## FUBT, A PUTATIVE MFS TRANSPORTER, PROMOTES SECRETION OF FUSARIC ACID IN THE COTTON PATHOGEN *Fusarium oxysporum* f. sp. *vasinfectum*

Frankie K. Crutcher Jinggao Liu Lorraine S. Puckhaber Robert D. Stipanovic Alois A. Bell USDA, ARS, SPARC College Station, TX Robert L. Nichols Cotton Incorporated Cary, NC

## Abstract

Fusaric acid (FA), a phytotoxic polyketide produced by *Fusarium oxysporum* f. sp. *vasinfectum* (FOV), has been shown to be associated with disease symptoms on cotton. A gene located upstream of the polyketide synthase gene responsible for the biosynthesis of FA is predicted to encode a member of the major facilitator superfamily (MFS) of integral membrane transporter proteins known to confer resistance to various antibiotics and toxins in fungi and bacteria. Disruption of the transporter gene, designated *FUBT*, resulted in loss of FA secretion, decrease in FA production, and a decrease in resistance to high concentrations of FA. Uptake of exogenous FA was unaffected in the disruption transformants, suggesting that FA enters the cell in *Fusarium* by an independent mechanism. Thus, *FUBT* is involved both in the extracellular transport of FA and in resistance of *F. oxysporum* to this non-specific toxin. A hypothetical secondary resistance mechanism, the conversion of FA to fusarinolic acid (HOFA), was observed in *FUBT* deletion mutants. Molecular analysis of key biochemical processes in the production of FA may lead to future resistance to this economically important plant pathogen.