

Researchers discover protein to better forecast prognosis of prostate cancer patients

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(Medical Xpress)—Researchers at the Texas A&M Health Science Center (TAMHSC) Institute of Biosciences and Technology in Houston have identified a biomarker that will aid in more accurately determining the prognosis for prostate cancer patients, a finding that could have further implications for anti-cancer drug discovery and ultimately, cancer prevention.

The study, led by Leyuan Liu, Ph.D., assistant professor with the institute's Center for Cancer and Stem Cell Biology, will appear in an upcoming edition of *Cancer* and is currently available [online](#).

The research centers around the concept of autophagy, or controlled self-digestion in cells, which is the process of packaging and transporting cellular wastes to furnace-like organelles called "lysosomes" that then degrade and recycle the wastes. Flaws in this process result in accumulation of cellular wastes, and the resulting imbalance can eventually lead to the formation of tumors. In previous studies, Liu found that a protein known as LRPPRC (leucine-rich pentatricopeptide repeat motif-containing protein) acts to suppress autophagy and maintain activity of mitochondria, the organelle that generates energy for human life.

Based on data from tracking prostate cancer patients over a 10-year period, the latest research indicates a positive correlation between LRPPRC protein levels and tumor grade, cancer stage and prostate-specific antigen (PSA) level, as well as a negative correlation with response to hormone therapy treatment and overall survival.

"Tumor cells carrying higher levels of LRPPRC will have lower levels of autophagy activity, and thus cellular wastes will not be cleaned out efficiently," Liu said. "Those tumor cells will become

genetically variable and more malignant in nature – resulting in a poor prognosis. In essence, if you carry low levels of LRPPRC protein in your prostate tumors, you will survive longer than those carrying high levels of LRPPRC."

The study not only promotes the development of LRPPRC [protein](#) levels as an independent marker for prognosis of prostate [cancer patients](#), but also establishes LRPPRC-regulated autophagy as a new target for anti-cancer drug discovery and [cancer prevention](#).

"Ultimately, our research aims to develop a treatment to reduce the LRPPRC levels and release its suppression on autophagy, making it possible for patients with [prostate cancer](#) to live longer," Liu said.

Provided by Texas A&M University

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