

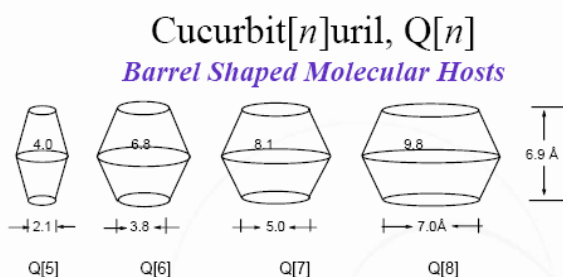
Versatile Drug Carriers for Improved Drug Formulation and Delivery

Platform Technology

Cucurbiturils (Qs) are a family of rigid, chemically and thermally robust container molecules that are superior to cyclodextrins.

Qs are self-assembling, macrocyclic compounds that are synthesized from the acid catalysed condensation of formaldehyde with glycoluril.

Qs resemble open-ended barrels, providing a hydrophobic cavity with different modes of binding. The variety of sizes available (Q5 to Q10) and their hollow structure provide a wide range of possible applications as carriers for absorption or delivery of guest molecules in a number of different environments.



Qs have been synthesised using novel methods which provide a range of sizes with a high degree of purity for each size. Qs synthesised by this process allow for a rapid method of screening encapsulation of compounds.

Qs can be produced in commercially viable quantities, with a cost comparable to that of cyclodextrins. Qs bind compounds with higher efficiency than cyclodextrins; at a ratio of 1:1 compared with 50:1 for cyclodextrins.

Qs are engineered to allow manipulation of physical characteristics such as water solubility, and allow for polymer attachment and formation of columns and networks.

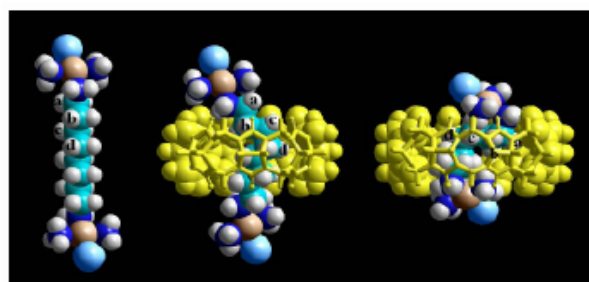
The Market

The size of the drug delivery market in the US was \$20-\$40 billion in 2000 and estimated at over US\$62 billion in 2005. The global market for Q's marketed comparator, cyclodextrins was valued at over US\$133.2 million in 2005. The pharmaceutical industry accounted for 15% of this market share, valued at US\$23million.

Improved Drug Formulation

Q's provide a method for encapsulation a range of pharmaceutical compounds with the benefit of:

- Improved solubility and bioavailability
- Reduced toxicity
- Reduce reactivity and degradation of active drug
- Delivery of pro-drugs
- Controlled release
- Increase shelf life
- Extending patent life
- Improved treatment compliance



Cut-away presentations of: free (left), Q[7] (middle) and Q[8] (right) binding models of the platinum drug

The Scientific Team

Dr Anthony Day and his research group at the School of Physical, Environmental and Mathematical Sciences at UNSW have pioneered cucurbiturils.

Investment Opportunity

NewSouth Innovations is seeking a commercial partner to licence Q platform technology.

NewSouth Innovations is also seeking the opportunity to work with pharmaceutical and biotechnology companies to use Q technology to solve problems with drug formulation and delivery.

Further Information:

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