

生命科学

一个拟南芥C2H2锌指蛋白的结构域分析

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摘要 At3g23140是拟南芥中仅含有一个C2H2锌指结构的转录因子, 主要含有N端的C2H2锌指结构和C端的类似EAR两个结构域. 将[[WTBX]] [[STBX]] At3g23140 [[WTBZ]] [[STB3]] 中仅含C2H2锌指结构区域不同长度的两个基因片段[[WTBX]] [[STBX]] A1 [[WTBZ]] [[STB3]] (240 bp), [[WTBX]] [[STBX]] A2 [[STB3]] [[WTBZ]] (410 bp)克隆到植物表达载体pMON530 35S启动子的下游, 并转化野生型拟南芥. 经过筛选得到稳定遗传的T₃代纯合转化子. 对转基因植株研究表明, 35S::[[WTBX]] [[STBX]] A2 [[STB3]] [[WTBZ]] 转基因植株的内源乙烯释放量明显低于野生型, 这与[[WTBX]] [[STBX]] At3g23140 [[STB3]] [[WTBZ]] 插入失活突变体[[WTBX]] [[STBX]] cs16966 [[STB3]] [[WTBZ]] 的表型是一致的, 而35S::[[WTBX]] [[STBX]] A1 [[WTBZ]] [[STB3]] 转基因植株的内源乙烯释放量与野生型没有明显区别. 表明A2片段的过量表达产生了显性抑制的作用, 这种显性抑制效应很可能是由于 A2蛋白片段与[[WTBX]] [[STBX]] At3g23140 [[STB3]] [[WTBZ]] 表达产物所调控的核酸序列竞争结合所导致. 而A2片段C端所含有的非锌指结构域是At3g23140蛋白与靶基因序列结合所必需的.

关键词 [拟南芥; 锌指蛋白; 转录因子; 竞争抑制](#)

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Domain function analysis of an Arabidopsis C2H2 zinc finger protein (Chinese)

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Abstract

At3g23140 is a transcription factor with one single C2H2 zinc finger domain, containing C2H2 zinc finger domain in N terminal regions and a C terminal EAR motif like sequence. Two different fragments of [[WTBX]] [[STBX]] At3g23140 [[WTBZ]] [[STB3]] that only contain the C2H2 type zinc finger domain were inserted downstream of 35S promoter in the plant expression vector pMON530, and introduced into wild type Landsberg erecta (Ler). Independent homozygous transgenic lines were obtained after selection of T₃ progenies. Ethylene detection results showed that endogenous ethylene value of 35S::[[WTBX]] [[STBX]] A2 [[STB3]] [[WTBZ]] transgenic plants was less than that of the control, which was consistent with the phenotype of [[WTBX]] [[STBX]] cs16966 [[STB3]] [[WTBZ]], but endogenous ethylene value of transgenic plant 35S::[[WTBX]] [[STBX]] A1 [[STB3]] [[WTBZ]] has no significant difference with that of the wild type. It indicated that repression was caused by over expression of A2, which may due to A2 competing for the DNA sequence regulated by [[WTBX]] [[STBX]] At3g23140 [[STB3]] [[WTBZ]], and non C2H2 zinc finger domain of the C terminal regions of A2 is essential for At3g23140 integrating with targeted DNA.

Key words [Arabidopsis thaliana](#) [zinc finger protein](#); [transcription factor](#); [competition](#)

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