

February 11–16, 2001. The detailed protocols are available on line at http://wheat.pw.usda.gov/NSF/project/mapping_data.html and were as described in Qi *et al.* (2003). Five Southern blots (each we270(localioso2an70(se8.32(fe)-caliosoa-caliosototal-calioson)-28lioso130)-28lioso-211..9(al.l)Tj/Ft) 43472.237(Eco Tc(Q1)Tj/F3

signed to a chromosome bin according to presence or absence of a restriction fragment in a series of deletion lines. An example of localization of EST loci to individ-

Figure 1.—An example of local-

TABLE 1**Selected chromosome- and genome-specific ESTs of wheat**

gene density among A-, B-, and D-genome chromosomes. The gene density was less than one for A-genome chromosomes (except 4A and 6A) and more than one

TABLE 2

Selected patterns of intra- and interchromosome duplications and the lack of homeology displayed by multicopy ESTs of wheat

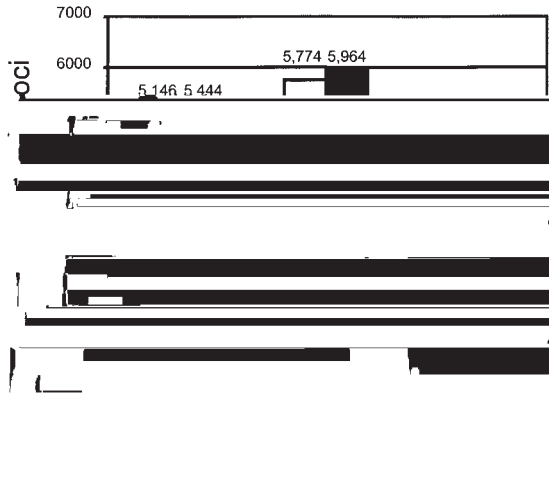


Figure 2.—Number of observed and expected EST loci for the A, B, and D genomes of wheat.

Mickelson-Young *et al.* 1995). With large-scale EST mapping, we have uncovered further structural changes in 4A and confirmed the 4B inversion and additional chromosomal structural changes in most of the B-genome

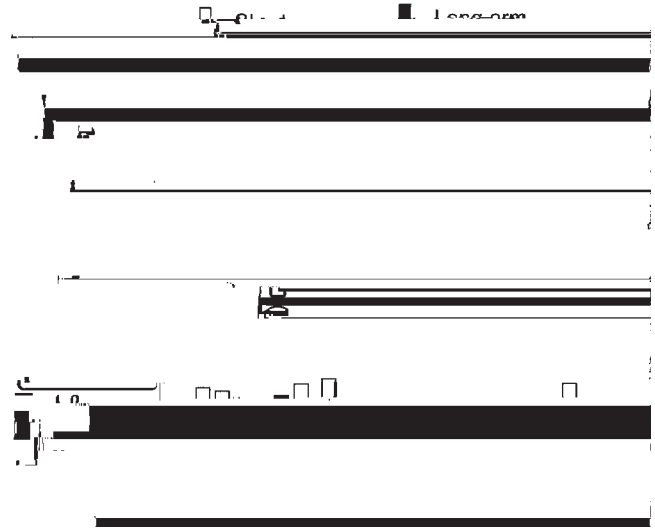


Figure 3.—Gene density in the 42 chromosome arms of wheat. Gene density was calculated by the ratio of observed to expected loci (on the basis of chromosome length).

Mapping strategy: Several features of the wheat EST

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Gale, 1992 Homoeologous translocations between group 4, 5 and 7 chromosomes in wheat and rye. *Theor. Appl. Genet.* **83**: 305–312.

throughput sequencing facilitates genome characterization and gene discovery. *Genome Res.* **12**: 795–807.
Qi, L. L., and B. S. Gill