ADVANCES IN THE DIAGNOSIS OF RHEUMATOID ARTHRITIS

Staged Multimarker Concept

AUTOIMMUNE DIAGNOSTICS

- Cost-efficient Screening for High-Titer RF
- High Specificity for Early RA Diagnosis by Detection of Anti-CCP
- Increased Sensitivity by Sequential Testing with RF, CCP and RA33
- Prognosis of Disease Outcome Allows Individually Tailored Therapies
Early Diagnosis of Rheumatoid Arthritis

Rheumatoid Arthritis (RA) is a chronic, progressive, systemic autoimmune disease characterized by persistent joint inflammation. If left untreated the disease leads to systemic complications, irreversible joint damage and invalidity. For effective treatment, an early diagnosis of RA is essential. Serologic markers can detect early-stage RA, thereby contributing to an improved outcome of RA therapy and reduction of the severity of joint damage.

The Staged Multimarker Concept

High titer RF (> 50 IU/ml), Anti-CCP and Anti-RA33 can occur independently in early-stage RA and can even precede the development of clinical manifestations. The sequential determination of RF, Anti-CCP and Anti-RA33 is an efficient and cost-effective strategy for routine diagnosis of early RA.

SeroLogic RA Markers

Rheumatoid Factor (RF) was long the sole serologic indicator for RA, showing a sensitivity of 60 to 80 % and a specificity of 90 %. In recent years new prognostic and diagnostic markers have been identified. The greatest potential has been observed for antibodies against cyclic citrullinated peptides (Anti-CCP). Anti-CCP antibodies have a specificity for RA of at least 98 % and a sensitivity that is comparable to that of RF reaching 75 % in established RA. Another well-characterized marker is the autoantibody against hnRNP-A2 (Anti-RA33). Anti-RA33 is detectable in one third of RA patients and shows specificity similar to RF. Antibodies against RA33 are associated with a less severe form of the disease.
**Suspicion of Rheumatoid Arthritis (RA)**

1. **Anti-RF**
   - ≥ 50 U/ml
   - **High risk of developing RA**
   - **High risk of developing erosive disease**

2. **Anti-CCP**
   - **positive**
   - **Increased risk of developing RA**
   - **Good prognosis**
   - **negative**

3. **Anti-RA33**
   - **positive**
   - **Increased risk of developing RA**
   - **Good prognosis**
   - **negative**

**Decreased risk of developing RA**

*Adapted from reference 3*
## Enzyme Immunoassays

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<th>Assay Type</th>
<th>Cat. No.</th>
<th>Description</th>
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<td>IMTEC-RF IgM</td>
<td>ITC60003</td>
<td>ELISA for the quantitative determination of rheumatoid factors (IgM)</td>
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IMTEC-RF Screen

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IMTEC-CCP-Antibodies

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IMTEC-RA33-Antibodies

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</table>

With the IMTEC product line HUMAN offers the broadest test portfolio for a complete up-to-date diagnosis of early rheumatoid arthritis.

## References

2. Lindquist et al., Ann Rheum Dis, 2005; 64:196-201
5. Pruijn et al., Current Rheum Reviews, 2005;1:1-7
8. Van Gaalen et al., Arthritis, 2004; 50:709-715