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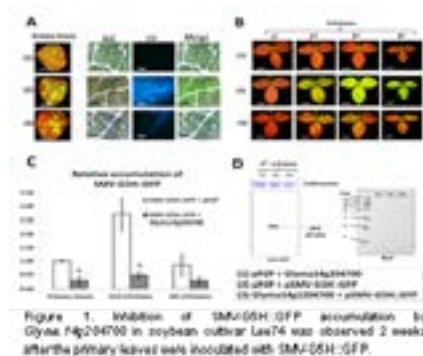
## Characterization of a *RSV3* gene that confers strain-specific resistance to soybean mosaic virus

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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

- Seo JK, Kang SH, Seo BY, Jung JK, Kim KH (2010) Mutational analysis of interaction between coat protein and helper component-proteinase of soybean mosaic virus involved in aphid transmission. *Molecular Plant Pathology* 11: 265-276.
- Seo JK, Kwon SJ, Cho WK, Choi HS, Kim KH (2014) Type 2C protein phosphatase is a key regulator of antiviral extreme resistance limiting virus spread. *Scientific Reports* 4: 5905.
- Seo JK, Lee SH, Kim KH (2009) Strain-specific cylindrical inclusion protein of soybean mosaic virus elicits extreme resistance and a lethal systemic hypersensitive response in two resistant soybean cultivars. *Molecular Plant-Microbe Interaction* 22: 1151-1159.
- Seo JK, Vo Phan MS, Kang SH, Choi HS, Kim KH (2013) The charged residues in the surface-exposed C-terminus of the soybean mosaic virus coat protein are critical for cell-to-cell movement and virion assembly. *Virology* 446: 95-101.
- Tran PT, Widyasari K, Kim KH (2018) Isolation and validation of a candidate *Rsv3* gene from a soybean genotype that confers strain-specific resistance to soybean mosaic virus. *Virology* 513: 153-159.
- Tran PT, Widyasari K, Park JY, Kim KH (2017) Engineering an auto-activated R protein that is *in vivo* activated by a viral protease. *Virology* 510: 242-247.

### 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*.

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