

## Dynamic diploidization process revealed in the triplicated *Brassica rapa* genome

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The genus Brassica provides an excellent opportunity to study genome evolution associated with polyploidization. Sequence comparison of five homologous *B. rapa* BAC clones and their counterparts in Arabidopsis revealed several duplication events: 1) genome duplication in the Arabidopsis-Brassica clade (17-19 Myrs), 2) genome triplication in Brassica (13-17 Myrs) and 3) a large segmental duplication in *B. rapa* (1 Myr ago). The collinear DNA segment of *B. rapa* was reduced to 0.6-0.8 fold by deletion compared to the counterparts of Arabidopsis. Overall, genome triplication contributed 1.8-2.4 fold increase in the genome size as well as the total number of genes in *B. rapa* compared to Arabidopsis. About 44% of the triplicated genes returned to a single copy state while 12% remained as triplets. Many of duplicate genes showed various InDel-mediated modifications that may provide functional diversity in the highly replicated Brassica genome.

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