

Genetic biomarker may predict nerve pain side effects associated with prostate cancer treatment

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Taxanes are a group of drugs commonly used to treat cancers of the breast, lung, ovary, or prostate, but its use can be limited by significant side effects. Researchers from Moffitt Cancer Center report prostate cancer patients who have a variation in the VAC14 gene are more susceptible to a side effect called peripheral neuropathy when treated with the taxane docetaxel.

Peripheral neuropathy is a common side effect of taxane treatment. Patients who suffer from this condition have damage to their [peripheral nerves](#) and experience weakness, numbness and pain usually in their hands or feet and occasionally in other areas of the body. This can limit the use of an otherwise effective cancer treatment.

In a study published online May 3 in the journal *Clinical Cancer Research*, researchers analyzed the DNA of men who had castrate-resistant [metastatic prostate cancer](#) and participated in a randomized phase 3 clinical trial that included docetaxel in the [treatment regimen](#). Out of 623 [prostate cancer](#) patients from the study, 50 (8.1%) experienced debilitating peripheral neuropathy.

The researchers examined the patients' DNA for genetic variations called single nucleotide polymorphisms (SNPs) that were associated with docetaxel-induced peripheral neuropathy. They discovered that a variation in the VAC14 gene was highly associated with the incidence of

docetaxel-induced [peripheral neuropathy](#).

"The genetic variant of VAC14 identified in this study could be useful for understanding the mechanism of docetaxel-induced neuropathy and may be informative for avoiding docetaxel treatment in patients at elevated neuropathy risk," said Howard McLeod, Pharm.D., medical director of the DeBartolo Family Personalized Medicine Institute at Moffitt. "This also offers new drug development strategies to improve the outcomes for cancer patients."

Provided by H. Lee Moffitt Cancer Center & Research Institute

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