

# **The Early Detection of Subclinical Synovitis by High Frequency Power Doppler Ultrasonography in oligoarticular Juvenile Idiopathic Arthritis**

*Thesis*

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... رَبُّ أَوْزَعَنِي أَنْ أَشْكُرَ  
نِعْمَتَكَ إِلَهِي أَنْفَعَنِي عِلْمِي

وَعِلْمِي وَالدِّينَ □

وَأَنْ أَفْعَلَ صَالِحاً

أَرْضاهُ وَأَدْخِلْنِي

بِرَحْمَتِكَ فِي عِبَادِكَ

الصَّالِحِينَ □

صدق الله العظيم

الجمال... آية رقم ١٩



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## List of Abbreviations

<b>A/AT</b>	: Achilles tendon
<b>ACPA</b>	: antibodies against citrullinated proteins
<b>ACR</b>	: American College of Rheumatology
<b>Act</b>	: Active
<b>ADAD</b>	: Adenosine deaminase domain
<b>ADAM</b>	: A Disintegrin And Metalloproteinase
<b>ANA</b>	: Antinuclear antibodies
<b>ANGPT1</b>	: Angiopoietin-1
<b>anti-CCP</b>	: Antibodies against cyclic citrullinated peptide
<b>anti-MCV</b>	: Antibodies against mutated citrullinated vimentin
<b>AS</b>	: Ankylosing spondylitis
<b>ATA</b>	: Aurintricarboxylic acid
<b>BMI</b>	: Body mass index
<b>BOOP</b>	: Bronchiolitis obliterans organizing pneumonia
<b>C. elegans</b>	: Caenorhabditis elegans
<b>C</b>	: Complement
<b>C</b>	: Cytosine
<b>C/Cal</b>	: Calcaneum
<b>CACP</b>	: Camptodactyly-Arthropathy-Coxa Vara-Pericarditis
<b>CBC</b>	: Complete blood count
<b>CCR/CXCR</b>	: Chemokine receptors
<b>CD</b>	: Cluster of differentiation
<b>CePD</b>	: Contrast-enhanced Power Doppler
<b>CeUS</b>	: Contrast-enhanced US
<b>CHAQ</b>	: Childhood health assessment questionnaire
<b>Clin</b>	: Clinical
<b>COG</b>	: Conserved oligomeric golgi
<b>CR</b>	: Conventional radiography
<b>CRP</b>	: C-reactive protein
<b>CT</b>	: Computed tomography
<b>CTLA</b>	: Cytotoxic T-lymphocyte antigen

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

<b>D</b>	: Diversity region
<b>D</b>	: Dimensional
<b>DD</b>	: Dijkstra damage
<b>DG</b>	: Dijkstra growth
<b>DHEA</b>	: Dehydroepiandrosterone
<b>DHEA-S</b>	: Sulfated conjugate of dehydroepiandrosterone
<b>DI</b>	: Dijkstra inflammation
<b>DMARDs</b>	: Disease modifying antirheumatic drugs
<b>dnaJ</b>	: Deoxy-ribonucleic acid
<b>E</b>	: Epiphysis
<b>EBV</b>	: Epstein Barr virus
<b>Eff</b>	: Effusion
<b>EFV</b>	: Extended field of view
<b>ERA</b>	: Enthesitis-related arthritis
<b>ESR</b>	: Erythrocyte sedimentation rate
<b>EULAR</b>	: European League Against Rheumatism
<b>FE</b>	: Femoral epiphysis
<b>FOXP</b>	: Forkhead box P
<b>GroEL</b>	: Bacterial chaperonin
<b>GT</b>	: Greater tuberosity
<b>GWAS</b>	: Genome wide association study
<b>Hb</b>	: Haemoglobin
<b>HDL</b>	: High density lipoprotein
<b>HLA</b>	: Human leukocyte antigen
<b>HMBPP</b>	: (E)-4-hydroxy-3-methyl-2-butenyl pyrophosphate
<b>HMG</b>	: High mobility group
<b>hr</b>	: Hour
<b>HS</b>	: Highly significant
<b>hsp</b>	: Heat shock protein
<b>IAC</b>	: Intraarticular corticosteroid
<b>ICU</b>	: Intensive care unit
<b>IFN-<math>\gamma</math></b>	: Gamma interferon

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

<b>Ig</b>	: Immunoglobulin
<b>IL</b>	: Interleukin
<b>ILAR</b>	: International League of Associations for Rheumatology
<b>ILGF</b>	: Insulin-like growth factor
<b>Inact</b>	: Inactive
<b>IPP</b>	: Isopentenyl pyrophosphate
<b>IRF</b>	: Interferon regulatory factor
<b>J</b>	: Joining region
<b>JAFS</b>	: Juvenile Arthritis Functionality Scale
<b>Jak</b>	: Janus kinases
<b>JAS</b>	: Juvenile ankylosing spondylitis
<b>JCA</b>	: Juvenile Chronic Arthritis
<b>JIA</b>	: Juvenile idiopathic arthritis
<b>JPsa</b>	: Juvenile psoriatic arthritis
<b>JRA</b>	: Juvenile Rheumatoid Arthritis
<b>JSpA</b>	: Juvenile-onset spondylarthritis
<b>K</b>	: Kager's fat pad
<b>k</b>	: Kappa agreement
<b>m</b>	: Month/s
<b>MAS</b>	: Macrophage activation syndrome
<b>MCP</b>	: Metacarpophalangeal
<b>MD global</b>	: Physician global assessment of overall disease activity
<b>MHC</b>	: Major histocompatibility class
<b>MICA/MICB</b>	: MHC class I chain related gene A/ B
<b>MIF</b>	: Macrophage migration inhibitory factor.
<b>ML</b>	: Monoclonal antibodies
<b>MMPs</b>	: Matrix metalloproteinases
<b>MRI</b>	: Magnetic resonance imaging
<b>mRNA</b>	: Messenger ribonucleic acid
<b>MRP</b>	: Myeloid related proteins
<b>MSUS</b>	: Musculoskeletal ultrasound
<b>MTP</b>	: Metatarsophalangeal

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

<b>MTX</b>	: Methotrexate
<b>Neg</b>	: Negative
<b>NK</b>	: natural killer
<b>No</b>	: Number of patients/ joints
<b>NS</b>	: Non significant
<b>NSAIDs</b>	: Nonsteroidal anti-inflammatory drugs
<b>OC</b>	: Ossification center
<b>Oligo</b>	: Oligoarticular
<b>OMERACT</b>	: Outcome Measures in Rheumatology Clinical Trial
<b>P</b>	: Level of significance
<b>P</b>	: Patella
<b>PAF-AH</b>	: Platelet activating factor acetylhydrolase
<b>PB</b>	: Peripheral blood
<b>PCR</b>	: Polymerase chain reaction
<b>PD</b>	: Power Doppler
<b>PIP</b>	: Proximal interphalangeal
<b>Pos</b>	: Positive
<b>PsA</b>	: Psoriatic arthritis
<b>PSRA</b>	: Post-streptococcal reactive arthritis
<b>PT</b>	: Prothrombin time
<b>PTPN</b>	: Protein tyrosine phosphatase non receptor <b>type</b>
<b>PTT</b>	: Partial thromboplastin time
<b>r</b>	: Correlation coefficient
<b>RA</b>	: Rheumatoid arthritis
<b>RAND/UCLA</b>	: Research and Development/University of California at Los Angeles
<b>RANKL</b>	: Receptor activator of nuclear factor-kappa B ligand
<b>ref. no</b>	: Reference number
<b>REL</b>	: Reticuloendotheliosis
<b>RF</b>	: Rheumatoid factor
<b>ROM</b>	: Range of motion
<b>S</b>	: Significant
<b>S./ Sig</b>	: Significance

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

<b>SCID</b>	: Severe combined immune deficiency
<b>SD</b>	: Standard deviation
<b>SF</b>	: Synovial fluid
<b>SJIA</b>	: Systemic juvenile idiopathic arthritis
<b>SLE</b>	: Systemic lupus erythematosus
<b>SNPs</b>	: Single nucleotide polymorphism
<b>SONAR</b>	: Sound navigation and ranging
<b>SpA</b>	: Spondylarthritis
<b>STAT</b>	: Signal transducer and activator of transcription
<b>T</b>	: Tendon
<b>t</b>	: Paired t test
<b>TCRs</b>	: T cell receptors
<b>TE</b>	: Tibial epiphysis
<b>TFP</b>	: Task Force Panel
<b>TGF</b>	: Transforming growth factor
<b>Th</b>	: T helper cell
<b>TIE</b>	: Endothelium specific receptor tyrosine kinase
<b>TLR</b>	: Toll-like receptor
<b>TMJ</b>	: Temporo-mandibular joint
<b>TNF</b>	: Tumour necrosis factor
<b>TNFAIP</b>	: TNF alpha induced protein
<b>TRAF</b>	: TNF-receptor association factor
<b>Tregs</b>	: T regulatory cells
<b>U test</b>	: Mann Whitney Test
<b>UK</b>	: United Kingdom
<b>US</b>	: Ultraound, ultrasonography
<b>USA</b>	: United States of America
<b>V</b>	: Variable region
<b>VAS</b>	: Visual analog scale

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

<b>VLA</b>	: Very late activation antigen
<b>WBCs</b>	: White blood cells
<b>wk</b>	: Week
<b>yr</b>	: Year
<b><math>\lambda</math>s</b>	: Sibling recurrence risk
<b>*</b>	: Fisher's Exact Test

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