

1184 Consideration of xylem sclerenchyma and leaf and stem trichomes as potential models in Arabidopsis for cotton fiber differentiation

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As anatomical structures, cotton fibers are classed as trichomes, along with leaf and stem epidermal trichomes and root hairs. This classification expresses the commonality of these cell types as highly elongated epidermal cells, and there is genetic evidence for at least some commonality of control of their initiation. However, root hairs have thin cell walls, whereas trichomes and cotton fibers have thick cell walls. Analysis of microarray data indicated that deposition of cellulose in cotton fiber secondary walls has substantial similarity in its genetic control to Arabidopsis xylem sclerenchyma. This poster will present other data to help answer the question of whether the cell wall thickening of leaf and stem trichomes is analogous or not to the secondary wall thickening of cotton fibers. For support of this research we thank: Cotton Inc., Cary, NC; Depts. of Crop Science and Plant Biology, NCSU; and NSF Grant 0343982.