

植物ゲノム・遺伝子源解析センター 月例セミナー

とき 平成23年12月6日(火)

16時～17時

ところ 農学部 BW106講義室(大講義室)

題目 「ABA signal transduction and function analysis of bZIP transcription factors in plant」

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概略

The basic leucine zipper (bZIP) proteins are one of the largest and most conserved groups of transcription factors/repressors in higher plants. bZIP transcription factors were concerned with regulate processes including ABA hormone response, photomorphogenesis and formations of all kinds of organs. The interactions between plant bZIP transcription factors and the specific DNA *cis*-acting G-Box element were assayed by a yeast one hybrid system. Several specific sites were determined that they played a key role in the interaction between bZIP proteins and G-Box element respectively. The molecular modeling of bZIP-G-box complex were constructed and the possible interaction between bZIP proteins and G-Box element were discussed.

Seed dormancy is an important adaptive trait that enables seeds of many species to remain quiescent until conditions become favorable for germination. Two bZIP-type transcription factors, CAREB1 and CAREB2, belong to the clade A and clade G respectively, were localized to the nucleus, and specifically bound to the ABA response element (ABRE) in the *Dc3* promoter. The results indicate that CAREB1 and CAREB2 have similar DNA-binding activity, but play different roles during carrot development and CAREB1 functions as an important *trans*-acting factor in the ABA signal transduction pathway during carrot somatic embryogenesis.

The function of several rice bZIP-type transcription factors was analyzed and they are involved in the regulation of the adaptive stress response and plant fertility of rice. All these results show that members from both clade A and clade G are involved in ABA signal pathway, but the signal transduction pathway of members from clade G may be different from those from clade A.