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Cloning, Sequencing and Expression Analysis of Porcine Uroplakin II Gene

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In this study, we report the cloning of the porcine UPII genomic DNA, which contains a putative full-length open reading frame encoding the UPII protein. A comparison of the porcine UPII gene coding sequence with the previously published mouse UPII sequence demonstrates that only the exon sequences are partially conserved. Northern and immunohistochemical analyses show that the porcine UPII gene is expressed only in the urothelium and that the protein specifically localizes to urothelial superficial cells. Among urothelial superficial cells, 8.5~9.8% of umbrella cells express the UPII gene. A 2 kb region of the porcine UPII promoter contains multiple transcription factor binding sites, including GC-boxes, SP1, AP2 and GATA-box sites, but no TATA or CAAT-box sequences. A sequence comparison of the porcine and murine UPII promoter genes by the MEME system allowed two conserved motifs to be identified, suggesting that these sequences have cis-acting regulatory roles. Sequence homology between the motif A and B of the two species is 79 and 80% respectively, although their relative locations are different. Taken together, our results show that the porcine UPII gene is expressed highly and specifically in the bladder urothelium.

Key words) ***uroplakin, promoter, bladder, porcine, gene cloning***