

Recessive begomovirus resistance from the *Solanum Lycopersicum* cv. ‘Tyking’ is conferred by the *Ty-5* locus

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The *Tomato Yellow Leaf Curl Virus* (TYLCV) and *Tomato Mottle Virus* (ToMoV) resistant breeding lines, Fla. 8753 and Fla. 344, were each crossed to susceptible breeding lines to develop F₂ populations for mapping resistance loci. Resistant and susceptible progeny from two Fla. 8753 populations were selectively genotyped, and a test for transmission disequilibrium at the *SINAC1* locus was highly significant ($P < 0.0001$). Progeny of these selections were evaluated the following season, and approximately two-thirds of susceptible selections showed clear segregation for resistance. The *SINAC1* marker again co-segregated with resistance, and a recessive allele at this locus was indicated. Segregation among 120 progeny in the Fla. 344 population also indicated a recessive allele at the *Ty-5* locus as a major contributor to resistance. ‘Tyking’ was determined to be the donor of a chromosome 4 introgression at the *Ty-5* locus in each of these lines. This locus alone did not confer parental levels of resistance, and segregation for an additional locus was observed. It has been determined that the resistance in the breeding line Fla. 8383 is likely conferred by this additional locus; Fla. 8383 was used to develop an F₂ population that was phenotyped for resistance and is currently being genotyped by SolCAP for mapping of this allele.