

## Rheumatoid Arthritis

### CCP & COMP— New Markers for Diagnosis & Evaluation

#### Overview

Rheumatoid Arthritis (RA) is characterized by chronic low-grade inflammation of multiple joints with periodic flare-ups of great intensity that lead to severe and irreversible cartilage, bone and joint destruction.<sup>1</sup> Diagnosis is problematic because there is currently no laboratory test or single symptom of RA that can lead to a definitive diagnosis, and disease presentation is highly variable from patient to patient.<sup>2</sup> Early confirmation of RA is important because aggressive therapy during the earliest stages of disease can lead to decreased disease activity and reduced joint damage. As medications used in the management of RA can lead to progressive toxicity, it is important to limit their use to those patients who require them.<sup>3,4</sup>

#### Diagnosis

*Specialty* is pleased to introduce **Cyclic Citrullinated Peptide (CCP) IgG Antibody**, a highly specific marker for RA that is detected in 70% of RA patients in the early stages of disease. Unlike Rheumatoid Factor (RF), CCP is found almost exclusively in those with RA.<sup>2</sup>

#### Assessing Cartilage Damage & Prognosis

*Specialty* is also pleased to offer **COMP—Cartilage Oligomeric Matrix Protein**, a new serum marker for assessing cartilage destruction. COMP is a glycoprotein component of the articular cartilaginous matrix.<sup>5</sup> When cartilage matrix is degraded by disease, protein fragments are produced that diffuse into the joint fluid. These proteins, including COMP, subsequently appear in the circulation and can be used to monitor cartilage degradation in inflammatory joint diseases such as RA<sup>6,7</sup> and osteoarthritis.<sup>8,9</sup>

Serum levels of COMP reflect the extent of cartilage destruction; levels >15 are associated with more aggressive active cartilage destruction.<sup>6,10</sup> COMP also correlates with the progression of Larsen score in patients demonstrating low values of traditional prognostic markers including Erythrocyte Sedimentation Rate (ESR), C-Reactive Protein (CRP), RF and DAS.<sup>10</sup> Additionally, COMP may be prognostic for radiological outcome.<sup>11</sup>

#### Ordering Information & Specimen Requirements

Test Code	Test Name	Specimen Requirements
3133	<b>Cyclic Citrullinated Peptide (CCP) IgG Antibody</b>	1 (0.5) mL Serum; Ambient, Refrigerated or Frozen.
3130	<b>Cartilage Oligomeric Matrix Protein (COMP)</b>	1(0.5) mL Serum; Ambient, Refrigerated or Frozen.
1013	<b>Rheumatoid Arthritis EvaluatR™</b> <ul style="list-style-type: none"> <li>• Cyclic Citrullinated Peptide (CCP) IgG Antibody</li> <li>• Rheumatoid Factor Autoantibodies</li> </ul>	1 (0.5) mL Serum; Refrigerated or Frozen.
1014	<b>Rheumatoid Arthritis COMPrehensive™</b> <ul style="list-style-type: none"> <li>• COMP—Cartilage Oligomeric Matrix Protein</li> <li>• Cyclic Citrullinated Peptide (CCP) IgG Antibody</li> <li>• Rheumatoid Factor Autoantibodies</li> <li>• C-Reactive Protein (CRP)</li> </ul>	3 (1) mL Serum; Refrigerated or Frozen.

#### Full RA Evaluation

*Evaluate RA damage, inflammation, and prognosis for continued erosion of cartilage:*

- Elevated levels of **COMP** (>15) are associated with more severe cartilage degradation and increased risk for continued tissue destruction<sup>6,10</sup>
- Elevated **CRP** is associated with inflammation
- **CCP** and **RF** are useful in helping to confirm a diagnosis of RA<sup>12</sup>

## **Diagnosis of RA**

### ***Increased specificity:***

- Cyclic Citrullinated Peptide IgG antibody (CCP-IgG) has a 98% specificity for RA, compared to 84% by RF<sup>13,14</sup>
- Specificity for RA approaches nearly 100% when CCP antibodies are combined with RF antibodies<sup>15</sup>

### ***Earlier marker of RA:***

- High CCP-IgG concentrations are present within a year of disease onset in the majority of RA patients<sup>2,13</sup>
- CCP is predictive of RA development in patients with undifferentiated arthritis<sup>16</sup>

### ***Helps diagnose RA missed by RF:***

- High concentrations of CCP-IgG have been detected in 35% of RF IgM-negative patients<sup>15,17</sup>
- In RA-diagnosed patients, increased CCP-IgG is predictive of erosive disease; the absence of CCP-IgG indicates a very low probability of progression<sup>4</sup>
- RA patients with increased CCP-IgG may progress to a more severe stage of disease than those who do not have CCP-IgG<sup>2,17</sup>
- CCP can help identify RA in RF-positive Hepatitis C (HCV) patients; Hepatitis C-positive patients who do not have RA are likely to be RF+ and CCP-negative<sup>18</sup>

## **Assessing Cartilage Damage & Prognosis**

### ***Assess Level of Cartilage Degradation:***

- High COMP concentrations (>15) indicate severe active cartilage breakdown<sup>6,10</sup>

### ***Prognostic for Continued Tissue Degradation:***

- High COMP concentrations (>15) are a strong predictor of continued cartilage erosion<sup>6,10</sup>

## **References**

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