بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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شبكة المعلومات الجامعية

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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MONA MAGHRABY

Faculty of Science
Biochemistry Department
Ain Shams University

Role of Vitamin D Receptor Polymorphism in Breast Cancer

A Thesis

Submitted for the Degree of Master of Science as a Partial Fulfillment of the Requirements of the Degree Master of Science in **Biochemistry**

Submitted by

Nariman Ahmed Abdelhamid
(B.Sc. Biochemistry, 2006)

Under Supervision of

Prof. Dr. Nadia Y. S. Morcos
Professor of Biochemistry
Faculty of Science, Ain Shams University

Prof. Dr. Laila A. Rashed
Professor of Medical Biochemistry
Faculty of Medicine, Cairo University

Assistant Prof. Dr.Abdel-Rahman B. Abdel-Ghaffar
Assistant Professor of Biochemistry
Faculty of Science, Ain Shams University

Faculty of Science, Ain Shams University
2020

Role of Vitamin D Receptor Polymorphism in Breast Cancer

ABSTRACT

Breast cancer is the most commonly diagnosed female specific cancer and shows an increasing trend in diagnosed cases. Higher vitamin D exposure is thought to prevent breast cancer through genomic effect modulated by vitamin D receptor (VDR). This study aims to investigate the association of Fok 1 polymorphism of VDR gene to breast cancer patient. Seventy-five Egyptian women diagnosed with breast cancer in stages 2,3,4 were selected. In addition, twenty-five normal women were also included in the study as control subjects. Genomic DNA was extracted from peripheral blood leukocytes using the salting out procedure. Polymerase chain reaction –restriction fragment length polymorphism (PCR-RFLP) was performed to identify the VDR genotypes of the Fok 1 polymorphism. This study provides an additional proof that Fok1 polymorphism is not associated with the risk of breast cancer but a mild shifting towards FF genotype was also found in breast cancer patients. Further studies are needed to clarify the relation between Fok 1 polymorphism and breast cancer in Egyptian women.

BIOGRAPHY

Name: Nariman Ahmed Abdelhamid

Date and place of Birth: 27/4/1985, Cairo, Egypt

Date of graduation: May, 2006

Degree awarded: B.Sc. of Biochemistry, 2006

Grade: Very good

Date of Registeration: July, 2013.

I declare that this thesis has been composed by me and the work of which it is a record has been done by me. It has not been submitted for a degree at this or other any university.

Nariman Ahmed Abdelhamid

سورة البقرة الآية: ٣٢

Acknowledgments

First and foremost, I feel always indebted to ***Allah*** *the Most Beneficent and Merciful.*

I would like to dedicate this work to my father soul and to all my family who supported me to complete this work with the way it is.

I would like to express my sincere gratitude to ***Prof. Dr. Nadia Y.S. Morcos****, Professor of biochemistry Faculty of Science Ain shams University for her endless support and sincere advise.it has been an honor to work under her supervision.*

I would also like to express my gratitude for ***Prof. Dr. Laila A. Rashed*** *Professor of Medical Biochemistry, Faculty of Medicine, Cairo University for helping me choosing this interesting subject and for her support and advice.*

I wish to express my deepest thanks and gratitude to ***Dr. Abdel-Rahman B. Abdel-Ghaffar****, Assistant Professor of Biochemistry, Faculty of Science, Ain shams University, for his great help, valuable guidance, generous support and friendly attitude.*

Finally, I would like to thank all the staff of biochemistry department, Faculty of Science, Ain shams University and everyone who shared in this work.

Nariman Ahmed Abdelhamid

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List of Abbreviations

Abb.	Full term
$1,25(OH)_2D_3$	*25-hydroxyvitamin D_3*
ABC	*Abortion-breast cancer*
AI	*Adequate intake*
ATG	*A start codon*
BMI	*Body mass index*
bp	*Base pair*
CA	*Cancer antigen*
CBE	*Clinical breast examination*
DBP	*Binding protein*
EB	*Ethidium Bromide*
ER	*Estrogen receptors*
ER	*Estrogen-receptors*
ER6	*Six nucleotides*
HER2	*Human epidermal growth factor receptor 2*
HRPO	*Horseradish peroxidase*
iNOS	*Inducible nitric oxide synthase*
IOM	*Institute of Medicine*
LBD	*Ligand binding*
MLL	*Metastatic prostatic adenocarcinoma Dunning*
MS	*Multiple sclerosis*
NADPH	*Nicotinamide adenine dinucleotide phosphate*
NCDs	*Non-communicable diseases*
O-CPC	*O-Cresolphthalein complexone*
PAMPs	*Pathogen-associated molecular patterns*
PCDDs	*Polychlorinated dibenzodioxins*
PCR-RFLP	*Polymerase chain reaction-restriction fragment length polymorphism*
PIP2	*Phosphoinositol bisphosphate*
PR	*Progesterone receptors*
PR	*Progesterone-receptors*
PTH	*Parathyroid hormone*

List of Abbreviations cont...

Abb.	Full term
RFLPs	*Restriction Fragment Length Polymorphisms*
RXR	*Retinoid X receptor*
SCC	*Squamous cell carcinoma*
SNP	*Single-nucleotide polymorphisms*
TAE	*Tris-Acetate EDTA buffer*
TLRs	*Toll-like receptors*
TMB	*Tetramethylbenzidine*
UTR	*Untranslated region*
VDBP	*Vitamin D binding protein*
VDR	*Vitamin D receptor*
VDREs	*Vitamin D responsive elements*