



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم



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شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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Glypican-3: A Promising Biomarker for Hepatocellular Carcinoma Diagnosis

Thesis

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Internal Medicine*

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالَ

سَبَّحَانَكَ لَا إِلَهَ إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ
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List of Abbreviations

| Abb. | Full term |
|---------------------------|---|
| ¹⁸ F-FDG | ¹⁸ F-fluorodeoxyglucose |
| A1ATD..... | α1-Antitrypsin deficiency |
| ADC | apparent diffusion coefficient |
| ADCC..... | Antibody-dependent cellular cytotoxicity |
| AFP | Alpha feto protein |
| AFP-L3 | Lens culinaris agglutinin-reactive AFP |
| BALB/c | Albino, laboratory-bred strain |
| BCLC..... | Barcelona clinical liver cancer staging system |
| CD4..... | Cluster of differentiation 4 |
| CDC | Complement-dependent cell cytotoxicity |
| CEUS..... | Contrast-enhanced ultrasound |
| CLC..... | Chronic liver cirrhosis |
| CSPH..... | Clinically significant portal hypertension |
| CT | Computerized tomography |
| DCP | Des-γ-carboxy prothrombin |
| DWI | Diffusion-weighted imaging |
| EASL | European Association for the Study of the Liver |
| EGF | Epidermal growth factor |
| GPC-3 | Glypican3 |
| GPI..... | Glycosylphosphatidylinositol |
| HBV | Hepatitis B virus |
| HCC | Hepatocellular carcinoma |
| HCV | Hepatitis c virus |
| HFL | Hepatic focal lesion |
| HIV | Human immunodeficiency virus |
| IGFs..... | Insulin-like growth factors |
| LMR..... | Lymphocyte-to-monocyte ratio |

List of Abbreviations Cont...

| Abb. | Full term |
|-------------|---|
| LT | Liver transplant |
| MDCT | Multi-detector helical CT |
| MPCT | Multiphasic helical computerized tomography |
| MRI..... | Magnetic resonance Imaging |
| NAFLD | Nonalcoholic fatty liver disease |
| NASH | Nonalcoholic steatohepatitis |
| NLR | Neutrophil-to-lymphocyte ratio |
| PDGF..... | Platelet-derived growth factor |
| PET..... | Positron emission tomography |
| PLR..... | Platelet-to-lymphocyte ratio |
| PS | Performance status |
| PVT..... | Portal vein thrombosis |
| RFA..... | Radio frequency ablation |
| ROC | Receiver operating Characteristics |
| sGPC3..... | Soluble form of glypican3 |
| SqCC..... | Squamous cell carcinoma |
| T2DM..... | Type 2 diabetes mellitus |
| TACE | Trans arterial chemo embolization |
| TGF..... | Transforming growth factor |
| VEGF | Vascular endothelial growth factor |
| WHO | World health organization |

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INTRODUCTION

HCC is considered to be the fifth commonest cause of cancer-related morbidity. Moreover, HCC incidence is rapidly rising at alarming rates, and it has become a major global health concern (*Kimhofer et al., 2015*).

In Egypt, the risk factors for HCC are either environmental- or host/genetic-related risk factors. In the last years, there is a tangible improvement of both screening and surveillance strategies of HCC in Egypt. The unprecedented national screening campaign launched by the end of 2018 is a mirror image of this improvement. While the improvement of the HCC prevention requires the governmental health administration to implement health policies. Although the diagnosis of Egyptian HCC patients follows the international guidelines but HCC treatment options are limited in terms of cost. In addition, there are limited Egyptian reports about HCC survival and relapse. Both basic and clinical HCC research in Egypt is still limited compared to worldwide (*Rashed et al., 2020*).

AFP levels have been dropped from current surveillance guide-lines in Europe and the United States because of its low sensitivity and specificity. Therefore, a novel biomarker with superior diagnostic accuracy than AFP is greatly desired (*Liu. et al., 2014*).

Glypican-3 (GPC3) is a member of the glypican family of glycosyl-phosphatidylinositol-anchored cell-surface heparan-sulfate proteoglycans. Its levels increase considerably in patients with HCC, while GPC3 is not detected in healthy liver tissue, so it has been identified as a useful tumor marker for HCC diagnosis (*Rojas et al., 2018*). Investigation of usefulness of serum GPC3 level showed that GPC3 protein is an early sensitive and specific serum marker for initial diagnosis of HCC and for HCC recurrence after liver transplantation (*Yu et al., 2015*).