# بسم الله الرحمن الرحيم


MONA MAGHRABY

# شبكة المعلومات الجامعية

# التوثيق الالكتروني والميكروفيلم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

# جامعة عين شمس

# التوثيق الإلكتروني والميكروفيلم

# قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

# يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

***MONA MAGHRABY***

# Genetic Polymorphism of Selected Genes as Susceptible Risk Factors in the Progression of Hepatitis C Viral Infection to Hepatocellular Carcinoma

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**For the Fulfillment of the PhD Degree in Biochemistry**

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بسم الله الرحمن الرحيم
(قَالُوا سُبْحَانَكَ لاَ عِلْمَ لَنَا إِلاَّ
مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ العَلِيمُ
الحَكِيمُ)
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*I declare that this thesis has been composed by myself and the work herein has not been submitted for a degree at this or any other university.*

*Hany Mohammed Mohammed*

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***Hany M. Mohammed***

# *Abstract*

**Background:** Owing to the high infection prevalence of hepatitis C virus (HCV), hepatocellular carcinoma (HCC) is considered a major health problem in Egypt. Identification of host genetic factors influencing the risk of developing HCC in patients with HCV infection may help to refine patients' selection to benefit from specific preventative measures and/or adapted screening policies. Thus, the current study aimed to investigate the association of *MTHFR* C677T and A1298C in addition to *TS* 3´-UTR 1494del/ins 6bp polymorphisms with the susceptibility to HCV-related HCC in an Egyptian population.

**Method:** Genotyping of the polymorphisms under study was performed using polymerase chain reaction-restriction fragment length polymorphism in 90 HCV-related HCC patients, 104 HCV-cirrhotic patients, and 100 healthy controls.

**Results:** In healthy controls, the *MTHFR* C677T polymorphism under the homozygous codominant, recessive, and allelic models, the *MTHFR* A1298C polymorphism under all the genetic models, and *TS* polymorphism under the allelic model only were associated with an increased risk of HCC. In HCV patients, the *MTHFR* C677T polymorphism under all the genetic models, as well as both *MTHFR* A1298C and *TS* polymorphisms under the homozygous codominant model only, increased the susceptibility to HCC. The C/C and T/C haplotype combinations of *MTHFR* C677T and *MTHFR* A1298C polymorphisms conferred increased the risk for healthy subjects to develop HCC whereas, the T/C haplotype only contributed to increased susceptibility to HCC in HCV patients.

**Conclusion:** *MTHFR* C677T and A1298C in addition to *TS* 3´-UTR 1494del/ins 6bp polymorphisms may contribute to the development of HCV-related HCC in an Egyptian population. These findings may aid in the early diagnosis and management of HCC.

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