

P-52

Effects of Methyltestosterone and Flutamide on Phospholipid Hydroperoxide Glutathione Peroxidase Gene Expression in the Reproductive System of Male Mice

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Phospholipid hydroperoxide glutathione peroxidase (PHGPx) is an antioxidant selenoenzyme which interacts directly with and diminishes peroxidized phospholipids, cholesterol and cholesteryl ester in tissues. PHGPx activity appears in most tissues, but is especially high in testis. In testis, PHGPx level decreases in hypophysectomized rats but is partially restored after gonadotropin treatment. To determine the expression pattern of PHGPx gene in the male reproductive system exposed to exogenous endocrine disruptors, methyltestosterone (an androgenic compound; 10 and 1mg/kg, BW) and flutamide (an anti-androgenic compound; 10 and 1mg/kg, BW) was subcutaneously injected into 7 week-old male ICR mice daily. After 1 week, total RNAs were extracted from testis, epididymis, and prostate gland and then RT-PCR and Northern blot analyses were performed using the PHGPx primers. The PHGPx mRNA level was increased by flutamide treatment, whereas it decreased by methyltestosterone treatment. These findings suggest that PHGPx transcription may be inhibited by androgen in the male reproductive system.