

REVIEW OF CLINICAL PHARMACOLOGY AND
PHARMACOKINETICS, INTERNATIONAL
EDITION 20: 331 (2006)
©PHARMAKON-Press

Effect of All-trans Retinoic Acid (ATRA) on Prostate Cancer Cell Growth

Olga Theodorakopoulou, Evangelia Papadimitriou

Laboratory of Molecular Pharmacology, Department of Pharmacy, University of Patras, Patras, Greece

Key words: HARP, pleiotrophin, prostate cancer, retinoic acid.

S u m m a r y. It is becoming increasingly recognized that all-trans retinoic acid (ATRA) plays a role in cell proliferation and migration and induces differentiation or/and growth arrest of cancer cells through regulation of the expression of several genes. Heparin Affin Regulatory Peptide (HARP) is an 18 kDa secreted polypeptide growth factor with high affinity for heparin. HARP is mitogenic for endothelial cells, stimulates angiogenesis in vitro and in vivo and also plays a key role in the progression of several types of cancer tumors of diverse origin. In the present study we found that exogenous

ATRA significantly reduced human prostate cancer LNCaP cell proliferation. HARP seems to be involved in the inhibitory effect of ATRA, because the latter had no effect on stably transfected LNCaP cells that did not express HARP. Moreover, ATRA significantly decreased HARP mRNA and protein amounts in a concentration- and time-dependent manner. These results support the notion that HARP may be important for human prostate cancer cell proliferation and suggest at least one of the possible mechanisms through which ATRA affects prostate cancer cell growth.