

研究论文

不同优势小麦正反杂交种子与亲本自交种子发育前期基因表达差异

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摘要 为探讨小麦杂种优势形成的分子机理, 本研究选用优势不同的3个杂交组合, 以授粉后2、6和12 d的正反杂交种子与亲本自交种子为材料, 采用mRNA差异显示技术分析了不同优势正反杂交种子与亲本自交种子之间发育前期的基因表达差异。结果表明, 所有三个时期正反杂交种子与亲本自交种子之间存在明显的基因表达差异, 差异可归纳为特异型 (SPE)、沉默型 (SIE) 和单亲表达 (IEP) 三大类型, 且随着优势的减弱, 沉默表达所占比例增大, 而单亲表达所占比例减少。

关键词 [小麦](#) [正反交](#) [种子发育](#) [基因表达](#) [杂种优势](#)

分类号 [S512](#)

Differential Gene Expression between Reciprocal Cross-fertilized Kernels and Their Parents Seeds during the Early Stages of Seed Development in Wheat

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Abstract To understand the molecular basis of heterosis, modified differential display of mRNA was used to characterize the difference in gene expression between reciprocal cross-fertilized kernels and their parents seeds at 2, 6 and 12 days after pollination (DAP) by using 3 wheat hybrids with different level of heterosis. The results indicated that gene expression altered obviously in reciprocal cross-fertilized kernels as compared to their parents. The patterns of differential expression included: (1) gene specifically expressed in cross-fertilized kernels but not in both parents; (2) gene expressed in both parents but not in the cross-fertilized kernels and gene expressed in only one parents but not in the reciprocal fertilized kernels; (3) Gene Identically expressed in one parent. The further analysis showed that higher percentage of silencing expressed cDNA and lower percentage of identically expressed cDNA were observed in highly heterotic hybrid, which might be responsible for the observed heterosis.

Key words [Wheat](#) [Reciprocal cross-fertilized kernels](#) [Seed development](#) [Gene expression](#) [Heterosis](#)

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