



Monoclonal Antibody for a Prostate-Specific Tumor Suppressor Gene (Cory Abate-Shen, CABM 01-10) Diagnostic/Research Tool

Background

Relatively little is known about the molecular mechanisms involved in prostate carcinogenesis due to the lack of animal models that mimic human prostate carcinoma. Mutant mouse models lacking genes critical for prostate development could be utilized to understand the molecular pathways involved in prostate cancer initiation and progression. Thus, identification of prostate-specific oncogenes would be extremely valuable in studying prostate carcinogenesis. The present invention relates to: (1) the identification of a prostate-specific tumor suppressor gene, (2) generation of monoclonal antibodies (mouse and human) to the tumor suppressor protein, and (3) mutant mouse models of prostate cancer.

Description of the Technology

Knockout mice lacking the functional homeobox gene Nkx3.1 and the lipid phosphatase Pten were generated to study the molecular factors involved in prostate carcinogenesis. These studies showed that the loss of Nkx3.1 protein expression is a hallmark of prostate cancer in mice and humans, and occurs in early stages of the disease. Thus the resultant mouse models mimic early stages of human prostate cancer. Monoclonal antibodies against human NKx3.1 regulatory protein have been produced. A method for detecting the presence of Nkx3.1 in biopsy tissue samples has been developed.

Applications:

Mouse anti-human and anti-mouse polyclonal as well as monoclonal antibodies with specificity for the tumor suppresser Nkx3.1 protein are available. These antibodies can be used:

- As tumor marker for early detection of prostate cancer.
- Pre- and post-treatment monitoring of prostate cancer
- As a marker to distinguish between indolent versus aggressive prostate cancer.

The knockout mice can be used to study the molecular mechanisms involved in prostate cancer initiation and progression.

Patent Status:

US patent applications filed.

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