

P 36 Identification of Pepper cDNA and BAC Clone that Cosegregates with C Locus Controlling the Pungency in Chili Pepper

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Objectives

Pungency is one of the most important properties of chili pepper. Genetic analysis of pungency shows that *C* gene controls pungency in a qualitative manner. Recently, pungency studies have been focused on the isolation of *C* gene to understand the trait at the molecular level. We have recently reported the cloning of candidate genes on capsaicinoid biosynthesis pathway. Out of the genes, SB2-66 was presumed to be a putative capsaicinoid synthetase, which is on the last step of capsaicinoid biosynthesis. In this paper, SB2-66 was analyzed genetically to investigate the possible relation to *C* gene.

Materials and Methods

Plant material and pungency determination.

- : 242 F₂ plants from *C. annuum* cv. Maor, a bell inbred variety × *C. frutescens* BG2816, a pungent wild
- : Pungency determination was performed by Dr. Ilan Paran.

(Eyal B. et al. 2002)

RFLP analysis and genetic mapping
BAC library screening and fingerprinting

Results and Discussion

SB2-66, which was mapped on SNU Linkage Group 3 was found to be that in the same region of the *C* locus, based on comparative analysis with other pepper genetic maps including *C* locus. To confirm the relation of SB2-66 to *C* gene, we performed candidate gene analysis using F₂ population from *C. annuum* cv. Maor, a non-pungent bell pepper × *C. frutescens* BG2816, a pungent wild pepper. This analysis showed that SB2-66 cosegregated completely with the pungency phenotype. It is concluded that SB2-66 might be the *C* gene controlling the presence of pungency in chili pepper. In addition, we isolated five BAC clones covering the genome region around *C* locus. The BAC clones are a good resource for further analysis of genome structure in this region.