

Small-Scale Duplications Play a Significant Role in Rice Genome Evolution [PDF]

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摘要: Genes are continually being created by the processes of genome duplication (ohnolog) and gene duplication (paralog). Whole-genome duplications have been found to be widespread in plant species and play an important role in plant evolution. Clearly un-overlapping duplicated blocks of whole-genome duplications can be detected in the genome of sequenced rice (Oryza sativa). Syntenic ohnolog pairs (ohnologues) of the whole-genome duplications in rice were identified based on their syntenic duplicate lines. The paralogs of ohnologues were further scanned using multi-round reciprocal BLAST best-hit searching ($E < e^{-14}$). The results indicated that an average of 0.55 sister paralogs could be found for every ohnologue in rice. These results suggest that small-scale duplications, as well as whole-genome duplications, play a significant role in the two duplicated rice genomes.

关键词: small-scale duplication; ohnologue; genome evolution; Oryza sativa; Arabidopsis

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