

**SPECIFICITY OF ABP57 FOR IAA IN STIMULATING  
H<sup>+</sup>-TRANSLOCATION ACTIVITY OF PLANT PLASMA  
MEMBRANE**

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Indole-3-acetic acid (IAA) is the main auxin in plants that controls cell division and elongation and also is probably involved in phototropism and gravitropism. Auxin effects in plants are believed to be mediated by auxin receptors, and we have previously described a novel receptor ABP57 that works together with the natural auxin to stimulate plant PM H<sup>+</sup>-ATPase in a typical biphasic mode. Interestingly enough, ABP57 was found to be unable to mediate auxin action on plant PM with synthetic yet active auxins, such as 1-naphthaleneacetic acid and 2,4-dichlorophenoxyacetic acid. Binding equilibrium experiments revealed the presence of separate sites on ABP57 molecule for IAA ( $K_d \sim 10^{-8}$  M,  $N = 4$ ) and the synthetic auxins ( $K_d \sim 10^{-6}$  M,  $N = 1$ ). IAA induced a marked change in the ABP conformation, whereas the binding of non-IAA auxins resulted in no significant conformational change. The results may provide the basis of IAA specificity of ABP57 in eliciting auxin response of plant PM through the ternary interaction between IAA, ABP57 and the H<sup>+</sup>-ATPase.