EXPRESSION OF ETS TRANSCRIPTION FACTORS IN THE KIDNEY

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The purpose of this study was to characterize the expression pattern of epithelial-specific Ets transcription factors (ESE1, ESE2, ESE3) in the mouse kidney. Ets factors have been found to be involved in a myriad of functions, including carcinogenesis, gene activation and repression, cell proliferation, differentiation, and are found in many different tissues and cell types. PCR subtraction cloning revealed that ESE1 and 3 were expressed in primary cultures of mouse renal collecting duct principal cells. Using real-time quantitative RT-PCR, we describe the expression of these factors in select epithelial and non-epithelial organs and their intra-renal distribution. Results show that ESE1, 2, and 3 are highly expressed in epithelial organs. The kidney demonstrated a variegated expression pattern with the highest levels of these genes being expressed in the inner medulla followed by the outer medulla, with the lowest levels in the cortex. Furthermore, ESE1, 2, and 3 were found to be expressed at levels 10-15X higher in isolated collecting duct tubules than in non-collecting duct tubules. These studies are the first of their kind in describing and quantifying ESE1, 2, and 3 mRNA transcript levels in the kidney. Because the renal collecting duct plays such an important role in regulating blood pressure and maintaining acid-base balance, important pathways therein may be implicated by further studies as being regulated by these Ets factors and would help in better understanding related diseases.