Mapping of the Ur-6 Gene Controlling Specific Rust Resistance in Common Bean. (C01-park171412-Poster)

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Abstract:

Bean rust, caused by Uromyces appendiculatus, is an important disease of common bean (Phaseolus vulgaris L.). Our objectives were to identify RAPD markers tightly linked to the Ur-6 gene for specific resistance to rust race 51 using bulked segregant analysis in an F2 population from the Middle American (MA) common bean cross pinto Olathe (resistant) x GN Nebraska #1 selection 27 (susceptible), and to map the Ur-6 gene on an existing linkage map constructed using recombinant inbred lines (RILs) from the MA cross GN BelNeb RR-1 x A55. A single dominant gene controlling specific resistance to race 51 was found in the F2 and confirmed in the F3. Four RAPD markers were detected in a coupling phase linkage with the Ur-6 gene. Coupling-phase marker OAG15.300 was the most closely linked to the gene at a distance of 2.4 cM. All linked markers detected in the F2 population also segregated in the RILs. The presence of these four markers was also determined in 33 genotypes resistant or susceptible to race 51 from Andean and MA gene pool.

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