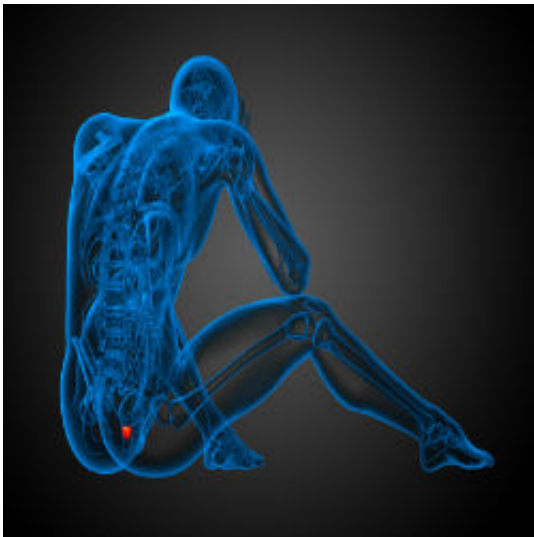


New tool to determine the risk of prostate cancer death

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Researchers at the University of Copenhagen have identified a new prognostic biomarker: the neuropeptide pro-NPY, which may help determine the risk of dying from prostate cancer. This particular type of protein is very specific to prostate cancer cells and could help identify whether newly diagnosed patients require radical prostatectomy surgery or if it is safe to delay surgery.

The research has been published in the journal, *European Urology*.

Prostate Cancer Cells

Using mass spectrometry, the researchers measured concentration changes in thousands of proteins in both normal and tumour tissue from prostate cancer. They discovered that in comparison to normal tissue, the prostate tumors exhibit numerous metabolic alterations including exacerbated activity of mitochondria. Among the 9000 proteins identified, one protein, the neuropeptide, pro-NPY, was demonstrated to exhibit high levels in a subgroup of prostate cancer samples. Pro-NPY was analyzed in 750 [patients](#) with prostate cancer to show that pro-NPY levels correlate with increased risk of prostate cancer death.

"Our research shows that high pro-NPY levels are very specific to prostate cancer and can serve to predict prostate cancer related death among diagnosed patients who have not received surgical treatment," says Professor Amilcar Flores-Morales from the Department of Veterinary Disease Biology, University of Copenhagen.

"So identifying the biomarker pro-NPY could help us identify patients who would benefit from early active treatment, whereby we would also reduce unnecessary treatment of patients who undergo surgery when they have low-grade tumors that for the most part do not put their lives at risk. In the end, due to side effects, this could prove more harmful than beneficial to patients," adds Amilcar Flores-Morales.

Early active treatment

Proteins are key effectors of cellular functions. Therefore, a better understanding of the protein signaling pathways deregulated in prostate cancer could lead to better preventive and therapeutic strategies for the treatment of this disease. Specifically, it is possible that metabolic alterations such as the increase in mitochondria activity could be targeted

in the treatment of prostate cancer.

"We hope to contribute to the advance of translational cancer research and the implementation of precision medicine in the field of [prostate cancer](#) by providing a unique insight into the protein level alterations associated with tumor tissue in clinical samples," adds Flores-Morales.

This work is the result of collaborations between the research groups of Professor Flores-Morales at IVS, Professor Matthias Mann at Novo Nordisk Foundation Center for Protein Research both from the Faculty of Health and Medical Sciences together with the Danish Cancer Society Research Center and Associate Professor Pernilla Wikström from the Umeå University, Sweden. The validation of pro-NPY as a biomarker was possible due to the contribution of patients and clinical researchers from several institutions in Sweden.

Provided by University of Copenhagen

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