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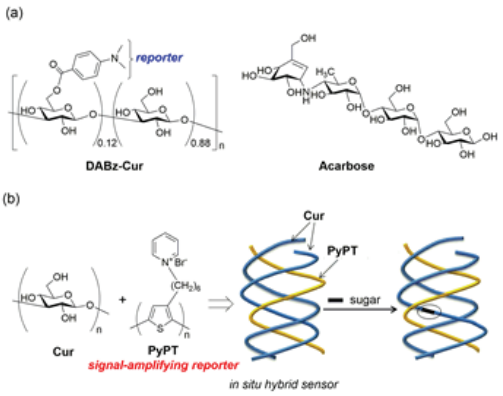
Pharmaceutical Oligosaccharide sensing by a chemical approach

Selective sensing of oligosaccharides in aqueous media is a challenge in current chemistry due to their heavy hydration and stereochemical diversity. Thus, the develop¬ment of selective saccharide sensor that functions in aqueous media is of particular significance and benefit not only from the scientific but also from the application point of view.

In this study, we synthesized reporter-modified curdlan (DABz-Cur) as a saccharide chemosensor, and investi¬gated its abilities for sensing a variety of oligosaccharides by using circular dichroism spectroscopy to find a specifically high sensitivity for one of tetrasaccharides, i.e. acarbose shown in Figure 1a. Acarbose is a drug to treat type-2 diabetes mellitus and obesity by inhibiting α-glucosidase that releases glucose from higher carbohydrates, and therefore its detection is of particular significance from the diagnostic viewpoint. The saccharide sensing results of further interesting approach by an in situ hybrid sensor with Cur and PyPT in Figure 1b and their detailed supramolecular complexation will be discussed.



Biography

Gaku Fukuhara was born in Hyogo, Japan in 1979. He earned his PhD degree in 2007 (Osaka University). After earning PhD degree, he moved to Massachusetts Institute of Technology to work with Professor Timothy M. Swager. He is currently an Assistant Professor in Osaka University since 2008. Now, he is appointed as a Guest Editor of *Journal of Photochemistry and Photobiology A: Chemistry*. He is an author of 77 papers, patents, books, and accounts.

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