بسم الله الرحمن الرحيم

قالوا سبحانك لا علم لنا الا ما علمتنا انك انت العليم الحكيم

سورة البقره الايه ٣٢

Identification And Characterization Of Bacterially Expressed Structural Protein Of Hepatitis C Virus Genotype 4

A Thesis
Submitted to

Chemistry Department, Faculty of Science
Cairo University

For the degree of Master Of Science in Biochemistry

By

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B.Sc in Basic Science, Cairo University
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Faculty of Science
Cairo University
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تعريف وتوصيف البروتين التركيبى الخاص بفيروس سى النوع الجينى الرابع باستخدام بكتريا معدله وراثيا

رسالة مقدمة الى

قسم الكيمياء - كلية العلوم – جامعة القاهرة

للحصول على درجة الماجستير فى العلوم

(الكيمياء الحيوية)

من الطالبه

فريال فاروق ابراهيم على شريف

مجموعة الفاكسينات، المركز القومى للبحوث

تحت اشراف

ا.د/ حمدى محمود حسانين

أستاذ الكيمياء العضويه

قسم الكيمياء- كلية العلوم

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استاذ مساعد التكنولوجيه الحيويه النباتيه

شعبة الهندسه الوراثيه و التكنولوجيه الحيويه

كلية العلوم

جامعة القاهرة

٢٠١٠

APPROVAL SHEET FOR SUBMISSION

Title of (MSc.) Thesis: Identification and characterization of bacterially expressed structural protein of hepatitis c virus genotype 4.

Name of the candidate: Feryal Farouk Ibrahim Ali Sherif.

This thesis has been approved for submission by the supervisors:

1-Prof.Dr. Hamdi Mahmoud Hassaneen.

Signature:

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2-Dr. Mohamed Aly El-Desouky.

Signature:

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3- Associate Prof. Dr. Mohei El-Din Solliman.

Signature:

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Prof.Dr. Mohamed Mohamed Shoukry

Chairman of chemistry department
Faculty of science – Cairo University

Abstract

Core and E1 are structural components of hepatitis C virus (HCV) virion. They are considered as major candidates for anti-HCV vaccine. In the present study, cloning and expression of hepatitis C virus (HCV) polyprotein encoding the first (340 a.a) of the full-length of core gene and the truncated Envelope 1 (E1t) lacking its C-terminal (42 a.a) were demonstrated in *E.coli.* Extracted RNA from infected patients were amplified using nested RT-PCR and cloned in pSC-A vector. Analysis of engineered bacteria harboring the target fragment by sequencing and sequences analysis were revealed that the high sequences homology was given with HCV genotype 4. For protein expression, the fragment was sub-cloned in pET28c and under T7 promoter then transformed into BL21 DE3pLysS *E.coli* strain. Analysis with SDS-PAGE after bacterial induction was revealed, a prominent band of approximately 36 kD corresponding to expressed protein.

Key words: hepatitis C virus (HCV), core, Envelope (E1), protein expression, genotype and SDS-PAGE.

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Feryal farouk Ibrahim

DEDICATION

I dedicate this work to whom my heart felt thanks;

My Great & Beloved Dad

My Kind & Beloved Mom

My Dearest Sisters

Fadwa, Fayrouz & Fagr

My sweetheart

"Nouran, Abdel-Allah, Haneen and Fares"

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I thank GOD for choosing you to be my family.

Thank you for supporting me

With kindness, patience……and love.

Yours,

Feryal Farouk Ibrahim

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