**Supplementary Fig. 2** Evolution and structure analysis of the CAX family in *Arabidopsis* and rice. **A** Phylogenetic trees of the CAX family constructed using the NJ method. The scale bar represents 0.05 amino acid changes per site. **B** Sequence alignment of the amino acid mutation site in *ym48* during CAX family members. The mutation sites were marked in red. The blue box shows the highly conserved characteristics of this amino acid site. **C** Gene exon-intron structure of CAX family. Black triangles indicate exons, black lines show introns, and gray triangles signify upstream or downstream. **D** Motif distribution in the CAX family. Twenty different motifs are marked by different colors, and the annotation is listed in Supplementary Table 2.