World Academy of Science, Engineering and Technology
International Journal of Medical and Health Sciences
Vol:16, No:05, 2022

# Evaluating the Diagnostic Accuracy of the ctDNA Methylation for Liver Cancer

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**Abstract :** Objective: To test the performance of ctDNA methylation for the detection of liver cancer. Methods: A total of 1233 individuals have been recruited in 2017. 15 male and 15 female samples (including 10 cases of liver cancer) were randomly selected in the present study. CfDNA was extracted by MagPure Circulating DNA Maxi Kit. The concentration of cfDNA was obtained by Qubit™ dsDNA HS Assay Kit. A pre-constructed predictive model was used to analyze methylation data and to give a predictive score for each cfDNA sample. Individuals with a predictive score greater than or equal to 80 were classified as having liver cancer. CT tests were considered the gold standard. Sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) for the diagnosis of liver cancer were calculated. Results: 9 patients were diagnosed with liver cancer according to the prediction model (with high sensitivity and threshold of 80 points), with scores of 99.2, 91.9, 96.6, 92.4, 91.3, 92.5, 96.8, 91.1, and 92.2, respectively. The sensitivity, specificity, positive predictive value, and negative predictive value of ctDNA methylation for the diagnosis of liver cancer were 0.70, 0.90, 0.78, and 0.86, respectively. Conclusions: ctDNA methylation could be an acceptable diagnostic modality for the detection of liver cancer.

**Keywords :** liver cancer, ctDNA methylation, detection, diagnostic performance
**Conference Title :** ICCST 2022 : International Conference on Cancer Screening Tests
**Conference Location :** London, United Kingdom
**Conference Dates :** May 26-27, 2022

Open Science Index, Medical and Health Sciences Vol:16, No:05, 2022 publications.waset.org/abstracts/146512.pdf