



# A treatment for Crohn's Disease

## • A targeted treatment for the recurrence of Crohn's Disease

### The opportunity

Crohn's disease is an inflammatory bowel disease (IBD) that causes inflammation in the lining of the digestive tract. This inflammation causes abdominal pain, severe diarrhoea, fatigue, weight loss and can lead to life-threatening complications such as intestinal blockages, ulcers in the intestine, and malabsorption of nutrients. The prevalence of Crohn's in the US is 199 cases per 100,000 persons.<sup>1</sup>

There are many treatment options available to manage Crohn's disease, however, even with these options, approximately 50% of Crohn's disease patients undergo an intestinal resection within 10 years of diagnosis and after five years after initial resection surgery, approximately 50% of patients will be symptomatic again.

The total economic burden of CD in the USA and Europe is estimated at annual total costs of €30 billion<sup>2</sup>. Accordingly, there remains a need for more effective methods of treatment for Crohn's disease.

Along with collaborators, researchers at MCRI have identified a species-specific change to the microbiome that provides an opportunity to better screen for relapse of disease after surgery and identifies a more targeted and effective treatment strategy.

### The technology

Researchers have identified that the presence of the *Proteus* genera, even in low abundance is strongly associated with an increase in disease recurrence after surgical resection. Importantly:

- The presence of *Proteus* was not found in healthy or surgical controls; and
- When detected at 6 months post –operatively *Proteus* was associated with a 13-fold increase in the risk of disease recurrence.

### Applications

The current data supports the development of a targeted treatment against the *Proteus* phylum, which will provide a more efficacious treatment by treating the causative microbial agent for relapse after surgical resection in Crohn's patients.

Other applications could include the development of a screening test for relapse of Crohn's after resection.

### Opportunity for partnership

The Murdoch Childrens Research Institute is seeking a partner to develop a targeted treatment against the *Proteus* phylum, for use in Crohn's disease.

### Intellectual Property

This technology is the subject of an International (PCT) Patent Application No. PCT/AU2016/050512 in the name of Murdoch Childrens Research Institute and St Vincent's Hospital Melbourne. The application relates to methods of diagnosing and treating Crohn's disease.

### Key publications

Microbial Factors Associated with Postoperative Crohn's Disease Recurrence. Emily K. Wright, Michael A. Kamm, Josef Wagner, Shu-Mei Teo, Peter De Cruz, Amy L. Hamilton, Kathryn J Ritchie, Michael Inouye, Carl D. Kirkwood; *Journal of Crohn's and Colitis* Jul 2016, jcw136; DOI: 10.1093/ecco-jcc/jjw136

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<sup>1</sup> Kappelman MD, Rifas-Shiman SL, Kleinman K, Ollendorf D, Bousvaros A, Grand RJ, Finkelstein JA. The prevalence and geographic distribution of Crohn's disease and ulcerative colitis in the United States. *Clin Gastroenterol Hepatol*. 2007; 5:1424-9

<sup>2</sup> Floyd, D.N., Langham, S., Séverac, H.C. et al. *Dig Dis Sci* (2015) 60: 299. doi:10.1007/s10620-014-3368-z