



AB217. Systemic administration of Ac2-26 loaded nanoparticles induces anastomotic healing during a locally induced model of trinitrobenzene sulfonic acid (TNBS) colitis

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Background: Inflammatory bowel diseases (IBD) are characterized by recurrent episodes of severe diarrhea and abdominal pain. Up to 80% of patients with IBD have to undergo surgery at least once in their lifetime. Following bowel resection, bowel continuity must be restored by means of a surgical suture (anastomosis). Disturbed healing is associated with significant morbidity and still occurs in up to 30% of the cases. The effect of systemic administration of Ac2-26 loaded nanoparticles (Ac2-26NP) on wound healing during locally induced trinitrobenzene sulfonic acid (TNBS) colitis was analysed.

Methods: All experiments were approved by the respective authorities. Induction of colitis was achieved by intrarectal administration of TNBS following 6 days of presensitization in 78 Balb/c mice. Using microsurgical technique, end-to-end anastomosis with 12 single stitches was performed. Treatment group received perioperative intraperitoneal injections of Ac2-26NP *vs.* placebo in the control group. Anastomotic healing was evaluated on 3rd and 7th postoperative day using endoscopic assessment, anastomotic bursting pressure measurements and histological examination. For statistical analysis t-test as well as Chi-square tests were performed where appropriate. A P value <0.05 was considered significant.

Results: Treatment with TNBS induced a significant colitis in the distal colon and at the anastomotic site and was associated with compromised anastomotic healing. Perioperative systemic administration of Ac2-26NP resulted in significantly reduced postoperative weight loss compared to control.

Conclusions: Perioperative administration of Ac2-26NP has a positive effect on postoperative recovery in mice with TNBS induced colitis.

Keywords: Anastomosis, inflammatory bowel disease, perioperative treatment

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