

CYCLOTIDES



A Natural Plant Defence Mechanism

Creation of crop plants with enhanced self defence mechanisms against plant pests and pathogens.

Cyclotides are bioactive plant derived proteins that comprise a structural framework known as the cyclic cystine knot (CCK). The CCK framework confers exceptional stability to the proteins and resistance to heat, chemical and enzymatic digestion. A postulated natural function of cyclotides is in plant defence and a number of cyclotides have demonstrated insecticidal, nematocidal and molluscicidal activity.

We are seeking partners with an interest in working with Professor David Craik's laboratory at the Institute for Molecular Bioscience at The University of Queensland (UQ) in the field of cyclotides, peptide chemistry and plant genetics for development of transgenic crop plants, with cyclotide conferred resistance against agricultural pests, such as nematodes, insects, molluscs and bacteria.

More than 200 cyclotide sequences have been reported to date, although it is estimated that the cyclotide family probably comprises around 50,000 members, making it a particularly large family of plant proteins. Cyclotides had been found in the agriculturally important Fabaceae (legume), Rubiaceae (coffee), Violaceae (violet) and Cucurbitaceae (squash) plant families.

UQ's Intellectual Property Portfolio

UQ has proprietary technologies, IP rights and know-how relating to cyclotide genes, gene expression systems (constructs encoding cyclotides) and modified or grafted cyclotides (in a CCK framework) for use in agricultural plants.

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