



# Fine mapping and candidate gene analysis of *Brtri1*, a gene controlling trichome development in Chinese cabbage (*Brassica rapa* L. ssp *pekinensis*)

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**ABSTRACT.** Trichomes are derived from the epidermis and constitute an ideal system for studying cell division in plants. Here, a Chinese cabbage doubled haploid (DH) line (FT) without trichomes was crossed with another DH line (PurDH-1) with trichomes to develop an F<sub>2</sub> population for fine mapping of trichome control genes. Genetic analysis showed that the trichome phenotype was controlled by a single dominant gene, *Brtri1*. Using 1226 glabrous individuals in the F<sub>2</sub> segregation population, *Brtri1* was localized to a 16.84 kb region between markers Pur6-31 and Pur6-39 on chromosome A06. One of the four complete open reading frames within the mapping region, *Bra025311*, encodes a MYB transcription factor and is highly homologous to the trichome regulatory gene *GL1* in *Arabidopsis thaliana*. It was thus regarded as a candidate gene for *Brtri1*. Comparative sequencing showed a 5-bp

deletion in the third exon of *Bra025311* in FT, resulting in a frame-shift mutation. No expression of *Bra025311* was detected in FT. A co-dominant indel marker close to this mutation site was developed for marker-assisted selection in Chinese cabbage breeding.

**Key words:** *Brassica rapa*; Trichome; Fine mapping; Clone