

# AB077. Perioperative oral delivery of anti-inflammatory Ac2-26 loaded coated nanoparticles induces anastomotic healing during colitis

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**Background:** Up to 80% of the patients suffering from inflammatory bowel disease still undergo surgery once in their lifetime. In cases with severe intestinal inflammation septic complications still occur with a prevalence up to 30%. It is crucial to reduce the inflammatory process without inhibition of anastomotic healing itself. The purpose of this study was to evaluate the use of Ac2-26 loaded anti-inflammatory nanoparticles (Ac2-26NP) for induction of anastomotic healing during colitis.

**Methods:** A mouse model of anastomotic healing during colitis was used in 72 Balb/c mice. All experiments were approved by the respective authorities. For induction of colitis 3% dextrane sodium sulfate (DSS) was administered for 7 days. An end-to-end anastomosis was performed via twelve single stiches. Treatment groups received oral gavage of Ac2-26NP with beginning of colitis. For control a placebo peptide was used. Mice were sacrificed on postoperative day three and seven and anastomotic healing was analysed through evaluation of disease activity, adhesion scores, histology, colonoscopy and bursting pressure measurements. For statistical analysis T-test as well as Chi-square tests were performed were appropriate. A P value <0.05 was considered significant.

**Results:** Perioperative oral Ac2-26NP administration resulted in a dose-dependent significant decrease in postoperative disease activity (P=0.0197), endoscopic leakage scores (P=0.0014) and postoperative adhesion formation (P=0.0116).

**Conclusions:** Oral delivery of Ac2-26 loaded nanoparticles has a positive impact on anastomotic wound healing during colitis.

**Keywords:** Anastomotic healing; inflammatory bowel disease; perioperative treatment

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