The Prostate Specific Antigen Test

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Technology description

The Problem:
The current prostate-specific antigen (PSA) test is used to screen for prostate cancer. However, elevated levels of PSA do not only occur in cancer but also during prostatitis, benign prostatic hyperplasia, and urinary tract infections, causing significant amounts of false-positive results. Only 25% of men who have a prostate biopsy due to an elevated PSA level are found to have prostate cancer.
The Solution:
Researchers at the University of Tennessee have identified that bacterial serine proteases have the same epitope as human PSA (hPSA). Therefore, these proteins are believed to react with the same antibody used to screen for PSA, resulting in false-positive results. Further studies of these bacterial proteins can evolve into the development of different assays/probes to distinguish hPSA and bacterial serine proteases.

Advantages

👍 Novel antibodies can be used to develop specific PSA tests reducing false-positives due to bacterial serine protease in human blood used for PSA testing. Also, substrates that differentiate between hPSA and bacterial serine proteases can be used to eliminate false-positive PSA tests in human clinical tests.
👍 False-positive results lead to unnecessary medical procedures, such as biopsies, that can result in infections and bleeding. By immediately eliminating false-positive results from bacterial infections, the patient can save on medical costs.

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