

# **Role of Golgi protein 73(GP73) as a marker for Hepatocellular carcinoma(HCC)**

*Thesis*

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

سبحانك لا علم لنا  
إلا ما علمتنا إنك أنت  
العليم العظيم

صدق الله العظيم

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# List of Abbreviations

<b>AASLD</b>	American Association for the Study of Liver Diseases
<b>Ab</b>	Antibody
<b>AFB1</b>	Aflatoxin B1
<b>AFP</b>	alpha-fetoprotein
<b>AFP L3</b>	Lens culinaris agglutinin A reactive AFP
<b>Ag</b>	Antigen
<b>AIH</b>	Autoimmune hepatitis
<b>AJCC</b>	American Joint Committee on Cancer
<b>ALP</b>	Alkaline phosphatase
<b>ALT</b>	Alanine aminotransferase
<b>AMACR</b>	Alpha-methylacyl-CoA racemase
<b>ARID2</b>	AT Rich Interactive Domain 2
<b>AST</b>	Aspartate aminotransferase
<b>BCLC</b>	Barcelona Clinic Liver Cancer
<b>BCP</b>	basal core promoter
<b>CHB</b>	Chronic hepatitis b
<b>CLD</b>	Chronic liver disease
<b>CLIP</b>	Cancer of the Liver Italian Program
<b>CLU</b>	Clusterin
<b>DCP</b>	Desgamma-carboxy prothrombin
<b>EASL</b>	European Association for the Study of the Liver
<b>EGF</b>	Epidermal growth factor
<b>EGFR</b>	Epidermal growth factor receptor
<b>ER</b>	endoplasmic reticulum
<b>FES</b>	Feline sarcoma oncogene
<b>GGTII</b>	Gamma-glutamyl transferase isoenzyme II
<b>GP73</b>	Golgi protein 73
<b>HBV</b>	hepatitis B virus

<b>HCC</b>	Hepatocellular carcinoma
<b>HCV</b>	hepatitis C virus
<b>HDV</b>	hepatitis D virus
<b>HH</b>	hereditary hemochromatosis
<b>IARC</b>	International Agency for Research on Cancer
<b>LT</b>	Liver transplantation
<b>MC</b>	Milan criteria
<b>MELD</b>	Model of end-stage liver disease
<b>MRI</b>	Magnetic resonance imaging
<b>NAFLD</b>	Non-alcoholic fatty liver disease
<b>NASH</b>	non-alcoholic steatohepatitis
<b>PC</b>	proprotein convertase
<b>PDGFR</b>	platelet-derived growth factor receptor
<b>PEI</b>	Percutaneous ethanol injection
<b>PELD</b>	Pediatric end-stage liver disease
<b>PIK3CA</b>	phosphatidylinositol-4,5-bisphosphate 3-kinase catalytic subunit alpha
<b>PST</b>	Performance status test
<b>PTHrP</b>	parathyroid hormone-related protein
<b>RFA</b>	Radiofrequency ablation
<b>ROC</b>	Receiver operator characterizing curve
<b>sGP73</b>	serum Golgi protein 73
<b>TACE</b>	Transcatheter arterial chemoembolization
<b>TAE</b>	Transcatheter arterial embolization
<b>TGF</b>	Tumor Growth Factor
<b>TM</b>	transmembrane domain
<b>TNF-<math>\alpha</math></b>	Tumor necrosis factor alpha
<b>VEGFR</b>	vascular endothelial growth factor receptor
<b>WHO</b>	World Health Organization
<b>WNT</b>	Wingless-type MMTV integration site family member

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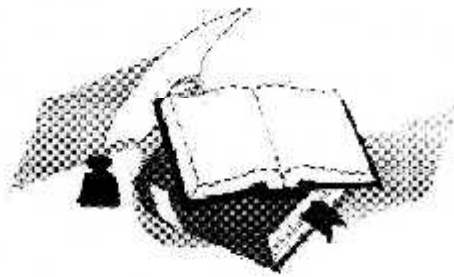
Ahmed Abbas



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# *Introduction*

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# **Introduction**

Hepatocellular carcinoma (HCC) is the most common type of primary liver cancer and represents the third leading cause of cancer-related mortality worldwide. HCC is particularly prevalent in Asia and Africa. *(Thun MJ et al., 2010).*

Unfortunately, patient survival with HCC has only been marginally improved over the last 20 years. Between 1981 and 1998, the 5-year survival rate only rose from 2% to 5%. The poor survival rate is mainly related to late diagnosis of HCC, when effective therapies are lacking. Surveillance of patients at highest risk for developing HCC (i.e., patients with cirrhosis) is an important strategy that can potentially decrease the HCC related mortality rate. Although HCC meets the criteria of a tumor that would benefit from a surveillance program, the poor sensitivity and specificity of currently available tools has prevented widespread implementation of HCC surveillance. *(Sangiovanni A et al., 2004).*

The majority of HCC cases are detected at advanced stages of the disease, which precludes the use of curative

surgical therapy. The prognosis of HCC is generally poor and the mortality rate is similar to the incidence rate. Consequently, detection of early-stage HCC remains an effective approach to substantially improve the overall outcome of individuals with HCC. (*Fattovich G et al., 2004*).

The diagnosis of HCC is usually determined via tumor biomarkers in serum and by instrumental tests, including hepatic ultrasonography, computed tomography, magnetic resonance imaging and biopsy. Although a number of studies have investigated positive cancer biomarkers for HCC, none have been identified as the optimal choice. At present, a-fetoprotein (AFP) detection has been widely adopted for the diagnosis of HCC despite its low sensitivity (*Zoli M et al., 1996*).

The use of serological markers in patients at the highest risk for developing HCC can thus decrease the cancer-related mortality and reduce medical costs. Alpha-fetoprotein (AFP) has been the only standard serum marker for the detection of HCC for the last 40 years, even though its sensitivity of 39-65% is not very satisfactory.