Fred Hutch Cancer Center

Therapeutic targets to treat Androgen Receptor Deficient and Low Prostate Cancers

Business Opportunity

Exclusive / Non-exclusive license
Sponsored Research
Start up

Technology Type

Therapeutic
Target

State of Development

Preclinical in vivo

Patent Information

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Tech ID

20-001

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Brief Description

Methods to treat Androgen Receptor Deficient and Low Prostate Cancers by targeting 4EBP1

Technology Overview

Prostate cancer is the second most common male cancer, affecting cells of the prostate glands. About 90% of these early stage prostate cancers are dependent on androgens for growth, so inhibitors of the androgen receptor (AR) are often used as a treatment. However, prolonged use of androgen deprivation therapy (ADP) transforms many hormone sensitive prostate cancers into lethal castration-resistant prostate cancer (CRPC), which is not entirely dependent on the presence of androgens to grow. While improved targeting of androgen receptors is now possible, which can slow progression of CRPC, the disease remains uniformly lethal. Therefore, a need exists for new therapeutics targeted for lethal AR-deficient prostate cancers. Using a several types of human and mouse model samples, Fred Hutch researchers discovered a “molecular brake” known as 4EBP1 which is inactivated in AR-resistant tumors and propagates a growth promoting cell-signaling pathway. By introducing 4EBP1 mimics, they discovered that these compounds killed AR-low, but not AR high, cells as well as significantly reduced the growth and survival of AR-low prostate cancers in mice. Therefore, they have identified a druggable link between the AR and protein synthesis that could be targeted in AR-low advanced prostate cancers.

Applications

- Therapeutic treatments for androgen low and resistant prostate cancers
- Reveals processes by which the androgen receptor regulates protein synthesis

Advantages

- Highlights druggable targets when the androgen receptor is low or isn’t present