Peptides and Peptidomimetics as Receptors for Anions in Aqueous Solution

Katrina A Jolliffe*

School of Chemistry, The University of Sydney, NSW, Australia
kate.jolliffe@sydney.edu.au

The selective recognition of anions has numerous applications in areas as diverse as the environment and medicine. Most of these applications require anion recognition to occur in an aqueous environment, but the design of receptors capable of selective binding to anions in water is difficult, predominantly as a result of the high hydration energy of anionic species.¹

In natural systems, highly efficient and selective anion recognition is achieved through the construction of large peptides/proteins that take advantage of the numerous H-bonding interactions available from various amino acids with additional contributions from NH groups along the protein backbone. This has inspired research into the development of synthetic anion receptors that combine both natural and non-natural binding motifs. The design, synthesis and evaluation of novel anion receptors (Figure 1), based on peptidic or peptidomimetic scaffolds, that are capable of binding to anions in aqueous solution will be presented.²⁻⁴

Figure 1. Representative anion receptors

References