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### Engineering plant genome for cold tolerance

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Low/freezing temperature is one of the most important environmental factors that not only restrict the geographical area for the cultivation of crops but also account for huge losses in plant productivity. Freezing tolerance, in most temperate plants is acquired by the phenomenon called “cold acclimation”. Through genetics, molecular, physiological, biochemical and functional genomics approach, a large number of genes and molecules have been implicated in cold tolerance. Understanding the mechanism of cold stress tolerance and genes involved in the cold stress signaling network has practical importance for crop improvement. Our laboratory has identified and successfully cloned both genomic and cDNA clones of a protein homologous to *Arabidopsis* Kin1 gene family of cold induced proteins from several varieties of *Brassica oleracea*. We transformed a cold susceptible plant (tomato) with this gene and are studying its influence on cold resistance in the backdrop of the observation that the protein expresses constitutively at ambient temperatures in local cold tolerant varieties, contrary to the reports of its induction during cold. We, therefore, believe that it may be responsible for cold tolerance as opposed to a signal of cold stress.

#### Biography

Riffat John has completed her PhD from Indian Institute of Technology and Postdoctoral studies from ICGEB, India. She is an Assistant Professor at the Department of Botany, University of Kashmir. She has published research papers in reputed international journals and her research interests are genomic and proteomic understanding of stress tolerance in plants.

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