Random Antisense Mutagenesis (RAM) Approach for Functional Genomics in *Arabidopsis*

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Random antisense mutagenesis (RAM) approach opens new possibilities for efficient large-scale functional assignment of expressed sequences in plants. The phenomena of gene disruption provide a powerful method for understanding gene function through the creation of transgenic plants expressing a gene sequence that disrupts the endogenous gene. RAM approach has a number of advantage as follows: dominant nature of the mutant phenotype allows us to identify mutants at early generation, the function of the essential and/or novel plant genes could be easily defined, identification of *in vivo* function of a gene in a multi-gene family is more feasible, *in vivo* function of rarely expressed gene could be also identified, and it is easy to clone a corresponding gene by a simple PCR method. Also, advanced vector system containing inducible promoter could be effective to avoid lethality of plants by antisense disruption of essential gene. Our principal objective is to maximize the value of our RAM technologies through the development of multiple products in a broad range of industries including agriculture, agricultural chemicals, horticulture, and floriculture. The useful genes with known *in vivo* functions, which are obtained through the molecular analysis of interest mutants, help to make more and better agricultural products available to more people. Gene products from lethal-related and in part color mutants offer the opportunity of manufacturing new agricultural chemicals such as herbicide and growth regulators, those from morphological mutants help agricultural companies to develop valuable transgenic plants and to apply high value-added plants in the floriculture and horticulture, and those from physiological mutants help to develop plant growth regulators.

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