



شبكة المعلومات الجامعية  
التوثيق الإلكتروني والميكروفيلم

# بسم الله الرحمن الرحيم



**HANAA ALY**



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## شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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# جامعة عين شمس

## التوثيق الإلكتروني والميكروفيلم

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# **Assessment of Serum Chitinase-3-Like Protein 1 (YKL-40) in Lichen Planus**

Thesis

*Submitted for Partial Fulfilment of Master Degree in  
Dermatology, Venereology and Andrology*

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

سببنا انك لا تعلم لنا  
إلا ما علمتنا إنك أنت  
العليم العظيم

صدق الله العظيم

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# *List of Abbreviations*

<b>Abb.</b>	<b>Full term</b>
<b>ACE</b>	<i>Angiotensin converting enzyme</i>
<b>AD</b>	<i>Atopic dermatitis</i>
<b>ALP</b>	<i>Actinic Lichen planus</i>
<b>AML-1</b>	<i>Acute Myeloid Leukemia 1</i>
<b>BLP</b>	<i>Bullous Lichen planus</i>
<b>BM</b>	<i>Basement membrane</i>
<b>CCL5</b>	<i>C-C motif chemokine 5</i>
<b>CCR5</b>	<i>C-C chemokine receptor type 5</i>
<b>CHI3L1</b>	<i>Chitinase-3-like protein 1</i>
<b>CLP</b>	<i>Cutaneous lichen planus</i>
<b>CRP</b>	<i>C-reactive protein</i>
<b>CTL</b>	<i>Cytotoxic T cells</i>
<b>CXCL9</b>	<i>C-X-C Motif Chemokine Ligand9</i>
<b>CXCR3</b>	<i>C-X-C Motif Chemokine Receptor 3</i>
<b>DC</b>	<i>Dendritic cells</i>
<b>EBP</b>	<i>Enhancer Binding Protein</i>
<b>EBV</b>	<i>Epstein-Barr virus</i>
<b>ELISA</b>	<i>Enzyme-linked immunosorbent assay</i>
<b>ELP</b>	<i>Erosive Lichen planus</i>
<b>ERK</b>	<i>Extracellular signal-regulated kinases</i>
<b>FKBP12</b>	<i>FK-binding protein 12</i>
<b>HBV</b>	<i>Hepatitis B virus</i>
<b>HCV</b>	<i>Hepatitis C virus</i>
<b>HLP</b>	<i>Hypertrophic Lichen planus</i>
<b>HS</b>	<i>Hidradenitis suppurativa</i>
<b>ICAM1</b>	<i>Intercellular adhesion molecule 1</i>

## *List of Abbreviations (Cont...)*

<b>Abb.</b>	<b>Full term</b>
<b><i>IFN</i></b>	<i>Interferon</i>
<b><i>ILs</i></b>	<i>Interleukins</i>
<b><i>LCs</i></b>	<i>Langerhans cells</i>
<b><i>LMWH</i></b>	<i>Low molecular weight heparin</i>
<b><i>LP</i></b>	<i>Lichen planus</i>
<b><i>LPAASI</i></b>	<i>Lichen Planus Activity, Area and Severity index</i>
<b><i>LPP</i></b>	<i>Lichen planopilaris</i>
<b><i>LPPe</i></b>	<i>Lichen planus pemphigoides</i>
<b><i>LPPi</i></b>	<i>Lichen planus pigmentosus</i>
<b><i>MAPK</i></b>	<i>Mitogen-activated protein kinase</i>
<b><i>MCP</i></b>	<i>Monocyte chemoattractant protein</i>
<b><i>MMP9</i></b>	<i>Matrix metalloproteinase 9</i>
<b><i>MPA</i></b>	<i>Mycophenolic acid</i>
<b><i>NF-<math>\kappa</math>B</i></b>	<i>Nuclear Factor kappa</i>
<b><i>NK</i></b>	<i>Natural killer</i>
<b><i>OLP</i></b>	<i>Oral lichen planus</i>
<b><i>OVA</i></b>	<i>Ovalbumin</i>
<b><i>PPAR<math>\delta</math></i></b>	<i>Peroxisome proliferator-activated receptor <math>\delta</math></i>
<b><i>RAGE</i></b>	<i>Receptor for Advanced Glycation End product</i>
<b><i>RAR</i></b>	<i>Retinoic acid receptors</i>
<b><i>RCT</i></b>	<i>Randomized controlled trials</i>
<b><i>ROC</i></b>	<i>Receiver operator characteristic</i>
<b><i>SNP</i></b>	<i>Single nucleotide polymorphisms</i>
<b><i>STAT3</i></b>	<i>Signal transducer and activator of transcription 3</i>
<b><i>TCIs</i></b>	<i>Topical calcineurin inhibitors</i>

## *List of Abbreviations (Cont...)*

<b>Abb.</b>	<b>Full term</b>
<b><i>TCs</i></b>	<i>Topical corticosteroids</i>
<b><i>Th</i></b>	<i>T helper</i>
<b><i>TLR</i></b>	<i>Toll-like receptor</i>
<b><i>TNF</i></b>	<i>Tumor necrosis factor</i>
<b><i>USF</i></b>	<i>Upstream Transcription Factor</i>
<b><i>VAS</i></b>	<i>Visual analogue scale</i>
<b><i>VEGF</i></b>	<i>Vascular endothelial growth factor</i>
<b><i>WBCs</i></b>	<i>White Blood Cells</i>



## INTRODUCTION

**L**ichen planus (LP) is a chronic papulosquamous inflammatory disease affecting the skin, mucous membranes, nails and hair (*Gorouhi et al., 2014*). It is characterized by polygonal, violaceous, flat-topped, papules and plaques covered with reticulated white scales (Wickham's striae), commonly affecting dorsal aspect of hands, flexural surface of wrists and forearms, trunk, anterior lower legs and oral mucosa. The cause is unknown, but it is thought to be due to an autoimmune process with an unknown trigger. There is no definitive cure, but many different medications and procedures have been used to control the symptoms (*Meredith et al., 2016*).

Lichen Planus is a T-cell-mediated autoimmune disease. Inflammatory cells included in this process consist of cytotoxic T cells (CTLs) and T helper (Th) cells, natural killer (NK) cells, and dendritic cells (DCs). T-cell activation is main factor in the pathogenesis of LP (*Ichimura et al., 2006*). In the early stages, T-cells predominantly exist in the deeper layers of the epidermis and at the dermal-epidermal junction. Activated T-cells stimulate Th1 cells response resulting in keratinocyte removal by immune cells (*Iijima et al., 2003*). The T helper type 1 role in LP is partially regulated through toll-like receptor (TLR) 2 upregulation. Toll-like receptor is mainly involved in innate immunity but can also trigger adaptive immunity and is known to induce Th1 cells activation (*Siponen et al., 2012*).