

Researchers find first inherited prostate cancer genetic mutation in African-American men

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Shahriar Koochekpour, MD, PhD, Assistant Professor of Microbiology and Immunology, Biochemistry and Molecular Biology, and Genetics at LSU Health Sciences Center New Orleans, led research that has discovered, for the first time, a genetic mutation in African-American men with a family history of prostate cancer who are at increased risk for the disease.

Dr. Koochekpour, who is also a member of the LSUHSC Stanley S. Scott Cancer Center, identified an inheritable genetic defect in the receptor for the male hormone, androgen (testosterone), that may contribute to the development of prostate cancer and its progression. Scientific reports linking inheritable androgen receptor mutations to prostate cancer in Caucasians are rare, and this is the first one that focuses on the African-American population. The study is available in the advance online publication of the Nature Publishing Group's *Asian Journal of Andrology*.

Dr. Koochekpour and his laboratory discovered this genetic change by testing DNA extracted from [white blood cells](#) of African-American and Caucasian men from Louisiana who had a proven medical history of prostate cancer in their families.

"We detected this mutation only in African-American men with prostate cancer," notes Dr. Koochekpour. "We found it in the cell's androgen

receptor (AR), a protein which interacts and responds to male sex hormones. This protein is profoundly involved in prostate [cancer formation](#) and its progression to an advanced metastatic, incurable stage. We believe that this mutation increases the risk of the development and progression of prostate cancer, in part by altering the receptor's DNA-binding ability, and by regulating the activities of other genes and proteins involved in the growth and aggressive behavior of tumors."

African-American men have a higher incidence and death rate from prostate cancer, as well as clinically more aggressive disease than Caucasians. According to the American Cancer Society's most current data for 2009-2010, prostate cancer is the most frequently diagnosed cancer and the second leading cause of cancer death among American men. Between 2001 and 2005, the prostate cancer incidence rate was 59% higher in African-American men. African-American men also have the highest mortality rate for prostate cancer of any racial or ethnic group in the US. The death rate for prostate cancer is 2.4 times higher in African-American men than white men in the US.

"We are hopeful that this discovery will eventually lead to a simple genetic test for prostate cancer for African-American men who are at high risk for developing prostate cancer, allowing genetic counselling and earlier, potentially life-saving treatment" said Dr. Koochekpour.

Provided by Louisiana State University Health Sciences Center

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