

Name: *single flower truss (sft)*

Accessions: Flo4

Gene ID: Solyc03g063100

Map position: chromosome 3

Gene function: CETS transcription factor that acts as a flowering inductor

Gene effect: plants with the mutated allele have a low flowering induction

Phenotypes: MT-*sft* plants present a strong vegetative development, flowering later, with reduced number of inflorescences and flowers per inflorescence. The inflorescences tend to be highly indeterminate, often with only one flower followed by the conversion of the rest of inflorescence into a vigorous shoot. The stem presents a large diameter and the leaflets margins are more divided than the control MT.

Comments: SFT is a long-distance translocable phloem protein considered to be the main component of the so called universal flower induction factor florigen. Heterozygous *sft* plants, in the background *sp*, are semi-determinate, which means that they have an extended vegetative growth with a sympodial index of 2 leaf nodes until the terminal inflorescence caused by the *sp* allele.

Description of accessions available: MT-*sft* is a BC6Fn introgressed from LA2460 into Micro-Tom (MT).

Figures:



MT-sft plants (right) with a vigorous vegetative growth and a reduced number of flower per truss. Note that the MT plant (left) formed fewer flowers before flowering.

Bibliography

Kerr EA (1982) Single flower truss '*sft*' appears to be on chromosome 3. Tomato Genetics Cooperative Reports 32: 31.

Krieger U, Lippman ZB and Zamir D (2010) The flowering gene *SINGLE FLOWER TRUSS* drives heterosis for yield in tomato. *Nature Genetics* 42(5): 459-463.

Lifschitz E and Eshed Y (2006) Universal florigenic signals triggered by FT homologues regulate growth and flowering cycles in perennial day-neutral tomato. *Journal of Experimental Botany* 57: 3405–3414.

Lifschitz E, Eviatar T, Rozman A, Shalit A, Goldshmidt A, Amsellem Z, Alvarez JP and Eshed Y (2006) The tomato FT ortholog triggers systemic signals that regulate growth and flowering and substitute for diverse environmental stimuli. *Proceedings of the National Academy of Sciences USA* 103 (16): 6398-6403.

Molinero-Rosales N, Latorre A, Jamilena M and Lozano R (2004) *SINGLE FLOWER TRUSS* regulates the transition and maintenance of flowering in tomato. *Planta* 218: 427–434.

Quinet M, Dubois C, Goffin M, Chao J, Dielen V, Batoko H, Boutry M and Kinet, J. M. (2006) Characterization of tomato (*Solanum lycopersicum* L.) mutants affected in their flowering time and in the morphogenesis of their reproductive structure. *Journal Experimental Botany* 57, 1381–1390.

Shalit A, Rozman A, Goldshmidt A, Alvarez JP, Bowman JL, Eshed Y and Lifschitz E (2009) The flowering hormone florigen functions as a general systemic regulator of growth and termination. *Proceedings of the National Academy of Sciences USA* 106 (20): 8392–8397.

Samach A and Lotan H (2007) The transition to flowering in tomato. *Plant Biotechnol* 24: 71–82.