

Maize aldol-keto reductase family members expression is consistent with its multiple roles

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Aldo-keto reductases (AKRs) can catalyze diverse reactions and may have multiple roles, from antioxidant pathways to signaling pathway. Most AKR superfamily members possess broad substrate specificities, making the unequivocal determination of the physiological function of uncharacterized AKRs difficult. In this study, we presented and characterized eight maize putative AKRs. In order to analyze in detail the expression of maize AKRs at the protein level we raised polyclonal antisera against the recombinant maize AR and used it in western blot assays. We also designed specific primers for each of the eight putative maize ARs to analyze their gene expression in different tissues and development times. The analysis of different maize tissues showed reaction with several polypeptides. The amount of each polypeptide also appeared to vary among tissues, consistent with potentially different roles for the AR-like polypeptides. Data on western blots were consistent with predicted molecular weights of the AR family members as well as their gene expression patterns. These results showed that maize AKRs have different roles, depending on the tissues and developmental stage, shedding a light on the illusive AKR pathway.

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