

**Title** A  $\beta$ -D-xylosidase and a PR-4B precursor identified as genes accounting for differences in peach cold storage tolerance

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### Abstract

A transcriptome analysis was applied on two peach (*Prunus persica* L.) cultivars with different sensitivity to low temperature regimes to identify genes that might be involved in tolerance to extended low temperature storage. Peach fruit from 'Morettini No2' to 'Royal Glory', cultivars sensitive and tolerant to chilling injury (CI), respectively, were harvested at commercial maturity stage and allowed to ripen at room temperature (shelf-life, 25°C) or subjected to 4 and 6 weeks of cold storage (0°C, 95% R.H.) followed by ripening at room temperature. The use of  $\mu$ PEACH 1.0 microarray platform identified a number of genes that were differentially expressed in 'Morettini No2' and 'Royal Glory' fruit after the extended storage period. Based on their possible involvement in physiological processes related to cold storage and on their differential expression pattern, two heat shock proteins, a  $\beta$ -D-xylosidase, an expansin, a dehydrin and a pathogenesis-related (PR) protein were further selected for detailed analysis via RNA blot analysis. It is suggested that  $\beta$ -D-xylosidase and PR-4B precursor genes could be related to the different tolerance to CI observed in the two peach cultivars since generally higher expression levels were observed in cv. 'Royal Glory', the tolerant one. These two genes could play a role in peach tolerance to chilling injury.

<http://www.springerlink.com/content/132px86043280801/fulltext.pdf>