

附表 1 显著 QTL 对各个性状的遗传效应

Supplementary table 1 Genetic effects of significant QTLs on individual traits

种类 Type	基因/性状 Gene/traits	株高 Stem height	主根长 Taproot length	侧根数 Num of lateral root	侧根长 Sum of lateral root length
1.4 个性状均为同向遗传效应 All the four traits had the same genetic effect	<i>RER4</i>	-1	-1	-1	-1
	<i>TOPII</i>	1	1	1	1
	<i>TIC62</i>	1	1	1	1
	<i>STY46</i>	1	1	1	1
	<i>CS26</i>	1	1	1	1
	<i>F-box</i>	1	1	1	1
2.株高&主根//侧根 效应相反 Plant height & taproot // lateral root effect is opposite	<i>PERK9</i>	1	1	1	-1
	<i>ZAT10</i>	1	1	-1	1
	<i>PLP2</i>	-1	-1	1	1
	<i>PIN3</i>	1	1	-1	-1
3.株高&侧根//主根 效应相反 Plant height & lateral root // taproot effect is opposite	<i>PCMP-H70</i>	-1	1	-1	-1
	<i>UMK3</i>	1	-1	1	1
	<i>RNJ</i>	1	-1	1	1
	<i>LIG4</i>	1	-1	1	1
4.株高//主根&侧根 效应相反 Plant height//taproot & lateral root effect is opposite	<i>ALFIN-1</i>	-1	1	1	1
	<i>ERECTA</i>	1	-1	-1	-1
5.对于侧根无影响 No effect on lateral roots	<i>SDH7B</i>	1	-1	0	0
	<i>RFS2</i>	1	-1	0	0
6.对于主根长无影响 No effect on taproot length	<i>LYM2</i>	1	0	1	1
	<i>TBL16</i>	-1	0	-1	-1
	<i>SG1</i>	-1	0	-1	-1
	<i>MUCI70</i>	-1	0	-1	-1
7.对于侧根数无影响 No effect on the number of lateral roots	<i>EB1A</i>	1	-1	0	-1
	<i>CCZ1</i>	-1	-1	0	1
	<i>IDH1</i>	-1	-1	0	-1
	<i>GLR2.1</i>	-1	-1	0	-1
8.效应存在动态变化 Have dynamic genetic effects	<i>Trx m4</i>	-1	-1-->1	1	1
	<i>UNE10</i>	1	1-->-1	0	0
	<i>ATL1</i>	小 大	> 大 小	0	1
	<i>RPL39A</i>	-1	-1-->1	1	1
	<i>KCS21</i>	-1	-1-->1	1	1-->-1-->1
	<i>SKD1</i>	-1	1-->-1	-1	-1

注：红色和蓝色表示正向和逆向遗传效应，灰色表示无明显遗传效应。

Note: Red and blue indicate positive and negative genetic effects, and gray indicates no obvious genetic effects.