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Project Title: Understanding Routes for Barley Infection.

PROJECT 1 ABSTRACT

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Our previous studies have focused attention on the colonization by the scab pathogen of the lemma and palea trichomes on the lemma and palea. Our work has shown that the trichomes somehow trigger a response in the fungus to form a large cell, which then initiates penetration. When conidia germinate on or near the dense clusters of trichomes hyphae swell near the tips, branch, become thinner, and penetrate. The focus of this proposal is to understand the role of trichomes in barley susceptibility and to progress towards using this fungal entry-point as a target for control of scab disease.

We propose to:

- (1) Silence the trichome gene and examine glabrous barley for effect on disease.
- (2) Examine the interaction between *F. graminearum* and resistant and susceptible barley at a critical stage of infection using gene expression analysis.