Journal of Andrology, Vol 19, Issue 2 127-135, Copyright © 1998 by The American Society of Andrology

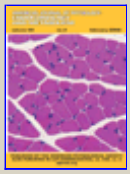
JOURNAL ARTICLE

Androgen regulation of the human ornithine decarboxylase promoter in prostate cancer cells

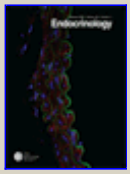
G. Bai, S. Kasper, R. J. Matusik, P. S. Rennie, J. A. Moshier and A. Krongrad
Department of Urology, University of Miami School of Medicine, Florida 33125, USA.

We studied the response of the human ornithine decarboxylase (ODC) promoter to androgen in human prostate cancer cell lines. In the well-differentiated, androgen-sensitive human prostate cancer line LNCaP, a genomic ODC promoter fragment that includes putative androgen response elements was suppressed by androgen. In contrast, the androgen-regulated probasin promoter was induced by androgens. The ODC promoter was also induced by cotransfected androgen receptor in the poorly differentiated, androgen-insensitive human prostate cancer cell line PPC-1. We examined the effects of cotransfected mutant androgen receptors containing the LNCaP mutation or DNA-binding mutations. All cotransfected androgen receptors switched the ODC androgen response from suppression to induction in LNCaP cells. Gel-shift and DNA footprint assays demonstrated androgen receptor binding to an ODC sequence that does not contain a consensus androgen response element. Deletion of the sequence abolished androgen suppression of the ODC promoter. We propose a model of pleiotropic gene regulation by androgen that requires a regulatory balance between androgen receptor and a transcription factor binding to the nonconsensus androgen response element.

This article has been cited by other articles:



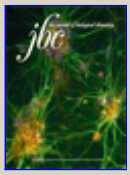
C. M. Bastida, A. Cremades, M. T. Castells, A. J. Lopez-Contreras, C. Lopez-Garcia, J. Sanchez-Mas, and R. Penafiel
Sexual dimorphism of ornithine decarboxylase in the mouse adrenal: influence of polyamine deprivation on catecholamine and corticoid levels
Am J Physiol Endocrinol Metab, April 1, 2007; 292(4): E1010 - E1017.
[Abstract] [Full Text] [PDF]



Endocrinology

HOME

P. V. Nantermet, P. Masarachia, M. A. Gentile, B. Pennypacker, J. Xu, D. Holder, D. Gerhold, D. Towler, A. Schmidt, D. B. Kimmel, *et al.*
Androgenic Induction of Growth and Differentiation in the Rodent Uterus Involves the Modulation of Estrogen-Regulated Genetic Pathways
Endocrinology, February 1, 2005; 146(2): 564 - 578.
[Abstract] [Full Text] [PDF]



JBC Online

HOME

P. V. Nantermet, J. Xu, Y. Yu, P. Hodor, D. Holder, S. Adamski, M. A. Gentile, D. B. Kimmel, S.-i. Harada, D. Gerhold, *et al.*
Identification of Genetic Pathways Activated by the Androgen Receptor during the Induction of Proliferation in the Ventral Prostate Gland
J. Biol. Chem., January 9, 2004; 279(2): 1310 - 1322.
[Abstract] [Full Text] [PDF]

Carcinogenesis

HOME

B. H. Chung, S. H. Mitchell, J.-S. Zhang, and C. Y. F. Young
Effects of docosahexaenoic acid and eicosapentaenoic acid on androgen-mediated cell growth and gene expression in LNCaP prostate cancer cells
Carcinogenesis, August 1, 2001; 22(8): 1201 - 1206.
[Abstract] [Full Text] [PDF]

Cancer Research

HOME

S. Gupta, N. Ahmad, S. R. Marengo, G. T. MacLennan, N. M. Greenberg, and H. Mukhtar
Chemoprevention of Prostate Carcinogenesis by {{alpha}}-Difluoromethylornithine in TRAMP Mice
Cancer Res., September 1, 2000; 60(18): 5125 - 5133.
[Abstract] [Full Text]
