

# **Salivary CXCL-13, ultrasonography and scintigraphy in early detection of secondary Sjogren's syndrome**

## **A Thesis**

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Rehabilitation**

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

لسبحناك لا علم لنا  
إلا ما علمتنا إنك أنت  
العليم العظيم

صدق الله العظيم

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## *Dedication*

*I dedicate this work with sincere thanks and appreciation to My Husband, Father, my sons, sisters, brother and soul of my MOM and my sister for their constant support.*

*✍ Salwa Galal Moussa*

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## List of Abbreviations

<b>Abbr.</b>	<b>Full-term</b>
<b>ACR</b> .....	: American College of Rheumatology
<b>AECG</b> .....	: American-European consensus group
<b>ANA</b> .....	: Antinuclear antibodies
<b>Anti-TG</b> .....	: Autoantibodies against thyroglobulin
<b>Anti-TPO</b> .....	: Autoantibodies against thyroid peroxidase
<b>AZA</b> .....	: Azathioprine
<b>BAFF</b> .....	: B cell-activating factor family
<b>BCA-1</b> .....	: B cell activating chemokine 1
<b>BLC</b> .....	: B-lymphocyte chemoattractant
<b>C</b> .....	: Control group
<b>CBC</b> .....	: Complete blood count
<b>CCL</b> .....	: CC ligand
<b>CCL21</b> .....	: Chemokine ligand 21
<b>cDMARD</b> .....	: Conventional disease modifying anti-rheumatic drug
<b>CNS</b> .....	: Central nervous system
<b>CRP</b> .....	: C-reactive protein
<b>CSF</b> .....	: Cerebrospinal fluid
<b>CTACK</b> .....	: Cutaneous T cell-attracting chemokine
<b>CTAP-III</b> .....	: Connective tissue activating peptide III
<b>CTDs</b> .....	: Connective tissue diseases
<b>CXCL13</b> .....	: Chemokine C-X-C ligand 13
<b>CXCR5</b> .....	: C-X-C receptor 5
<b>Cyt</b> .....	: Cytoplasmic domain

<b>DMARD .....</b>	: Disease modifying anti-rheumatic drug
<b>EBV .....</b>	: Epstein–Barr virus
<b>EF .....</b>	: Excretion fraction
<b>ENA-78 .....</b>	: Epithelial neutrophil–activating peptide 78
<b>ESR .....</b>	: Erythrocyte sedimentation rate
<b>ESSDAI .....</b>	: The European League Against Rheumatism Sjögren syndrome Disease Activity Index
<b>ESSPRI .....</b>	: EULAR SS Patient-Reported Index
<b>EULAR .....</b>	: European League Against Rheumatism
<b>GCP-2 .....</b>	: Granulocyte chemotactic protein 2
<b>GMN .....</b>	: Glomerulonephritis
<b>Gro .....</b>	: Growth-related oncogene
<b>H .....</b>	: Kruskal-Wallis test
<b>HCC-1 .....</b>	: Hemofiltrate CC chemokine 1
<b>HCQ .....</b>	: Hydroxychloroquine
<b>HCV .....</b>	: Hepatitis C virus
<b>HIV .....</b>	: Human immunodeficiency virus
<b>HLA .....</b>	: Human leukocyte antigen
<b>HS .....</b>	: Highly significant
<b>IFN-<math>\gamma</math> .....</b>	: Interferon-gamma
<b>IL .....</b>	: Interleukin
<b>ILD .....</b>	: Interstitial lung disease
<b>IN .....</b>	: Interstitial nephritis
<b>ITAC .....</b>	: Inducible T cell-chemoattractant
<b>KCS .....</b>	: Keratoconjunctivitis sicca
<b>LARC .....</b>	: Liver and activation-regulated chemokine

<b>LEF</b> .....	: Leflunamide
<b>LFU</b> .....	: Lacrimal functional unit
<b>LG</b> .....	: Lissamine green stain
<b>LIP</b> .....	: Lymphocytic interstitial pulmonary fibrosis
<b>M3R</b> .....	: M3 muscarinic acetylcholine receptor
<b>MALT</b> .....	: Mucosa-associated lymphoid tissue
<b>MCP-1</b> .....	: Monocyte chemoattractant protein 1
<b>MDC</b> .....	: Macrophage-derived chemokine
<b>MEC</b> .....	: Mucosa-associated epithelial chemokine
<b>mHAQ</b> .....	: Modified health assessment questionnaire
<b>MHC</b> .....	: Major histocompatibility complex
<b>Mig</b> .....	: Monokine induced by IFN
<b>MIP-1</b> .....	: Macrophage inflammatory protein 1
<b>MMP-1</b> .....	: Matrix- metalloproteinase collagenase-1
<b>MMPs</b> .....	: Matrix metalloproteinases
<b>MPIF-1</b> .....	: Macrophage procoagulant-inducing factor 1
<b>MRI</b> .....	: Magnetic resonant imaging
<b>MS</b> .....	: Multiple sclerosis
<b>MTX</b> .....	: Methotrexate
<b>N</b> .....	: Number
<b>Nap-2</b> .....	: Neutrophil-activating peptide 2
<b>NK</b> .....	: Natural killer cell
<b>NS</b> .....	: Non significant
<b>NSAID</b> .....	: Non steroidal anti-inflammatory drugs
<b>NSIP</b> .....	: Non-specific interstitial pneumonia
<b>NSS</b> .....	: Non Sjogren's syndrome



<b>O.D</b> .....	: Optical density
<b>P</b> .....	: Level of significance
<b>PARC</b> .....	: Pulmonary and activation-regulated chemokine
<b>PF4</b> .....	: Platelet factor 4
<b>Pg/ml</b> .....	: Picogram per mlliliter
<b>PIH</b> .....	: Parenchymal inhomogenecity
<b>PNS</b> .....	: Peripheral nervous system
<b>Pss</b> .....	: Primary Sjögren's syndrome
<b>PTPN22</b> .....	: Protein tyrosine phosphatase-22
<b>r</b> .....	: Spearman correlation test
<b>RA</b> .....	: Rheumatoid arthritis
<b>RCT</b> .....	: Random control trials
<b>RF</b> .....	: Rheumatoid factor
<b>ROIs</b> .....	: Regions of interest
<b>S</b> .....	: Significant
<b>SCM-1</b> .....	: Single C motif 1
<b>SD</b> .....	: Standard deviation
<b>SDF-1</b> .....	: Stromal cell–derived factor 1
<b>SICCA</b> .....	: Sjogren’s International Collaborative Clinical Alliance
<b>Sig.</b> .....	: Significant
<b>SLE</b> .....	: Systemic lupus erythematosis
<b>SS</b> .....	: Sjogren’s syndrome
<b>SS-A</b> .....	: Anti-Ro
<b>SS-B</b> .....	: Anti-La
<b>SSC</b> .....	: Systemic sclerosis

<b>sSS</b> .....	: Secondary Sjogren's syndrome
<b>T regs</b> .....	: T regulatory cells
<b>TARC</b> .....	: Thymus and activation-regulated chemokine
<b>TC</b> .....	: Technetium
<b>TGF- <math>\beta</math></b> .....	: Transforming growth factor-beta
<b>TLRs</b> .....	: Toll-like receptors
<b>TM</b> .....	: Transmembrane domain
<b>TNF</b> .....	: Tumor necrosis factor
<b>UIP</b> .....	: Usual interstitial pulmonary fibrosis
<b>US</b> .....	: Ultrasonography
<b>X<sup>2</sup></b> .....	: Chi-square
<b>Z</b> .....	: Mann-Whitney Test
<b>%</b> .....	: Percentage

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