

**P007** Mechanism of jasmonate-induced growth inhibition

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When plants are repeatedly wounded, they become stunted. However, mutants unable to synthesise jasmonate (JA) (*aos*) or to respond to it (*coi1*) are not stunted by this treatment. Direct application of JA also stunts growth, indicating that wound-induced growth inhibition is through the action of JA. Here we report a mechanism of JA-mediated growth inhibition of *Arabidopsis*. When *Arabidopsis* plants are exposed to JA there is a rapid increase in transcription of genes for synthesis of flavonoids, phenolics, terpenes, and for other secondary product pathways. To test the role of these pathways in JA-induced growth inhibition we isolated T-DNA knock-out mutations in genes for enzymes that catalyse key steps, and tested their response to JA. Lines with T-DNA insertions in the *chalcone synthase* (*CHS*) gene had reduced sensitivity to growth inhibition by JA. Significantly, JA increased flavonoid content of wild type plants but not the *chs* mutants. Flavonoids block polar auxin transport (PAT). The *aux1* mutant, which is deficient in PAT, was insensitive to growth inhibition by JA. Significantly, auxin-inducible expression of the reporter *DR5::GUS* was suppressed in roots by JA. Together, these results indicate that JA inhibits growth by activating transcription of *CHS*, which leads to an increase in flavonoids that suppress PAT, and thereby suppress the auxin-dependent promotion of growth.