



## Commercial Opportunity

# Selective Treatment for *C. Difficile* Infection

Scientists at Aston University have developed a range of novel compounds which selectively inhibit the growth of *C. difficile* whilst sparing other gut organisms. These compounds may prove useful in the treatment of *C. difficile* infections. Aston's Business Partnership Unit is now actively seeking commercial partners to exploit this innovative treatment.

bacteria, exacerbating the life threatening effects of *C. difficile*-associated diarrhoea. Vancomycin is more effective but many strains of *C. difficile* are resistant to treatment with this antibiotic.

A family of compounds that are active against *C. difficile* and other bacterial pathogens but which are inactive against the benign gut flora and to which existing bacterial strains have no resistance would therefore be highly desirable.

### Highlights

- Novel inhibitors of *C. difficile*
- Do not affect other gut flora
- Good activity at relatively low concentration (the best compounds show minimum inhibitory concentrations of less than 10 micrograms/millilitre)

### Background

There is a pressing clinical need for effective new agents to combat bacterial infection. In particular, *Clostridium difficile* can be problematic to treat. Cases of illness attributable to *C. difficile* have doubled in the last two years as a result of strains of this bacterium emerging that are resistant to the commonly used antibiotics.

Historically, antibiotics such as Opt-80, Vancomycin, and Metronidazole have been used to treat *C. difficile* infection. However, Metronidazole is indiscriminate in its antibacterial activity and will attack various gut colonizing

### The Technology

Scientists at Aston have developed a range of novel compounds that are active against *C. difficile*, but which do not affect other gut flora and to which existing clinical strains of *C. difficile* do not show resistance.

It is known that the enzyme dihydroorotate dehydrogenase (DHODase) isolated from *Clostridium oroticum* can be inhibited. However, the treatment of whole organisms using inhibitors of DHODase has not been considered, and the study of DHODase derived from *C. difficile* and other Gram positive bacteria has been limited.

The Aston group have now synthesized a range of DHODase inhibitors and found them to be excellent inhibitors of *C. difficile* activity.

## Intellectual Property Protection

This technology is the subject of a UK priority patent application:

| <i>Title</i>                     | <i>Pending Applications</i> | <i>Priority Claimed</i> | <i>Our Ref</i> |
|----------------------------------|-----------------------------|-------------------------|----------------|
| APT Inhibition of <i>C. diff</i> | GB 0909213.1                | May 28, 2009            | PAT-2009-018   |

## Further Information

Further information can be made available and commercial discussions commenced on entering into a non-disclosure agreement.

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