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Biomarker shows potential for early diagnosis of lung cancer

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A collaboration between physicians and scientists at UNC Lineberger Comprehensive Cancer Center and the University of Texas M.D. Anderson Cancer Center has demonstrated that a biomarker called TCF21 may be used to develop a potential screening test for early-stage lung cancer.

Despite the fact that lung cancer is the leading cause of cancer deaths worldwide, early-stage lung cancer is difficult to diagnose. A number of proposed screening tests, including screening CT scans and serum markers, have not shown any benefit in enhancing patient survival.

TCF21 is a transcription factor – a protein that binds to DNA, allowing it to reproduce itself accurately, allowing cells to multiply and replace themselves in a consistent manner. When these transcription factors don't work properly (through a process called hypermethylation), cellular growth mechanisms can be disrupted, leading to cancer.

"We were very excited to find evidence of TCF21 hypermethylation in 105 non-small-cell lung cancers of different stages and types, which we then validated by looking at another 300 cases using a tissue microarray," said Kristy Richards, PhD,MD, who led the research.

"More than 80 percent of these cancers show some abnormal expression of this biomarker, meaning that it is a promising target for developing a screening tool. This is important to physicians and patients because surgery and other treatments can be much more effective before the

cancer has the opportunity to spread."

More information: The research results were published in the journal *Cancer*.

Provided by University of North Carolina School of Medicine