Molecular Breeding R.G., BioGreen 21 Program, RDA (Ramada Plaza Jeju, November 2-3, 2005)

과제 일련번호: 18

Breeding of self-compatible strains by RNA interference using *SP11/SCR* in *Brassica rapa* L.

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Self-incomparibility(SI) discriminating self and non-self pollen is regulated by *S*-locus genes in Brassica. In most *S*- haplotypes, a set of three highly polymorphic genes, *SLG*, *SRK*, and *SP11/SCR*, is located at the *S*-locus region. In this work *SP11/SCR* encodes a highly polymorphic Cys-rich small basic protein, which is the sole male determinant of *S*-specificity in Brassica. In other to disrupted *SP11* gene, SP11S9 and SP11S60 promoters fused to the SP11S52 and SP11S60 RNAi cassettes, and introduced into a self-incompatible strains. Transgenic plants *of B. rapa* L. were produced by inoculating hypocotyls sections with *Agrobacterium tumefaciens* strain EHA105 carrying a binary vector pBI101, which contains genes for kanamycin-resistance, *β-glucuronidase* (GUS) and hygromycin-resistance. A co-cultivation medium at pH5.2 with tobacco feeder cells was effective to enhance infection frequency evaluated by the number of hypocotyl sections. Transgenic plants in cv. Osome were obtained by inoculating the hypocotyl sections in the bacterial inoculum for 30 min, and co-cultivation at 25℃ for 3 days with the highest transformation efficiency. We finally obtained two hundred seventy transgenic plants. After self-pollination, PCR analysis of selected *NPT*II and *S*-allele specific primers T1 plants revealed that introduced RNAi vectors were experimented for pollination amplification test by aniline blue staining method. *SP11/SCR* transcripts of the transgenic plants were analyzed by RT-PCR and Real-time PCR. From these results obtained twenty three strains of self-compatibility in T1 transgenic plants. Detected by the antibiotics tolerant tested in T2 generation.

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† 주관과제명 (과제책임자): Brassica 웅성측 자가불화합성 유전자 SP11 영역의 RNAi에 의한 자가화합성 계통 육성 (순천대학교 노일섭)

‡ 총연구기간 (년차): 2003년 - 2005년 (3년차)