



# Rheumatoid Arthritis

## CCP Autoantibody

**ANTIBODY TO CCP (CYCLIC CITRULLINATED PEPTIDE) IS A HIGHLY SPECIFIC DIAGNOSTIC, PROGNOSTIC AND PREDICTIVE TEST FOR RHEUMATOID ARTHRITIS.**

**Combined testing for CCP Antibody and rheumatoid factor is recommended for Rheumatoid Arthritis.**

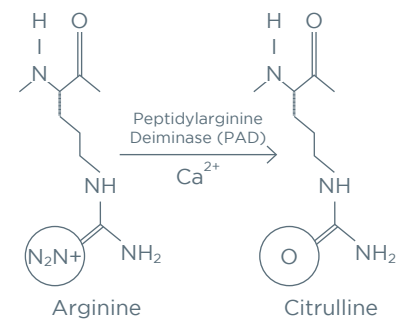
### HOW USEFUL IS ANTI-CCP AUTOANTIBODY IN RHEUMATOID ARTHRITIS?

- Diagnostic marker for Rheumatoid Arthritis with a specificity of >98% and sensitivity of 70%.
- Differentiates Rheumatoid Arthritis from recent onset undifferentiated arthritis.
- Positive in 40% of patients who test negative for Rheumatoid Factor.
- Predicts erosive joint disease.
- Antedates clinical arthritis by an average of 5 years.
- Usefulness for monitoring treatment response remains uncertain.

### WHAT IS CITRULLINE?

Citrulline is derived by deimination from the amino acid arginine. Cross-linking of citrulline molecules to each other produces 'cyclic' peptides.

**Fig. 1 Citrulline is derived from Arginine**



### HOW COMMON IS RHEUMATOID ARTHRITIS?

Rheumatoid Arthritis is the most common chronic inflammatory joint disease. It affects 1% of Caucasians, increasing to 2% in patients aged >60yr and has a female:male ratio of 3:1.

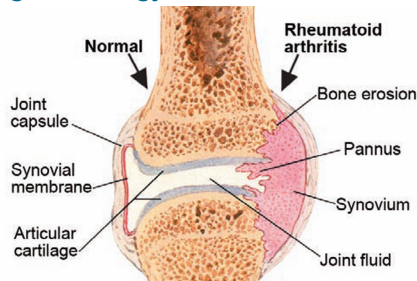
There is a genetic predisposition with 40% of patients testing positive for HLA DR4 (HLA DRB1).

### WHAT IS THE PATHOLOGY OF RHEUMATOID ARTHRITIS?

The joint disease is characterised by chronic inflammation in the synovial lining of joints and is accompanied by synovial hyperplasia.

Disease progression leads to formation of rheumatoid granulation tissue, also known as pannus. Pannus is invasive resulting in cartilage and bone destruction that leads to joint deformity. The joint disease may be associated with extra-articular manifestations affecting systemic organs such as the lungs and the nervous system. The question of a role of citrulline-containing peptides in recruiting immune cells to initiate joint disease remains open. Recent data suggest an interaction between smoking and HLA DRB1 in anti-citrulline antibody positive patients.

**Fig. 2 Pathology of Rheumatoid Arthritis**



### WHAT IS THE SENSITIVITY AND SPECIFICITY OF ANTI-CCP ANTIBODY COMPARED TO RHEUMATOID FACTOR?

**Fig. 3 Rheumatoid Arthritis: Anti-CCP and Rheumatoid Factor**

	Sensitivity	Specificity
Anti-CCP	70%	98%
Rheumatoid Factor	70%	70%

### SPECIMEN REQUIREMENTS

**Test Name:**

CCP (Cyclic Citrullinated Peptide Ab)

**Sample Type:**

1 x Gel (SST) Tube (Gold Top)

**Sample Transport:**

Ambient temperature

**Medicare Rebate:**

Yes

**Turnaround:**

Tests run twice weekly

### REFERENCES

1. Avouac J, Gossec L, Dougados M. Diagnostic and Predictive Value of Anti-Cyclic Citrullinated Protein Antibodies in Rheumatoid Arthritis: a Systematic Literature Review. *Ann Rheum Dis.* 2006;65:845-51.
2. Zendman AJ, van Venrooij WJ, Pruijn GJ. Use and Significance of Anti-CCP Autoantibodies in Rheumatoid Arthritis. *Rheumatology (Oxford).* 2006;45:20-5.

*Providing services since 1936, Healthscope Pathology operates throughout Australia, New Zealand, Singapore and Malaysia.*

*Healthscope Pathology has purpose built, state-of-the-art service and molecular research laboratories which ensure the highest standard of testing.*

**focused on you**

[healthscopepathology.com.au](http://healthscopepathology.com.au)

HPG-1099-W-001 (06/10)  
 Clinical Laboratories Pty Ltd ABN 62 006 823 089