

THE ROLE OF TNF α IN THE PATHOGENESIS OF ACNE VULGARIS

Thesis

Submitted For Partial Fulfillment of Master Degree in
Dermatology & Venereology

Presented By

Hoda Mostafa Ahmed

M.B. B.Ch

Cairo University

SUPERVISORS

Prof. Dr. Mohamed El Saad El Rifaie

Professor of Dermatology

Faculty of Medicine- Cairo University

Dr. Omar Ahmed Azzam

Assistant Professor of Dermatology

Faculty of Medicine-Cairo University

Dr. Nancy Mohamed El Guindy

Assistant Professor of Clinical and

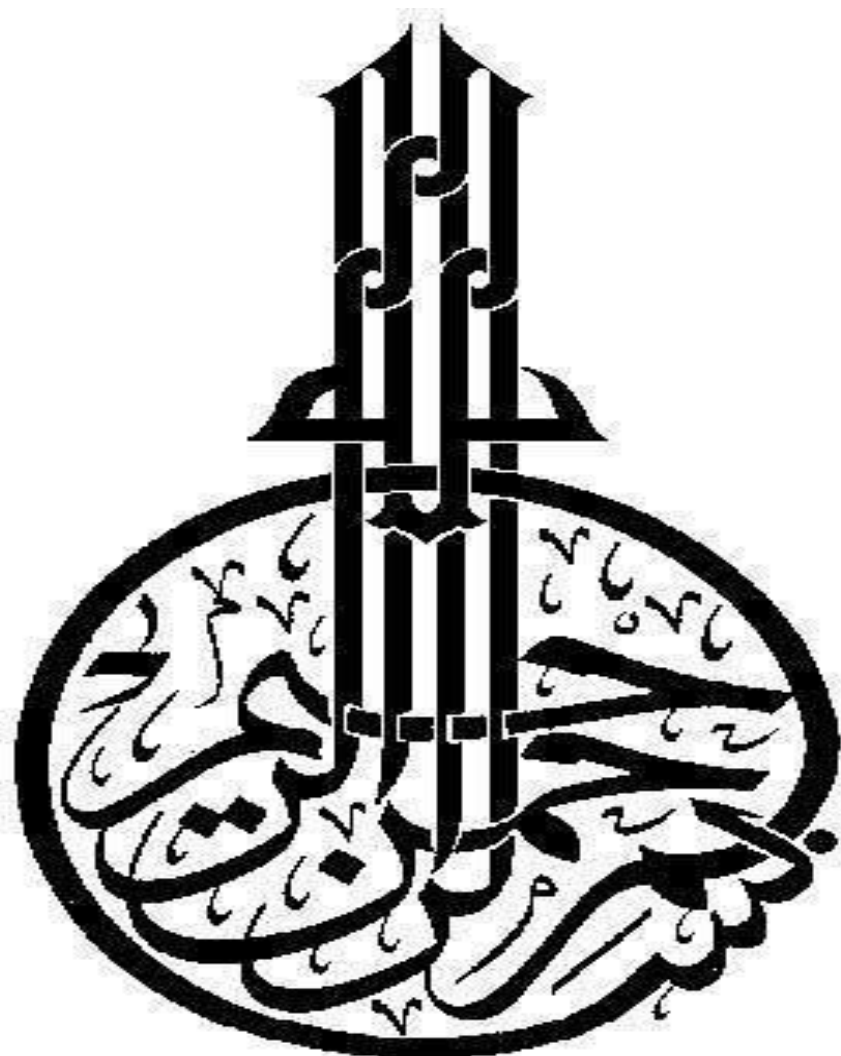
Chemical of Pathology

Faculty of Medicine-Cairo University

Faculty of Medicine

Cairo University

2006



Her &

[illegible]

(سورة البقرة)

Acknowledgment

It is great honor to express my deep gratitude and appreciation to Prof. **Dr. Mohamed El Saad El Rifaie** , Professor of Dermatology – Faculty of Medicine – Cairo University , for his cooperation and continuous guidance. He has sacrificed a lot of his busy time to teach me and revise over step of this thesis.

I wish to thank **Dr. Omar Ahmed Azzam** – Assistant Professor of Dermatology – Faculty of Medicine – Cairo University , who offered much of his time for providing me with close and meticulous supervision, precious guidance and support. He spared neither time nor knowledge until the end of this work.

I would like to express my sincere thanks to **Dr. Nancy Mohamed El Guindy** Assistant Professor of Clinical & Chemical Pathology – Faculty of Medicine – Cairo University , who kindly offered me much of her time and experience in the laboratory aspect of this work.

I would also like to thank all my patients and their families for their cooperation.

Finally, i acknowledge my family, colleagues and all those who helped me in this work.

Hoda Mostafa Ahmed

Contents

	Page
❖ List of abbreviations	i
❖ List of figures	ii
❖ List of tables	iii
❖ Introduction and aim of the work	iv
❖ Review of literature	
➤ Acne Vulgaris	3
➤ Clinical types of acne vulagris	5
➤ Clinical lesions of acne vulgaris	8
➤ Eitopathogenesis of acne vulgaris	10
➤ Propionibactenrium acnes	17
➤ Other pathogenic factors affecting cel proliferation and differentiation	21
➤ Pathogenesis – related treatment approaches	24
➤ Tumour necrosis factor	31
➤ Mechanism of action of TNF	37
➤ TNF α	40
➤ Effects of TNF α	43
➤ Other effect of TNF α	45
➤ TNF α and autoimmune diseases	47
➤ TNF α and irritant contact dermatitis	48
➤ TNF α and other cytokines	49
❖ Subjects and methobs	51

❖	Results	60
❖	Discussions	75
❖	Summary and conclusion	82
❖	Recommendation	84
❖	References	85
❖	Arabic summary	103

List of Abbreviations

TNF	Tumour Necrosis Factor
LT	Lymphotoxin
PCR	Polymerase Chain Reaction
PSU	Pilosebaceous Unit
E Coli	Echerichia Coli
5- α DHT	5 Alpha- Dihydroxy Testosterone
17 β HSD	17 Beta Hydroxyl Steroid Dehydrogenase.
I L α	Interleukin Alpha
DHEA	Dehydroepiandrosterone
PARS	Peroxisome Hyper Proliferator Activated Receptors
P. acnes	Propionibacterium Acnes
RAR	Retinoic Acid Receptor
TLR	Toll Like Receptor
MW	Molecular Weight
CD	Cluster Of Differentiation
Fas L	Fas Ligand
TNFR	Tumour Necrosis Factor Receptor
LNGFR	Low Affinity Nerve Growth Factor Receptor
MHC	Major Histocompatibility Complex
Ig M	Immunoglobulin M
NK	Natural Killer
LPS	Lipopolysaccharids

TGF	Transforming Growth Factor
KD	Kilodalton
MLC	Myosin Light Chain
ASM	Airway Smooth Muscle
LPS	Lipopolysaccharide
ACTH	Adrenocorticotropic-Releasing Hormone
INF	Interferon
ICAM	Intracellular Adhesion Molecule
RA	Rheumatoid Arthritis
SLE	Systemic Lupus Erythematosus
ICD	Irritant Contact Dermatitis
RFLP	Restriction Fragment Length Polymorphism
DNTPS	Deoxynucleoside 5' Triphosphate
OR	Odds Ratio
CS	Culture Supernatant
CCL	Crude Cell Lysate
EA	Eluted Antigen
GM. CSF	Granulocyte Monocyte Colony Stimulating Factor

List Of Figures	Page
1. Current understanding of the development of acne lesions	12
2. Tumour necrosis factor family	32
3. The fas / TNF / NGF receptor family	35
4. DNA extraction kit and VDR primer	59+
5. Spectrophotometer for detection of DNA concentration after extraction	59+
6. PCR Express device for DNA amplification	59+
7. Gel electrophoresis machine	59+
8. Gel sheet on ultraviolet trans-illuminator	59+
9. Mean value of age in patient and control.	62
10. The relation between types of acne for patients as percentage.	63
11. The duration between sex of patients as percentage.	64
12. Mean value of age and disease duration for patient and control.	66
13. Relation between sex of control as percentage	67
14. TNF polymorphism in patients	68
15. TNF polymorphism in control	69
16. Photograph show electrophoresis run of some of DNA samples.	70

	List Of Tables	Page
1.	Molecular comparison of characterizes of TNF α and TNF β	39
2.	Discreptive analysis for age, disease duration , sex of type of acne among patients .	60
3.	Discreptive analysis for age, sex in control group.	61
4.	Discreptive analysis of TNF polymorphism for patients & control.	65
5.	The relation between TNF polymorphism and age , disease duration among control	71
6.	Relation between TNF polymorphism and sex type of acne among patients	73
7.	Shows the relation between TNF polymorphism and sex and type of acne among patients	74

Σ Introduction Γ

And

σ Aim Of The Work γ

Σ Review Γ

Of

σ Literature γ

Σ Subjects Γ

And

σ Methods γ

Σ

Γ

Results

σ

γ

Σ

Γ

Discussion

σ

γ