

# Séminaire

**Institut de Biologie Structurale J.P. Ebel**  
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**Conférencier invité**

Vendredi 14 Déc. 2012

**A 11h - Salle des séminaires de l'IBS**

**Par Bruce Turnbull**  
**University of Leeds, UK**

School of Chemistry and Astbury Centre for Structural Molecular Biology

## Understanding, inhibiting and exploiting bacterial toxins

The surface of every living cell is covered in complex carbohydrates. Binding interactions between these sugars and proteins are essential for many biological processes including infection by viruses and bacteria. In this lecture I will describe how we are using a combination of synthetic chemistry and biophysical methods to study a family of carbohydrate-binding proteins that are the toxins responsible for cholera and other diarrhoeal diseases. The bacterial toxins enter cells lining the intestine by first sticking to sugars at the cell surface; therefore, mimics of the carbohydrate ligands have potential as anti-diarrhoeal drugs. Synthetic oligosaccharides have allowed us to study these binding interactions in detail and to address questions such as why people with certain blood groups are affected more severely by cholera? I will explain how we can unravel complex inhibition mechanisms using a variety of biophysical techniques, and how we can modify the toxins for future applications in drug delivery and synthetic biology.

**Hôte : F. Fieschi (IBS/Groupe M &P)**