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JOURNAL ARTICLE

Developmental expression of glutathione peroxidase, catalase, and manganese superoxide dismutase mRNAs during spermatogenesis in the mouse

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We have examined in mouse testis the steady-state levels of mRNAs encoding glutathione peroxidase (GSHPx), catalase (CAT), and superoxide dismutase 2 (SOD-2), three enzymes essential for the antioxidant protection of cells. In RNA preparations derived from prepuberal and adult testes and from isolated populations of meiotic and post-meiotic germ cells, one major GSHPx mRNA of about 0.8 kilobases (kb) and one major CAT mRNA of about 2.4 kb were detected. Three SOD-2 mRNAs of about 2.2, 1.2, and 1.0 kb were found in testis. In contrast to GSHPx and CAT, the mRNA levels of SOD-2 were higher in testis than in liver. SOD-2 mRNA levels are developmentally and translationally regulated with maximal levels of expression in early post-meiotic germ cells, whereas the levels of GSHPx and CAT mRNAs are relatively constant in both prepuberal and adult testes. These data suggest that translational regulation plays a more prominent role for SOD-2 expression than for GSHPx or CAT expression in the mammalian testis.

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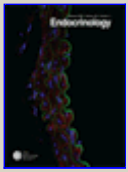
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