Glycosyl cation: from mimicry to observation

The central reaction in glycosciences is glycosylation, the formation of the glycosidic bond that links a sugar to another one or to other entities including proteins and lipids. It can be performed enzymatically by Nature through the use of glycosidases and glycosyl transferases or chemically using glycosyl donors and acceptors. Surprisingly, while the enzymatic mechanism has gained a high level of knowledge and sophistication,¹ the details of the chemical glycosylation mechanism are still poorly understood² but both mechanisms probably involve transient glycosyl cations. Study and mimicry of these ions could have a strong impact on applied and fundamental aspects of glycosciences. We have recently disclosed the reality of glycosyl cations in superacid and studied their shape and reactivity.³

Designing chemically stable analogs of this ionic species can produce potent glycosidase inhibitors with therapeutic potential.⁴ Our group has contributed to this domain using in house synthetic strategies.⁵,⁶

We are seeking for a PhD candidate with strong background in organic chemistry, motivation and team spirit to develop these two domains further. The deadline for applications is the 11th of May 2016. The PhD student is expected to start in October 2016.

---

² L. Bohé, D. Crich, A propos of glycosyl cations and the mechanism of chemical glycosylation. C.R.Chimie 2011, 14, 3-16.