Clinical Significance of Serum Des-Gamma Carboxy Prothrombin in Hepatocellular Carcinoma

Thesis
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List of abbreviations

AASLD : American association of the study of liver disease
AFP : Alpha fetoprotein
AFU : Alpha -L- fucosidase
AJCC : American Joint Committee on Cancer
ALP : Alkaline phosphotase
ALT : Alanine aminotransferase
AMP : Amino-2-methyl-1-propanol
AST : Aspartate aminotransferase
AU : Arbitrary unit
AUC : Area under the curve
BCL-2 : B-cell lymphoma 2
BCLC : Barcelona clinic liver cancer
BCP : Bromocresol purple
CA 125 : Cancer antigen 125
Cdks : Cyclin dependant kinases
CEA : Carcinoembryonic antigen
CEUS : Contrast enhanced ultrasound
CLD : Chronic liver disease
CLIP : Cancer Liver Italian Programme
CNB : Core needle biopsy
CT : Computed tomography
CV : Coefficient Variation
DAB : Diamino-benzidine
DCP : Des- gamma carboxyprothrombin
DN : Dysplastic nodule

DNA **:** Deoxy ribonucleic acid

EASL **:** European association of study of liver disease

ECF **:** Epithelial fibroblastoid conversion

ECLIA **:** Electrochemiluminescence immunoassay

EDTA **:** Ethylene diamine tetra acetate

EIA **:** Enzyme immunoassay

ELISA **:** Enzyme linked immunosorbant assay

EMT **:** Epithelial to mesenchymal transition

FHCC **:** Fibrolamellar hepato cellular carcinoma

FNAB **:** Fine needle aspiration

GGT **:** Gamma-glutamyl transferase

GPC3 **:** Glypican-3

HBV **:** Hepatitis B virus

HCC **:** Hepatocellular carcinoma

HCV **:** Hepatitis C virus

HGF **:** Hepatocyte derived growth factor

HIF-1a **:** Hypoxia inducible factor-1 a

HRP **:** Horseradish Peroxidase

HTEP1 **:** Human telomerase associated protein 1

hTERT **:** Human telomerase reverse transcriptase

HUVEC **:** Human umbilical vein endothelial cells

IC **:** Immune complex

IEP **:** Immuno electrophoresis

IFN **:** Interferon

IGF-II **:** Insulin like growth factor –II

INR **:** International Normalized Ratio

JAK **:** Jenus Kinase activator system

KDR : Kinase insert domain receptor
LDH : Lactate dehydrogenase
LDL : Lower detection limit
LDLT : Living donor liver transplantation
MAPK : Mitogen activated protein kinase
MPCT : Multiphasic helical CT
MRI : Magnetic resonance imaging
MRN : Macroregenerative nodule
mRNA : Messenger ribonucleic acid
NAFLD : Non alcoholic fatty liver disease
NASH : Non alcoholic steatohepatitis
NCI : National cancer institute
NHL : Non Hodgkin lymphoma
NPV : Negative Predictive Value
PBS : Phosphate buffered saline
PCL-y : Phospholipase C-y
PCR : Polymerized chain reaction
PET : Positron emission tomography
PHC : Primary hepatic cancer
PIVKA-II : Protein induced by vitamin K absence or antagonist –II
PPV : Positive Predictive Value
PT : Prothrombin time
PVT : Portal vein thrombosis
ROC : Receiver-operating characteristic
RT-PCR : Reverse Transcriptase PCR
SCCA : Squamous cell carcinoma antigen
SD : Standard deviation

SHF **:** Schistosomal hepatic fibrosis

STAT 3 **:** Signal transforming activation transducer 3

TGF- β1 **:** Transforming growth factor beta 1

TNF- α **:** Tumor necrosis factor – α

TNM **:** Tumor node metastasis

US **:** Ultrasonography

USA **:** United States of America

VEGF **:** Vascular endothelial growth factor

VEGFR **:**Vascular endothelial growth factor receptor

VKOR **:** Vitamin K epoxide reductase

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Dedication

I would like to dedicate this Thesis to my **Father** *and my* **Mother**; *to them I will never find adequate words to express my gratitude.*

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Introduction

Hepatocellular carcinoma (HCC) is a major health problem worldwide. It is the fifth most common cancer and the third leading cause of cancer-related death ***(Lau and Lai, 2008).***

Patients with hepatitis B and C related liver cirrhosis are at high risk of developing HCC.The prognosis of patients with HCC is poor when diagnosed at an advanced stage but when diagnosed and treated at an early stage, the 5-year survival rate may reach up to 70-80 %.Therefore early detection of HCC is a critical goal to improve the patient outcome ***(Sonia et al., 2008).***

Histo-pathological examination of tumor biopsy is considered the golden standard for diagnosis of HCC. However, it is considered an invasive technique with high risk of seeding the tumor along the biopsy tract (***Change et al., 2008).***

As regards serologic screening, alpha fetoprotein (AFP) still represents the currently used test for HCC even though its sensitivity of 39 to 65% is not very satisfactory and there is a high rate of false negative and false positive results ***(Wei et al., 2006 and Shariff et al., 2009).*** Hence, there is an urgent need for more reliable noninvasive recent biomarkers with better sensitivity and specificity for early diagnosis of HCC.