Acute colitis induced by oxazolone

A MODEL OF INFLAMMATORY BOWEL DISEASE (IBD)

Model

Inflammatory bowel disease (IBD) includes ulcerative colitis (UC) and Crohn's disease, two chronic inflammatory disorders of the gastrointestinal tract. UC is limited to the colon and involves diffuse mucosal inflammation, while Crohn's disease may affect any part of the gastrointestinal tract and is characterized by patchy, transmural inflammation. Clinically, IBD is characterized by weight loss, severe diarrhea, bleeding and abdominal pain.
Oxazolone is thought to be a haptenating agent which penetrates the mucosal barrier and triggers an immunological response. Oxazolone colitis model resembles human UC with respect to morphology but also to immunopathogenesis.

Specie

Mouse

Interest

- Oxazolone-induced colitis has become a recognized model to study the efficacy of therapeutics targeting the immunological response underlying the development of IBD.
- Oxazolone-induced colitis is a rapid and relevant preclinical model to evaluate the efficacy of therapeutic agents for ulcerative colitis.

Model Description

- Mice are administered with oxazolone in 40% ethanol (intracolonic) and are evaluated daily for body weight, evidence of bloody stool and diarrhea.
- On day 2, mice are sacrificed and colon are dissected for macroscopic evaluation of inflammation.
- Colon can be collected for histological, molecular or biomarkers analysis.
- Tested compounds can be administered *via* various routes (i.v., i.p., s.c., p.o., intracolonic).

Parameters evaluated

- % body weight loss
- Macroscopic score in colon (clinical scoring)
- Area under the curve (AUC) of disease activity index (DAI) : fecal consistency and occult blood test
- Colon weight and length
- Histological change in colon
- Myeloperoxydase activity
- Mediators dosage (ELISA, multiplex assays)

Oxazolone induces body weight loss and bloody diarrhea
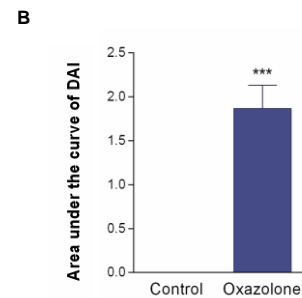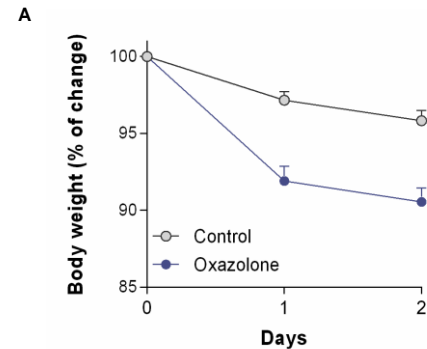
Effects of oxazolone (intracolonic administration) on body weight (A) and AUC of DAI (B).
*** $P < 0.001$, (n=15/group)

Oxazolone induces inflammation and structural damage on the colon
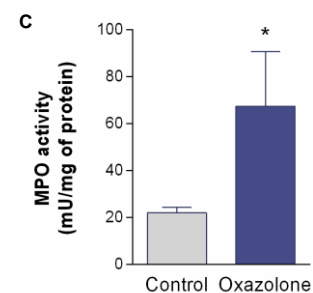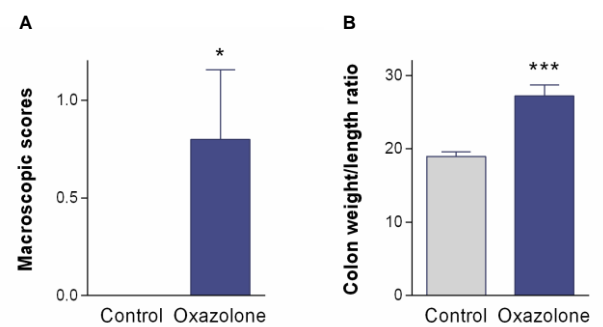
Effects at D2 of oxazolone (intracolonic administration) on colonic macroscopic score (A), colon weight/length ratio (B) and myeloperoxidase (MPO) activity in colon (C).
* $P < 0.05$, *** $P < 0.001$, (n=15/group)