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Biomarker test shows promise for melanoma diagnosis

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A new study shows that a test of biomarkers for DNA methylation is technically feasible and could aid in earlier, more precise diagnosis of melanoma.

In a paper that appeared online last week in the journal *Pigment Cell & Melanoma Research*, a team of UNC researchers tested whether DNA methylation profiling could be accomplished on melanoma and mole tissues that had been preserved in fixatives for typical pathology examination after biopsy. They found that results on tissues prepared in this way were reliable and DNA methylation distinguished malignant melanomas from non-malignant moles.

Melanoma is one of the only forms of cancer that is still on the rise and is the most common form of cancer in young adults. The incidence of melanoma in women under age 30 has increased more than 50 percent since 1980.

"When melanoma is diagnosed early, the prognosis is good. However, once it spreads, it is very difficult to treat. Melanomas and moles can appear similar on the skin and under the microscope making diagnosis of some melanomas difficult. That's why we wanted to determine whether a test for DNA methylation is feasible as a tool for diagnosis," added Nancy Thomas, MD, PhD, professor of dermatology and a member of UNC Lineberger Comprehensive Cancer Center.

Kathleen Conway Dorsey, Ph.D, added, "We are very excited because,

with this study, we have shown that this type of testing is feasible and that it has the potential to reliably distinguish between melanoma and benign skin lesions. Devising a molecular test that could aid in the early specific diagnosis of melanoma could have significant benefit for patients." Conway is assistant research professor of epidemiology at UNC's Gillings School of Global Public Health and a member of UNC Lineberger Comprehensive Cancer Center.

The team's research pinpointed sites on 22 genes that have significantly different methylation levels between melanomas and non-melanoma lesions, as well as 12 locations that are highly predictive of melanoma. According to Thomas, another goal of the team is to develop a DNA-methylation test for melanoma tumor DNA that is shed into the bloodstream and that can serve as a measure for disease activity.

"If this test can be developed, it opens the door to diagnose recurrence early and initiate treatment while tumors are more likely to respond to treatment. It would also give us another way to monitor patients for response to treatment and help us better optimize treatments for each patient," Thomas noted.

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