

Regulation of gibberellin catabolism by touch

Theo Lange¹ and Maria João Pimenta Lange¹

¹*Braunschweig University of Technology, Institute of Plant Biology*

Touch-induced morphological changes in plants, called thigmomorphogenesis, include stunted growth and delay in flowering. In *Arabidopsis*, these changes have been associated to the phytohormone jasmonate (JA). However, those phenotypes are reminiscent of plants deficient in the phytohormone gibberellin (GA). Recently, we show that touch-induced morphological changes in *Arabidopsis* are GA-regulated and JA-independent. Endogenous GA-levels were analysed by gas chromatography-mass spectrometry, and transcript levels of GA-, JA-, and touch related genes were quantified by reverse-transcriptase polymerase chain reaction. Touch reduces endogenous GA-levels and, moreover, the resulting morphological changes can be restored by exogenous application of bioactive GA4. Furthermore touch induces expression of the gene *AtGA2ox7*, encoding an enzyme involved in GA-catabolism, and *Arabidopsis ga2ox7* loss-of-function mutants do not respond to touch, identifying this gene as a key-regulator for thigmomorphogenesis. Re-characterisation of recombinant *AtGA2ox7* revealed new properties for this enzyme that will be discussed.