Classic signaling pathway holds the key to prostate cancer progression

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University of Houston researchers published a study investigating the processes through which androgen receptors affect prostate cancer progression. The publication, "Androgens Regulate Prostate Cancer Cell Growth via an AMPK-PGC-1α-Mediated Metabolic Switch," featured in *Oncogene*, illuminates a known metabolic pathway as a potential novel therapeutic target. Daniel Frigo and his team at the Center for Nuclear Receptors and Cell Signaling demonstrate that androgens take control of the AMPK signaling cascade to increase prostate cancer cell growth.

Approximately 1 out of every 6 American men will be diagnosed with prostate cancer, and this year alone there are expected to be nearly a quarter of a million new cases diagnosed, making prostate cancer the most common malignancy among men in the United States. Center for Nuclear Receptors & Cell Signaling (CNRCS) Assistant Professor Daniel Frigo and his research team recently published a study investigating the processes through which androgen receptors affect prostate cancer progression. The publication, "Androgens Regulate Prostate Cancer Cell Growth via an AMPK-PGC-1α-Mediated Metabolic Switch," featured online in *Oncogene*, illuminates a known metabolic pathway as a potential novel therapeutic target.

Although it is well established that the androgen receptor is important for prostate cancer progression, it is unclear what drives this process. Frigo and his team demonstrated in this study that androgens take control of the AMPK signaling cascade, a master regulator of metabolism, to increase prostate cancer cell growth.

"The androgen signaling cascade is important for understanding early and late-stage prostate cancer progression. We found that when androgens activated this signaling pathway, it hijacked normal conditions, allowing the tumor to use diverse nutrients to the detriment of the patient," says Frigo. "These results emphasize the potential utility of developing metabolic-targeted therapies directed toward this signaling cascade for the treatment of prostate cancer. We look forward to exploring this and other metabolic pathways further in order to develop the next generation of cancer therapies."

Provided by University of Houston