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## Therapeutic Protein for Inflammatory Bowel Diseases

### Overview

Auburn University is seeking a licensee or development partner for a new therapeutic for inflammatory bowel diseases such as Crohn's disease and ulcerative colitis, and potentially other inflammatory and autoimmune conditions. Alpha defensins — naturally occurring antimicrobial peptides — have shown an ability to inhibit the inflammatory process, thus serving as a potential therapeutic.

### Status

- Subject of US Patent Number [7,528,107](#).
- Alpha defensins have been shown to inhibit production of interleukin-1beta (IL-1 $\beta$ ), a key cytokine involved in the initiation and amplification of the inflammatory process.
- Treatments could be extended to other inflammatory and autoimmune conditions, such as rheumatoid arthritis, psoriasis and multiple sclerosis.

### Description

Inflammatory bowel disease (IBD) includes Crohn's disease and ulcerative colitis and affects as many as one million Americans. IBD causes inflammation of the intestinal tract and particularly the intestinal wall, leading to such symptoms as abdominal pain, diarrhea, fever, and weight loss.

Interleukin-1 $\beta$  (IL-1 $\beta$ ) is a key cytokine involved in the initiation and amplification of the inflammatory process of IBD. This research demonstrates that mice unable to produce mature  $\alpha$ -defensins (naturally occurring antimicrobial peptides) produce increased amounts of IL-1 $\beta$  and are more susceptible to induced colitis. In addition,  $\alpha$ -defensins have been shown to block release of IL-1 $\beta$  from human monocytes in vitro. Therefore,  $\alpha$ -defensins also serve as inhibitors of IL-1 $\beta$  secretion, which helps to reduce susceptibility to IBD.

### Reference

Shi, et al. "A Novel Role for Defensins in Intestinal Homeostasis: Regulation of IL-1 $\beta$  Secretion." *The Journal of Immunology*, 2007, **179**: 1245-1253. ([pdf](#))

### Licensing Opportunities

- This technology is available for exclusive or non-exclusive licensing
- Joint development opportunities include funded research or a joint venture

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