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Comparison of the Restriction Sites in Epsilon Globin Gene in Some Perissodactyla

김기옥*, 오문유, 고미희, 김세재, 김영은, 정용환
제주대학교 자연과학대학 생물학과

The ε-globin gene in mammals is the 5′ most member of the β-globin gene cluster linked in gene family, expressed embryonically proto-ε-globin gene. After PCR the patterns of restriction sites were investigated in Perissodactyla(Rhinicerotidae, Tapiridae and Equidae). The primers for PCR of the ε-globin gene were designed by the sequence of the conserved regions of these animals. The sizes(kb) of the DNA fragments cut by 8 restriction endonucleases were as follows ; *BglI*(1.0kb, 0.55kb), *HaeII*(1.05kb, 0.35kb, 0.1kb), *HaeIII*(0.6kb, 0.46kb, 0.45kb) and *HincII*(1.05kb, 0.45kb) in *Ceratotherium simum S.*; *AccI*(1.2kb, 0.35kb), *BamHI*(1.0kb, 0.55kb) and *HaeIII*(0.6kb, 0.5kb, 0.45kb) in *Tapirus terrestris*; *BglI*(1.1kb, 0.45kb), HaeII(1.1kb, 0.45kb) and *HaeIII*(0.7kb, 0.5kb, 0.35kb) in *Equus grevyi*, respectively. We are currently analyzing the DNA squences of epsilon globin genes in these species.

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Detection of Transcriptional Activation Domain from *Drosophila Twist* Gene

정기화, 임경숙*, 이정주[1]
공주대학교 자연대학 생물학과, [1]서울대학교 자연대학 생물학과

Twist gene is one of the important genes which determine dorsal-ventral axis during *Drosophila* embryogenesis. On the direct control of *dorsal* gene (maternal morphogen), it is expressed preferentially in the ventral part of embryo. *Twist* encodes transcription factor containing basic helix-loop-helix (bHLH) motif, so it functions as a dimer. In the present study, we detected a transcriptional activation domain from *twist* gene. For this study, we carried out *twist* domain analysis using yeast two-hybrid assay with some modification. Several segments of *twist* were inserted into pGBT vector, then introduced into yeast HF7c strain which cannot grow at the trp-, leu- and his-deficient medium. When the transformed yeasts were cultured at the trp- and his-deficient medium, only yeasts transformed with pGBT carrying glutamine-rich (QR) region of *twist* (670-1160) showed growth abilities. This means that a transcriptional activation domain was located at the QR region. It was interesting that the QR region alone showed much stronger growth ability than the QR region containing bHLH motif.