Resistance to stem rust race TTKS maps to the *rpg4*/*Rpg5* complex of chromosome 7(5H) in barley

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Race TTKS of the wheat stem rust pathogen (*Puccinia graminis* f. sp. *tritici*) is widely virulent for many wheat and barley cultivars worldwide. Recent tests also indicate that Midwestern barley cultivars carrying the durable resistance gene *Rpg1* are susceptible to race TTKS. To address the threat posed by this race to barley production in the Midwest, we initiated a project to identify resistance in the primary gene pool of barley. One of the most resistant lines identified was Q21861, which is known to carry *Rpg1* and also the *rpg4*/*Rpg5* complex. The double haploid population Q21861/SM89010 was evaluated to race TTKS at the seedling stage in the greenhouse. Resistance to race TTKS cosegregated with *rpg4*/*Rpg5*. Evaluation of informative recombinants in the *rpg4*/*Rpg5* complex from several crosses involving Q21861 suggested that *Rpg5* may be the gene controlling resistance to race TTKS, although high resolution genetic and physical mapping revealed other NBS-LRR type resistance genes in the region.