Effects of Nucleotide-Inhibitor Sequence on the Binding of E-box DNA to Mitf (Microphthalmia-assosiated Transcription Factor) in the Protein Chip

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Abstract

For the high-throughput-screening system (HTS) of depigmenting agents by a protein chip, effects of oligonucleotide-inhibitor sequence on the binding of Mitf protein to E box of MC1R was investigated. The sequence of oligonucletide-inhibitor affected the binding of the target DNA to Mitf, depending on the location of the sequence variation in the inhibitor nucleotide. The oligonucletide-inhibitor that changed the CATGTG sequence showed no enough inhibition of the target DNA to Mitf, whereas significant inhibition was observed when the sequence outside the CATGTG was varied. This result indicated that CATGTG is crucial sequence for the binding of Mitf to E-box which initiates the transcription of pigmenting genes.

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