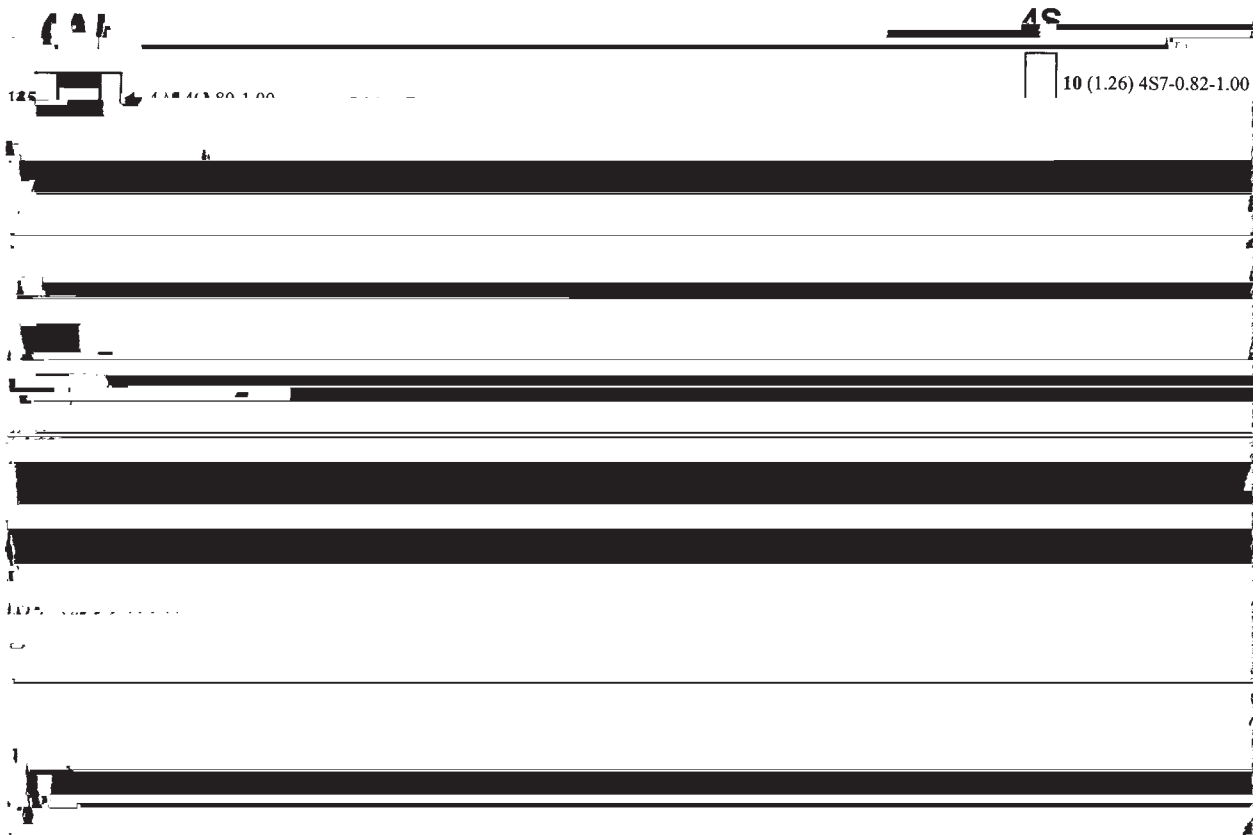






**TABLE 1** **$\chi^2$  analysis of the total and duplicated EST loci within homoeologous group 4 chromosomes**

Chromosome/arm	All EST loci			Duplicated EST loci		
	Observed loci	Expected loci <sup>a</sup>	<i>P</i> -value <sup>b</sup>	Observed loci	Expected loci <sup>a</sup>	<i>P</i> -value <sup>b</sup>



Figure



arms 4AL, 5AL, and 7BS, and two inversions (one pericentric and one paracentric; Figure 2; Naranjo *et al.* 1987; Anderson *et al.* 1992; Liu *et al.* 1992; Devos *et al.* 1995; Mickelson-Young *et al.* 1995; Nelson *et al.* 1995; Chen and Gustafson 1997). In addition, the present study confirmed the chromosome arm location of the 4A translocations previously detected by *in situ* hybridization (Chen and Gustafson 1997).

**New pericentric inversion:** This study established one additional inversion, a small pericentric inversion in the centromeric region of 4A (Figure 2). This new inversion  
Gu-0tafsonb417.5599

**TABLE 2**  
**Distribution of homoeologous group 4 wheat consensus ESTs on rice chromosomes**

Wheat bin	Rice chromosomes												No match	Total matches	<i>P</i> first	<i>P</i> second	
	1	2	3	4	5	6	7	8	9	10	11	12					
4S7-0.82-1.00			2	2										6	4	0.035	0.007
4S6-0.67-0.82			3											3	3	0.001	—
4S5-0.66-0.67														3	0	—	—
4S4-0.57-0.66														6	0	—	—
4S3-0.53-0.57											2	2		2	4	0.035	0.007
4S2-0.43-0.53											1			1	1	0.083	—
4S1-0.37-0.43	1						1							4	2	0.152	0.152
C-4S1-0.37			2										1	2	3	0.019	0.083
C-4L1-0.20			2				1				1			5	4	0.035	0.152
4L1-0.20-0.31			8				1							0	9	0.001	0.083
4L2-0.31-0.56			8											1	8	0.001	—
4L3-0.56-0.63			6										1	0	7	0.001	0.083
4L4-0.63-0.71	1		5											0	6	0.001	0.083
4L5-0.71-0.76			10		1									3	11	0.001	0.083
4L6-0.76-0.86			11											8	11	0.001	—
4L7-0.86-1.00			1											1	1	0.083	—
Total ESTs	2	0	58	2	1	0	3	0	0	0	4	4		45	119		

Bin 4AL13-0.59-0.66 contains adjacent segments of 4AS, 4AL, 7BS, and 5AL. In total, 80 ESTs were mapped in this bin, among which 35 mapped on the 4AS-native segment, 2 mapped on the 4AL-native segment, 4 mapped on the 7BS segment, and 20 mapped on the 5AL segment. The 19 remaining ESTs within this bin did not show a colinear relationship with the other homoeolo-

cation occurred before the paracentric inversion on the 4AL arm because the two 4AL-native segments within the region are interstitial and separated by the 5AL segments, as are the two 7BS segments. However, the temporal order of the larger pericentric inversion, the smaller pericentric inversion, and the paracentric inversion on 4AL remains unclear (Figure 2).

#### **Chromosomes 4B and 4D:**







**TABLE 5**

**TABLE 5**  
**(Continued)**

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Putative function

BlastX<sup>a</sup>

addition, a significant correlation between the copy number of Arabidopsis and tomato (*Lycopersicon esculentum*

for the total group of 440 unigenes, as genes covering most of the cellular functions were detected.



