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Research Area: **HGG** **Duration of Award: 1 Year**

Project Title: Fractional Analysis of Chromosome 2(2H) Fusarium Head Blight Resistance QTL.

PROJECT 1 ABSTRACT

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Our ultimate **goal** is to facilitate the development of malting barley cultivars with commercially acceptable FHB resistance. Towards this goal we are working to clone the gene (or genes) responsible for the major Fusarium Head Blight (FHB) resistance quantitative trait locus (QTL) found on barley chromosome 2(2H). Since this is a long-term goal, a more immediate goal is to facilitate the development of breeding material by separating the FHB resistance traits of CI4196 from its commercially undesirable traits via classical genetic manipulations and mutagenesis. This will also provide us with better-defined and smaller genome regions to target for cloning.

The specific objectives for this year are: **1) develop improved 6-rowed germplasm. Such lines should contain minimal chromosome 2(2H) FHB QTL regions while maintaining FHB tolerance; 2) continue development of a saturated genetic and physical map of the chromosome 2(2H) FHB QTL region; and 3) screen a mutagenized population of CI4196 for increased susceptibility/resistance to FHB and several morphological mutants that improve the agronomic qualities of CI4196.** The proposed work addresses several FY06 research priorities for the Host genetics and Genomics program. These include Genetic analysis and mapping of a novel FHB resistance in barley; Develop user-friendly markers which will accelerate gene deployment via MAS; Validate and refine FHB resistance QTL; Develop BAC contigs and saturation maps of an important QTL region to facilitate MAS and map-based cloning; Select enhanced/resistance susceptibility mutants to help identify genes involved in FHB resistance; Mutants that enhance CI4196 agronomic qualities will also be selected from the same populations.