

## **Investigating the potential mechanism of Emu Oil: a potential new adjunctive treatment for intestinal disease**

**Principal Supervisor: Associate Professor Gordon Howarth**

Email: [gordon.howarth@adelaide.edu.au](mailto:gordon.howarth@adelaide.edu.au)

Phone: 8303 7885

**Co-supervisor:** Dr Rebecca Forder

### **Background**

Inflammatory bowel disease (IBD) is a serious idiopathic and, so-far, incurable condition affecting approximately 1 in 8000 individuals in Australia. It comprises two variants, ulcerative colitis and Crohn's disease. The histopathological features of Crohn's disease are similar to Johne's disease, a debilitating condition that affects livestock. On the other hand, intestinal mucositis (IM), which often manifests in cancer patients undergoing chemotherapy, affects primarily the small intestine. Current therapies for IBD and IM attempt to reduce inflammation and injury to the bowel but these are often ineffective.

### **Aims and Significance**

Emu Oil is sometimes used to alleviate muscle soreness, but its potential to treat other human health disorders remains largely unexplored. In two previous Honours projects (Lindsay et al; Mashtoub et al: manuscripts submitted for publication) EO has revealed preliminary indications of improved intestinal repair, although the mechanism underlying this effect remains unknown. The current study will seek to define a potential mechanism of action for EO by determining its effects on intestinal mucins and cell kinetics of the intestinal enterocytes (cells that line the intestine).

### **Techniques to be used**

EO treated gastrointestinal tissues collected from rats with experimentally-induced IBD and IM will be subjected to mucin staining and subsequent localisation and quantification. Different types of mucin will be determined and correlated with histological parameters (villus height/crypt depth) and enterocyte kinetics (proliferation/apoptosis) using immunohistochemistry. Some small animal handling will be involved.