

# Investigations of a New Diagnostics Technology for Hepatocellular Carcinoma Screening

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Abstract:

**Background:** A newly developed diagnostic technology named Cancer Differentiation Analysis Technology (CDA) was investigated for hepatocellular carcinoma (HCC) screening. The CDA technology is a blood-sample based, multi-level, multi-parameter diagnostic method which detects signals from both proteins and cells, in which multiple aspects of information collected to improve diagnostic accuracy. **Methods:** Blood samples from patients with HCC (n = 511), cirrhosis (n = 71) and other benign liver diseases (BLD) (n = 46), as well as control subjects (n = 79) were collected in EDTA tubes. CDA values were measured using a CDA device. After removing outliers, the final valid CDA data came from 485 HCC patients, 64 cirrhosis, 44 other benign liver diseases, and 75 controls. All data were analyzed and the results were shown in the table below. **Results:** The average CDA of HCC, cirrhosis, BLD, and controls were 53.14, 44.04, 41.90, and 33.90 (rel. units), respectively. The results indicated that HCC could be significantly distinguished from the control, BLD, and cirrhosis (all  $p < 0.001$ ), and the control could be distinguished from BLD and cirrhosis (both  $p < 0.001$ ). The false positives in HCC diagnostic tests could possibly be reduced with this new technology, given statistically significant difference between HCC, and cirrhosis and BLD.

**Conclusions:** Initial results showed that CDA technology could be a potential candidate for HCC screening.

**Table 1 Summary of CDA Test Results.**

Group	Number of CDA Data Set	Gender (Male %)	Age Range (year)	Average Age (year)	Median Age (year)	Average CDA (rel. units)	Median CDA (rel. units)	SD of CDA (rel. units)
HCC	485	87	32 - 87	58	58	53.14	53.49	4.03
Hepatocirrhosis	64	83	19 - 81	55	54	44.04	43.83	5.74
BLD	44	68	24 - 75	54	51	41.90	43.43	6.05
Control	75	57	23 - 89	50	49	34.24	33.90	4.76