

Differential Expression of Telomere DNA in Blood content for Cancer Diagnostics

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Human blood typically contains a very small amount of cell free DNA (cfDNA) of uncertain origin. The amount and makeup of this circulating DNA been shown to change with the presence of cancer in the body. These alterations are used currently in some countries as very rudimentary tests for specific cancers and their mutations, which is reflected in the cfDNA. Little is known about the extent of the changes as the field is very young, though very promising. Telomeres are repetitive DNA elements that function as chromosomal caps, and are essential to cancer survival. Their function in cell life limitation mandates that all cancer find a method by which to bring about telomere dysfunction, making telomere a uniquely universal cancer element. It is possible, therefore, that telomere presence in cfDNA would be altered in many cancers, providing a powerful biomarker for cancer diagnostics and prognostics. This study shows a direct link between cancer presence and an augmented telomeric DNA ration in the blood. This idea could pave the way for a powerful early warning test for difficult cancers.

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