# Development of a Protein-Chip containing MITF (Microphthalmia-Associated Transcription Factor) for Depigmenting Agent Screening

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**Abstract**

For the high-throughput screening (HTS) of depigmenting agents, a protein chip was developed. Mitf (Microphthalmia-associated Transcription Factor), a key regulator in the melanogenesis, was produced as a fusion protein (Maltose Binding Protein-Mitf) in *Escherichia coli* and immobilized on the cyclodextrin-coated glass plate. Binding of oligo-DNA from E- box of the promoter was monitored by fluorescence.

The sequence of oligonucleotide-inhibitor affected the binding of the E- box fragment to Mitf, depending on the location of the sequence variation in the E- box fragment. Changes in the CATGTG sequence reduced the binding of the E-box to Mitf, whereas no significant effect was observed when the sequence outside the CATGTG was varied.

This result indicated that CATGTG is crucial for the binding of Mift to E-box which initiates the transcription of pigmenting genes.