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# Functional Dissection of MADS-Box Protein Complexes Involved in Floral Organ Development in Rice

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In plant, MADS box genes play essential roles in the regulation of floral organ development, and the function of those genes can be explained wellwith ABC model for Arabidopsis floral organ development. Recent results on the function of the MADS box genes show that in dicot, protein complexes consisting of MADS box proteins are involved in floral organ development. However, in monocot, MADS box protein complexes have not been investigated at molecular level, yet.

To investigate MADS box protein complex involved in the regulation of floral organ development in rice, we have isolated MADS proteins interacting with B function MADS box protein dimer, OsMADS4-OsMADS16, using yeast three-hybrid system. Yeast three-hybrid system is one of the useful methods that can identify interaction among three proteins. We found that the B function protein dimer interacted with four different OsMADS proteins among 12 OsMADS proteins investigated, however the four MADS box proteins did not interact with OsMADS4 or OsMADS16 alone. These results suggest that the four MADS box proteins function in the form of protein complexes including the both B function MADS box proteins.

Because three MADS box proteins out of the four MADS box proteins have high homology with SEP genes, E function MADS box genes, on the basis of amino acid sequences, our results suggest that E function MADS box proteins play very important roles in the floral organ development in rice. Also our results suggest that, unlike in Arabidopsis, in rice various E function MADS box proteins might be directly involved in the formation of the MADS box protein complexes. The other progress of our research will be also reported.