monosomic, disomic, trisomic, and tetrasomic for chromosome 5A carrying the *Q* allele resulted in phenotypes that were speltoid, normal (square head), subcompactoid, and compactoid, respectively, indicating that the effects of

and 1 □g of plasmid DNA was spotted onto a nylon membrane and hybridized with the probe used to detect the clone initially for verification. Approximately 5 □g of plasmid DNA was digested with *Not*I to excise the insert. Sizes of BAC inserts were

Kosambi mapping function (Kosambi 1944) and a LOD of 4.00.

Analysis of mutants: M1:4 putative fast neutron-induced *q* mutants were grown in the greenhouse, and leaf tissue was

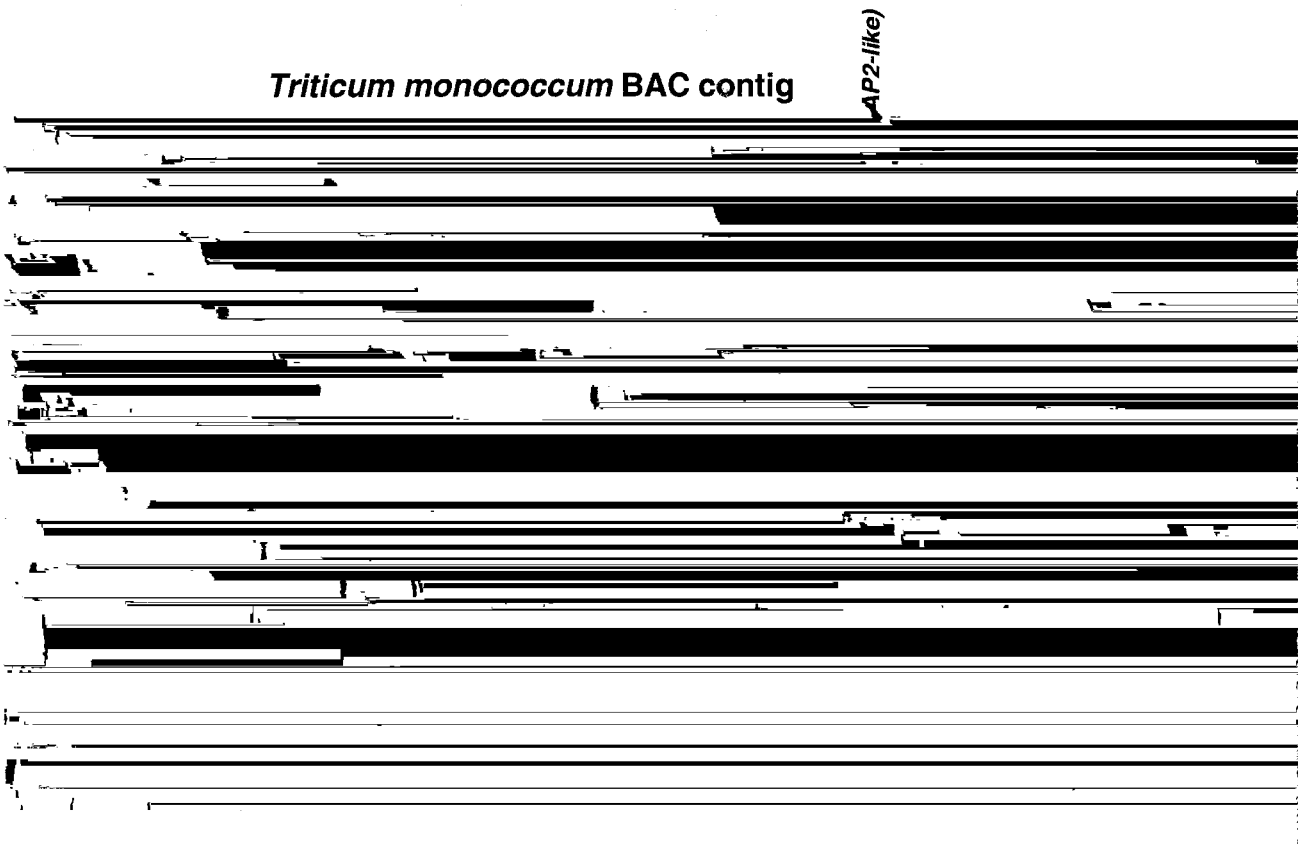

Figure 2.—The *T. monococcum* BAC contig anchored to the *T. aestivum* genetic map of the region containing the *Q* locus. Physical and genetic positions of *XksuP16* and BAC-derived markers are shown on the *T. monococcum* contig map and on the *T. aestivum* genetic map.

in 51 kb spanning 0.3 cM, giving a physical-to-genetic distance ratio of 170 kb/cM.

tion of three new BAC clones. Plasmid dot-blot analysis revealed that probe N4-01 did not hybridize to BAC

larity to database sequences were PCR amplified and tested as probes, but only one fragment (probe I22-0210; GenBank accession no. AY170870) was low copy. The sequence of probe I22-0210 was ~20 kb from *O11-*

Figure 4.—Comparison between the maize *ids* gene (GenBank accession no. AF-048900), barley AP2-like gene (GenBank accession no. AY-069953), *T. monococcum O11-Tmap2* (GenBank accession no. AY170867), and *T. aesti-*

Figure 5.—Molecular analysis of deletion sizes of five fast neutron-induced speltoid mutants. The genetic map of the region containing *Q* is to the left. The estimat166.7(n)-1100((317)T33 Tc[F(a)-11.1oitan)-11.1 leeculark(le)-11.ron31tanee de to The

oflenae

mosome 5A. This agrees with the notion that only very minor rearrangements between the A^m genome of *T. monococcum* and the A genome of common wheat have occurred. It also confirms the data presented by et al. 1995) t that tatttme chrom-e 5e of wheat

gion on chromosome 5B in wheat □ ssp. *dicoccoides* and durum □ ssp. *dicoccoides* populations. Suppressed recombination was not observed in the populations used for this study (Faris and Gill 2002), which involves chro-

known genes besides the *AP2*-like gene are present. This provides further evidence that the *AP2*-like gene may actually be *Q*.

The *AP2*-like gene proves to be a very promising can-

Endo, T. R., and B. S. Gill, 1996 The deletion stocks of common wheat. J. Hered. **87:** 295–307.

Endo, T. R., and Y. Mukai, 1988 Chromosome mapping of speltoid suppression gene of *Triticum aestivum* L. based on partial deletion in the long arm of chromosome 5A. Jpn. J. Genet. **63:** 501–506.

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