Characterization of a RSV3 gene that confers strain-specific resistance to soybean mosaic virus

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Soybean mosaic virus, a member of the genus Potyvirus, significantly reduces soybean production worldwide. Rsv3, which confers strain-specific resistance to SMV, was previously mapped between the markers A519F/R and M3Satt in chromosome 14 of the soybean [Glycine max (L.) Merr.] genotype L29. Analysis of the soybean genome database revealed that five different NBS-LRR sequences exist between the flanking markers. Among these candidate Rsv3 genes, the full-length cDNA of the Glyma.14g204700 was successfully cloned from L29. Over-expression of Glyma.14g204700 in leaves inoculated with SMV inhibited viral infection in a soybean genotype lacking Rsv3. In addition, the transient silencing of the candidate gene caused a high accumulation of a virulent strain in L29 carrying Rsv3. Our results therefore provide additional line of evidence to support that Glyma.14g204700 is likely Rsv3 gene that confers strain-specific resistance to SMV.

Recent Publications


Biography

Dr. Kim has completed his PhD from the Department of Plant Pathology, North Carolina State University (NCSU) and postdoctoral studies from NCSU Department of Biochemistry. He is the director of Plant Clinic, Seoul National University. He has published more than 100 papers in reputed journals and has been serving as an editorial board member of Virology, Virus Research, and Scientific Reports.