

## Scientists discover a possible new target for prostate cancer treatment

By Jennifer Garcia

August 2011—Could turning off a specific protein lead to a new way to treat cancer? Scientists in Mumbai, India have recently developed an agent that can inhibit one of the enzymes responsible for tumor growth. Their work, published in the August 5<sup>th</sup> issue of BMC Cancer, may lead to the development of new drugs that could significantly impair tumor growth and spread.

Hypoxia, or lack of oxygen, happens commonly within a tumor. In an effort to adapt to this new environment, tumor cells evolve to require less oxygen and learn to form new blood vessels to increase their blood supply. Hypoxia-inducible factor 1 (HIF1), is a protein often found within tumors and studies have shown that it is part of the tumor adaptation process which helps tumors grow and survive. Tumors with high levels of HIF1 have also been found to be more resistant to radiation treatment and chemotherapy.

In this study by Dr. Manohar and colleagues, the researchers developed an agent (P3155) that can inhibit HIF1 and tested its effectiveness against human prostate cancer cells in the lab. They noted that cells which were treated with P3155 had lower levels of HIF1 which led to a decrease in their ability to form new blood vessels. Additionally, the treated cells lost their ability to migrate from one location to another. In other words, these cells would be less likely to metastasize. Researchers also treated tumor bearing mice with P3155 and noted that there was no tumor growth in those mice that were treated versus those that were not treated.

Identification of the proteins which allow for growth and spread of a tumor opens promising avenues of research to develop agents designed to specifically target and inhibit these proteins. While the findings of this study are indeed promising, more research into this particular agent is still needed. Treatment of patients with prostate cancer will need to be evaluated to determine how effective this agent may be in human patients and what side effects may be anticipated.

[Click here](#) to read the full article

*Manohar SM, Padgaonkar AA, Badhwar AJ, et al. A novel inhibitor of hypoxia-inducible factor-1alpha P3155 also modulates PI3K pathway and inhibits growth of prostate cancer cells. BMC Cancer. 2011 Aug 5;11(1):338. [Epub ahead of print]*