

**INHIBITION OF FIBER ELONGATION ON CULTURED  
COTTON OVULES BY LATRUNCULIN B**

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**Abstract**

Latrunculin B is a potent toxin produced by the Red Sea sponge *Latrunculia magnifica*. Its mode of action is to depolymerize F-actin to form a G-actin-latrunculin complex. It has been shown to inhibit cell or tissue elongation in several plant systems, but apparently it does not inhibit tissue differentiation, *i.e.*, miniature stature of tissues or plants result. A series of experiments were performed to determine if latrunculin B affects fiber elongation. One or 2 DPA ovules of Suregrow 125 were grown in 125mL flasks on 50 mL of Beasley-Ting medium with  $10^{-6}$ M each of IAA and GA. Treatments consisted of additions to the medium of latrunculin B dissolved in DMSO to give concentrations ranging from 0 to  $5 \times 10^{-7}$ M. Ovules were cultured for two weeks, and each experiment of four replications per treatment was repeated. Fiber development was estimated visually, by staining with Toluidine Blue O and measuring spectrophotometrically the amount of stain recovered by destaining, and by measuring fiber length. Latrunculin B completely inhibited fiber elongation at  $1 \times 10^{-7}$ M and caused at least a 10% reduction in fiber elongation when present as low as  $1 \times 10^{-9}$ M. Ovules cultured for one day in  $1 \times 10^{-7}$ M latrunculin B then transferred to toxin free medium for 14 days had fiber length inhibited by more than 50%. Latrunculin B clearly inhibited cotton fiber elongation at very low levels. The result implies that F-actin is essential for cotton fiber cell elongation.