



Expression analysis of self-incompatibility-associated genes in non-heading Chinese cabbage

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ABSTRACT. In Brassicaceae, a self-incompatibility (SI) system mediates pollen-pistil interactions. Self-pollen could be recognized and rejected by incompatible pistils. Several components involved in the SI response have been determined, including *S*-locus receptor kinase (SRK), *S*-locus cysteine-rich protein/*S*-locus protein 11, and arm repeat-containing protein 1 (ARC1). However, the components involved in the SI system of Brassicaceae are not fully understood. Here, we detected expression patterns of 24 SI-related genes in non-heading Chinese cabbage (*Brassica campestris* ssp *chinensis* Makino) after compatible and incompatible pollination, and potential interaction relationships of these genes were predicted. *SRK* and *ARC1* transcripts increased initially 0.25 h after incompatible pollination, while kinase-associated protein phosphatase had an expression pattern that was opposite that of *SRK* transcripts during self-pollination. Plant U-box 8 was not required in the

SI response of non-heading Chinese cabbage. Our results showed that the SI signal of non-heading Chinese cabbage could occur within 0.25 h after self-pollination. The hypothetical interaction relationships indicated that plastid-lipid-associated protein and malate dehydrogenase could be negatively regulated by chaperonin 10, glutathione transferase, cytidylate kinase/uridylylate kinase, and methionine synthase by indirect interactions. Our findings could be helpful to better understand potential roles of these components in the SI system of non-heading Chinese cabbage.

Key words: Non-heading Chinese cabbage; Pollen germination; Hierarchical clustering; Self-incompatibility; Expression patterns