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A Transgenic Analysis of Mouse *Lactate Dehydrogenase c* Promoter Activity in the Testis

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Transcription of the mouse testis-specific *lactate dehydrogenase c* (*ldhc*) gene is limited to cells of the germinal epithelium. Cloning and analysis of the *ldhc* promoter revealed that a 100-bp core promoter was able to regulate testis-specific transcription in vitro and in transgenic mice. Surprisingly, expression of the reporter in transgenic testes was limited to pachytene spermatocytes, whereas native LDH-C₄ was detected in pachytene and all later germ cells. To locate additional regulatory sequence that could recapitulate the native LDH-C₄ distribution pattern, we investigated the contribution of 5' and 3' flanking sequences to the regulation of LDH-C₄ expression. We found that transcription factor YY1 binds to the *ldhc* promoter, that the *ldhc* 3' untranslated sequence does not permit a postmeiotic expression of a β -galactosidase reporter in transgenic mice, and that native *ldhc* mRNA is predominately meiotic, with only a low level of postmeiotic distribution. Our results suggest that the high level of LDH-C₄ in postmeiotic cells results from mRNA and protein stability.

Key words: Transcription, mRNA stability, protein stability

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