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Project Title: Function of Pheromones in *Gibberella zeae*.

PROJECT 1 ABSTRACT

(1 Page Limit)

Our goal for this proposal is to study the function of the sex pheromone system in *Gibberella zeae*. In previous work funded by USWBSI in FY04, we used the genomic sequence of *G. zeae* to find both pheromone precursor genes (ppg). The *ppg1* pheromone gene from *G. zeae* has high homology with α -factor-like pheromone genes of *M. grisea*, *N. crassa*, and *Sordaria macrospora*. A candidate for *ppg2* was identified using homology and syntenic relationships with other fungi. We also found both G protein-coupled pheromone receptors by homology with *pre1* and *pre2* of *N. crassa*. We plan to characterize knock-out mutants of *ppg1*, *ppg2*, *pre1*, *pre2*, *mat1*, *mat2* and combinations of these genes for sexual fertility. We will also study the transcription patterns of *ppg1*, *ppg2*, *pre1*, and *pre2* using a GFP reporter gene.