



REGIONAL CENTRE FOR BIOTECHNOLOGY
Seminar series

**Applications of RNAi: A New Generation Technology for
Pest Control**

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Monday, January 21, 2013
11:00 am
Seminar Room

Abstract

RNA interference is a post-transcriptional gene regulation mechanism which naturally occurs in almost all plants, animals, nematodes, fungi and insects. The ability to achieve targeted down-regulation of genes using RNAi has made it a successful tool in functional genomics. More interesting and novel uses of RNAi have been the demonstration of host induced RNAi to combat plant diseases and insect pests. The targeted down regulation of pathogen effector proteins or unique genes can cripple the colonization process making pathogen less competent to complete its life cycle. Soybean cyst nematodes (SCN) which colonize plant cells by injecting parasitism (effector) proteins and converting them into elaborate feeding sites to obtain nourishments were less successful in completing their life cycle on host plants expressing siRNA targeting nematode parasitism genes. mRNA abundances of these targeted nematode genes were specifically reduced in nematodes feeding on plants expressing corresponding RNAi constructs. This host-induced RNAi of all four nematode parasitism genes we tested have led to a significant reduction in the number of mature nematode females. Host induced RNAi has been considered as a potential new generation technology for pest control especially in scenarios where current available technologies have not been very effective.
