

Name: *Beta carotene (B)*

Accessions: OC2

Gene ID: Solyc06g074240

Map position: chromosome 6 (long arm).

Gene function: chromoplast-specific lycopene beta cyclase (*Cyc-B*).

Gene effect: The wild type allele *B* from wild species such as *S. pennellii*, *S. cheesmaniae* (and the sibling species *S. galapagense*) and *S. habrochaites* converts most fruit lycopene into beta-carotene.

Phenotypes: Plants harboring the *B* allele produce orange fruits instead of red ones due to the high levels of β -carotene and low levels of lycopene.

Description of accessions available: MT-*B* is a BC6Fn introgressed from LA1401 (*S. galapagense*).

Comments: There are at least three known alleles for *lycopene beta cyclase* gene in tomato: *B*, *b* and *og*. *B* is a gain-of-function allele present in some wild species (see above). The *old gold (og)* is a loss-of-function allele originated in cultivated tomato that improves lycopene content and has commercial interest due to lycopene's nutritional importance. The *b* is the "normal" allele present in most tomato cultivar, including MT. In *S. galapagense*, the *B* allele is linked to the dominant alleles *Sp* (indeterminate growth) and *Pts* (leaf morphology). The MT-*B* genotype is a recombinant harboring *B* and the recessive alleles *sp* and *pts*, which are characteristic of MT.

Figures:



Fruits of MT-*B* (left) and the control MT (right)

Bibliography

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