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Project Title: Saturation Mapping of Chromosome 2(2H) Fusarium Head Blight Resistance QTL.

PROJECT 2 ABSTRACT

(1 Page Limit)

The barley chromosome 2H Fusarium Head Blight (FHB) resistance QTL has been identified in all crosses and all mapping experiments conducted so far. Thus it appears to be a robust and consistent region conferring resistance to the FHB disease. In order to characterize the genes involved with this resistance, we have undertaken to construct a physical contig of this chromosome region with the eventual goal of cloning the genes involved. The initial step is map saturation with markers. This has been partially, and will continue to be, accomplished by mapping ESTs identified as belonging to this region. ESTs are identified from rice by synteny with the barley chromosome 2H region, from wheat based on the bin mapping accomplished by others in wheat deletion lines, and by transcription profiling using the Affymetrix Barley1 chip. All molecular probes mapping to the QTL region are used to identify barley BAC clones which are then fingerprinted to assemble them in contigs. An additional goal is to separate the FHB resistance trait in CI4196 from deleterious traits, such as height and late maturity. Plant breeders have produced very large populations to try to separate these traits by recombination without success. To provide an alternative approach, we propose to mutagenize the CI4196 population and select for short straw and early flowering mutants.