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Technology factsheet

Technology ID
SO-16608/UL-01820

Title	**Treatment of inflammatory bowel disease with nucleoside triphosphate disphosphorhydrolase**
Activity sectors	Gastrointestinal inflammation, biologics
Inventor(s)	Jean Sévigny, Axe maladies infectieuses et immunitaires, Centre de recherche du CHU de Québec-Université Laval

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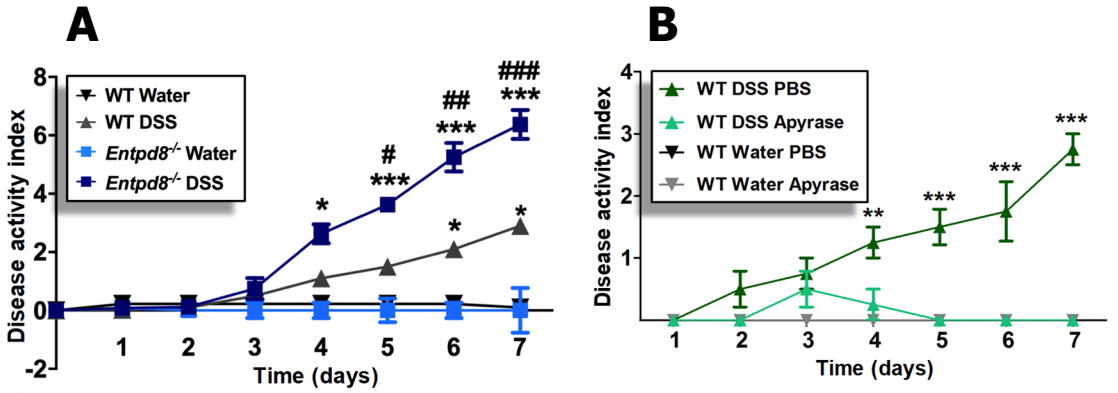
Markets	Inflammatory bowel diseases, ulcerative colitis, Crohn's disease
Unmet need(s)	A novel therapeutic option to control inflammation
Solutions	A biologic approach for treating inflammatory bowel diseases
Description	Inflammatory bowel diseases (IBD), mainly ulcerative colitis and Crohn's disease, are chronic and debilitating diseases which affect 1 in every 150 Canadians and an increasing number of children. Chronic inflammation might be mediated by extracellular nucleotides such as ATP, ADP and UDP that can selectively activate P2Y receptors or P2X receptors. Activation can be terminated by ectonucleotidases, namely nucleoside triphosphate diphosphohydrolases (NTPDases), enzymes that yield extracellular adenosine, a potent anti-inflammatory agent. The team of Prof Sévigny has indirectly shown that NTPDase8, the major ectonucleotidase expressed at the apical surface of the mouse intestinal epithelium, has the potential of preventing inflammation by 1° limiting the activation of P2Y6 through the hydrolysis of UDP, and 2° by yielding adenosine upon acting on the extracellular nucleotides pool. Using the dextran sulfate (DSS) animal model of induced colitis, a model commonly used in IBD research and applicable to human diseases, the research team has used apyrase to mimic the action of NTPDase8 and demonstrated in preliminary experiments that the intra-rectal administration of this enzyme prevented inflammation.

In the DSS mouse model of IBD:

A Mice deficient in NTPDase8 display higher disease severity than wild-type mice

B The intra-rectal injection of apyrase prevents or eliminates inflammation



Strengths	NTPDase8 might provide a biologic solution for treating inflammatory bowel diseases
Opportunity	SOVAR and Université Laval seek a partner for co-development of an enteric formulation, licensing, or commercialization of this technology
Intellectual property	Sévigny J and M Salem (2018). Treatment of inflammatory bowel disease with nucleoside triphosphate disphosphorhydrolase, P2Y2 antagonist and/or P2Y6 antagonist. WO2018058246A1. Assignee: Université Laval.

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