

Peptide Stabilisation and Delivery

Market Overview

Peptides and proteins are widely recognised as valuable leads for the development of novel therapeutics across a broad spectrum of diseases and indications. They can bind to their receptor targets in the body with high potency and specificity, thus requiring lower doses and producing fewer side effects than traditional small molecule drugs. Unfortunately, the therapeutic advantages of current peptide and protein drugs are significantly offset by their susceptibility to proteases (lack of stability), their poor bioavailability and the need for larger surfaces for protein-to-protein interactions. Our technology provides a means to combine the potency and specificity of a peptide with the potential to gain the stability and bioavailability of a small molecule.

Development Status

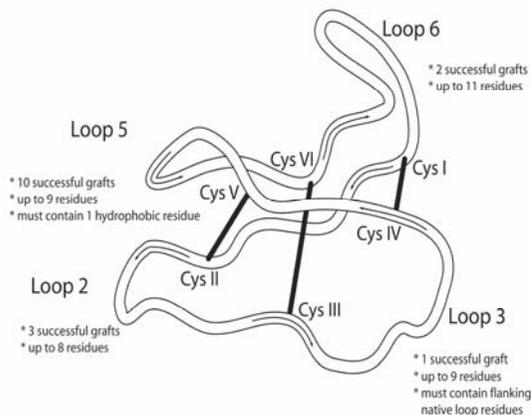
It is based on Cyclic Cystine Knot (CCK) peptides which offer solutions for problematic peptide drug leads by providing the opportunity for grafting desired bioactivities into a well characterised pharmaceutically optimised framework.

Over 600 variants of these unique peptides have been identified in a variety of plants. A large number of these have been well characterized by researchers at the IMB. The peptides consist of a small protein framework in which the amino acid backbone of the protein is cyclic, and the structure is braced by a knotted topology of cross-linking (disulfide) bonds.

This unique structure affords the CCK peptides unusually high stability and resistance to proteases. This stability has been well demonstrated under physiological conditions. The ability to resist proteases and stomach acids should provide a reliable delivery means for active peptide sequences inserted within the CCK structure.

This demonstrates the lack of enzymatic degradation when the prototypic peptide Kalata B1 is subjected to Thermolysin assays.

Regions of the CCK framework where variability is well tolerated have been identified providing ample room for insertion of up to 11 peptide residues. This work has involved the insertion of pharmaceutically relevant activities. In addition, the conversion of non-cyclic peptides into stable cyclic proteins has been well demonstrated.



Intellectual Property

The intellectual property relating to this development program consists of two patents and a volume of know-how relating to CCK technology including access to a growing database of new candidates for development.

Business Opportunity

We are currently seeking collaborative partners with peptide leads and development candidates, to develop stable, optimised drugable compounds ready for pre-clinical development.

