

# Abstract

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## Regulation of androgen and vitamin d receptors by 1,25-dihydroxyvitamin D3 in human prostate epithelial and stromal cells.

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**PURPOSE:** The mechanisms of the interaction between 1,25-dihydroxyvitamin D(3) (1,25 D) and androgens, and their respective receptors in their action on the prostate are not completely understood. We examined the interplay of 1,25 D and androgens on the epithelial and stromal cells of the prostate.

**MATERIALS AND METHODS:** The human neonatal prostatic epithelial cell line 267B-1 (BRFF, Inc., ljamsville, Maryland) and primary cultures of human prostate stromal cells were treated with medium containing 5 or 10 microM 1,25 D or ethanol (control) in the presence or absence of 10 nM dihydrotestosterone (DHT) (Sigma Chemical Co., St. Louis, Missouri). Protein levels of androgen receptor (AR) and vitamin D receptor (VDR) were determined by immunoblot analysis of whole cell extracts. Electrophoresis mobility shift assays were used to determine AR and VDR DNA binding activities.

**RESULTS:** The VDR protein level of 267B-1 cells was increased in the presence of 1,25 D (with the maximum effects seen at 24 hours) regardless of the presence or absence of DHT. In addition, exogenous DHT increased the AR and VDR DNA binding activities of 267B-1 and stromal cells in the presence of 1,25 D.

**CONCLUSIONS:** ARs in the normal prostate are regulated by androgens, whereas VDRs in the normal prostate can be regulated by 1,25 D as well as by other androgens such as testosterone. This finding further supports the concept that 1,25 D as a steroid hormone, in addition to other androgens such as DHT, may have a role in the growth and differentiation of normal prostate.

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