inflammatory bowel diseases.

Colitis is an umbrella term for inflammatory diseases affecting the bowel area usually associated with diarrhea, bloody stools, loss of tissue in the intestine and weight loss. Various therapeutic approaches are necessary depending on the progression of the disease, i.e. whether it is in an acute phase or in a partly asymptomatic remission phase.

While highly diagnostic animal models have already been characterized for acute inflammatory bowel diseases, models for chronic disease progression are still particularly lacking. Past protocols on inducing chronic colitis are based on administering a high concentration of irritants (dextran sodium sulfate [DSS]) at regular intervals, which initially brings on an acute form of colitis. During the respective, subsequent regeneration phases where no irritants are administered, the colitis is almost completely cured. A chronic progression of the disease is intended to be attained by repeating the procedure. One drawback of this method, however, is the significant weight loss noted in the experimental animals, which proves fatal in a high number of cases. The clinical significance of this model is also weakened by the fact that colitis symptoms almost completely subside during the regeneration phase.

Scientists at Fraunhofer IZI (Department of Therapy Validation) have therefore established a new protocol that depicts the chronic progression of colitis in much greater detail, thus reducing the stress on the experimental animal. This was achieved by the researchers lowering the concentration of DSS during the acute phase. In the regeneration phase, however, the administration of DSS was no longer completely dispensed with, but continued at an extremely low concentration. This results in fewer clinical symptoms during the acute phase, yet symptoms persist throughout the regeneration phase. Comparative molecular biological and immunological examinations conducted alongside the progression of clinical symptoms confirm the fact that this procedure much more closely resembles a real-life situation.

Due to its high reproducibility, the new model lends itself brilliantly to the preclinical evaluation of new therapeutic agents for treating chronic inflammatory bowel diseases. [One of the earliest uses of the model was in investigating anti-inflammatory plant extracts from sage and bitter apple.](#)

Editor

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Links to the original publications:

- [A refined and translationally relevant model of chronic DSS colitis in BALB/c mice.](#)
- [Therapeutic efficacy of a combined sage and bitter apple phytopharmaceutical in chronic DSS-induced colitis.](#)

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The Fraunhofer Institute for Cell Therapy and Immunology IZI

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