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Identification of a *cis*-acting Element Region in the Promoter of Porcine Uroplakin II Gene

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Tissue-specific expression of the desired gene product in the targrt tissue is central to the concept of bioreactor. One approach is to use a tissue-specific promoter to drive desired gene. To investigate the feasibility of tissue-specific gene expression for bladder using the porcine uroplakin(UPII) promoter and its transcriptional control the efficacy of this promoter as well as fragments in regulating gene expression were cell lines using DNA transfection. The UPII promoter is TATA-less with a consensus initiator element located at the transcription start site and facilitated by proximal GC-box and several Sp1 sites that directs basal transcription. Deletion of a region of the UPII promoter (-8847 to -1) resulted in significant decrease in luciferase activity, suggesting that this region contains a positive *cis*-acting element. A 2.1 kb of 5' fragment generated strong transcriptional activity in bladder cell line(RT4), but not non-bladder cell line(CHO and NIH3T3). A sequence comparison of the porcine and murine UPII promoter genes by the MEME system allowed five(A, B, C, D, E) conserved motifs to be identified, although their relative locations are differnt. To study of functionality of motif regions with the 5'-upstream UPII DNA fragment, resulting that D motif of 86 bp have *cis*-acting regluatory element and A,B,C motif have supressor. These results suggest that it is preferable to use bladder-specific regulatory elements for elevated levels of bladder-specific expression and *cis*-acting element region. This suggests a potential application of the bladder expression system to drive the high-yield production of phaermaceuticals in livestock.

Key words: ***Promoter, Motif, Bladder***