Technology Overview

Dr. Valeri Vasioukhin’s laboratory at Fred Hutch developed small molecule inhibitors of hepsin. The most potent of these compounds has an IC₅₀ value of 0.33 μM, is highly specific for hepsin and showed in vivo efficacy without evidence of toxicity in a thirteen-week preventative rodent experiment. Hepsin belongs to a family of cell surface serine proteases and is expressed at high levels in up to 90% of prostate cancers. Increased expression of hepsin is associated with progression of prostate cancer from a localized growth in the prostate gland to metastases in bone, liver, lungs and other sites in the body. Therefore, inhibition of hepsin activity may prove critical to halting metastasis of prostate cancer.

Applications

- Drug development

Advantages

- Novel mechanism
- First in class metastasis preventative
- Mitigates need for prostate cancer therapies associated with significant urinary and sexual side effects

Market Overview

The global market for drug therapies for prostate cancer is predicted to reach $8.6B by 2017. Prostate cancer is the second most common cancer in American males; an estimated 180,890 men will be diagnosed and 26,120 will die from the disease in the United States in 2016. In addition to prostate cancer, this technology may be applicable to other cancers with hepsin overexpression, including ovarian, lung adenocarcinoma, lung squamous cell, adenoid cystic, breast, uterine and colon carcinomas and a subset of sarcomas.

Investigator Overview

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