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Method of Identifying and Treating Invasive Carcinomas

Background

For men in the U.S. prostate cancer is the most commonly diagnosed cancer, and the second leading cause of cancer-related death. Prostasin is a serine protease predominantly expressed in normal prostate epithelial cells and present at high levels in normal human semen. Current research shows that both prostasin protein and mRNA were found to be expressed in normal human prostate epithelial cells and a non-invasive human prostate cancer cell line, LNCaP, but neither was found in invasive human prostate cancer cell lines DU-145 and PC-3. Transfection of DU-145 and PC-3 cells with a full-length human prostasin cDNA restored prostasin expression and reduced the in vitro invasiveness by 68% and 42%, respectively. Prostasin has also been shown to be absent in highly invasive and metastatic breast carcinoma cell lines compared to non invasive or nonmetastatic breast carcinoma lines. The evidence thus qualifies prostasin as an invasion suppressor, which can be used as a marker for diagnosis of invasiveness of prostate and breast cancers, or as a therapeutic agent to treat invasive prostate and breast cancers.

Application

This invention relates to prostasin and its use in the diagnosis and treatment of prostate and breast cancers.

Invention

The current invention confers a method for determining whether human prostate or breast carcinomas are non invasive, comprising sampling human breast or prostate carcinomas and determining whether the prostasin gene promoter DNA is methylated at bp 1,156/-266, where the absence of methylation indicates a non-invasive carcinoma.

Advantages

- The ability to precisely predict upon early pathological examination of the tumor, which group of patients will have truly organ-confined disease versus which group will have invasive cancer.
- Prostasin could be used as a therapeutic agent to reduce invasiveness of the human carcinoma.

Lead Inventor

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Selected References

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