

# **1825 Identification of Genes Differentially Regulated during Fiber Cell Initiation in *Gossypium hirsutum* L. Texas Marker-1 Ovules by Gene Expression Profiling**

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A cotton oligonucleotide microarray was utilized to identify genes in the auxin and gibberellic acid signaling pathways in cotton ovules cultured *in vitro*. Addition of auxin to liquid BT media is essential for fiber initiation and elongation for day-of-anthesis (DOA), *Gossypium hirsutum* L., Texas Marker-1 (TM-1) ovules. Gene expression profiling with a cotton oligonucleotide microarray was performed on TM-1 DOA ovules grown in liquid BT media in the presence and absence of 5  $\mu$ M synthetic auxin (naphthalene acetic acid, NAA) and 0.5  $\mu$ M gibberellic acid ( $GA_3$ ). Ovules were collected at 1, 3, 6, 12, and 24 hours following phytohormone addition or control treatment. Ovules harvested from ovaries on the DOA and immediately frozen in liquid nitrogen served as a zero time-point common reference for both treatments. The microarray hybridization experimental design consisted of a double loop (one loop for each treatment) joined by the zero time-point reference. The results offer an unparalleled view of the early events of cotton fiber initiation that are regulated by phytohormones.