

## OVERVIEW

# Models for Premalignant and Early Malignant Cancer

Prostatic cancer is one of the most commonly found malignancies in men in Western societies; it is the second leading cause of death after lung cancer. The etiology of the disease is essentially unknown and research on carcinogenesis of the prostate has suffered from a lack of adequate and reliable animal models. This session, therefore, concentrated on three models which subsequently may prove of importance in determining factors relevant to the chemoprevention of prostatic cancer.

Morris Pollard discussed the Lobund-Wistar rat model in which prostate tumors are induced with *N*-methyl-*N*-nitrosourea (MNU) followed by chronic treatment with testosterone. Pollard reported a high incidence of prostate cancer and a chemopreventive effect of *N*-(4-hydroxyphenyl)-retinamide in preventing tumorigenesis in this model.

Maarten Bosland briefly reviewed a number of prostate models, but concentrated predominantly on the rat model employing the Cpb:WU Wistar rat strain used extensively in his laboratory. This model employs the synchronization of cell proliferation in the prostate with the use of cyproterone acetate and testosterone treatment, followed by induction of tumors with MNU and subsequent chronic testosterone treatment. The incidence of prostate cancer in the model is somewhat lower than that in the Lobund animal (about 50-

60%) and requires more manipulations than that of the model reported by Pollard.

A third model was discussed using human prostate cancer cells inoculated into nude mice. Leland Chung showed that such xenografts do proliferate either in the presence of prostate or bone fibroblasts and a number of specific growth factors such as basic fibroblast growth factor (bFGF), human growth factor (HGF), and nerve growth factor (NGF).

Although all of these models have some utility in studying the biology of prostate cancer, it is also evident that a continued effort in model development is necessary. Despite the shortcomings of each model, their use in chemoprevention studies appears warranted.

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