

# Ro52 ANTIGEN

AROTEC\_Ro52\_Product\_Info.pdf Version/Date: B/04.05.25

ATR05-02	Ro52 antigen	0.20 mg
ATR05-05	Ro52 antigen	0.50 mg
ATR05-10	Ro52 antigen	1.0 mg

## Description of the Product

Recombinant full-length human sequence protein. After coating onto ELISA plates the product will bind autoantibodies to Ro52.

**Purity:** The Ro52 autoantigen (52 kDa) is more than 90% pure, as assessed by SDS-polyacrylamide gel electrophoresis.

**Concentration:** 0.1-1.0 mg protein/ml.

**Storage:** The product is stabilised with 0.1% Micr-O-protect™. Store at -20 °C or below (long term) or at +4 °C (short term). Avoid repeated freezing and thawing. Mix thoroughly before use.

## Clinical and Biochemical Data

Autoantibodies to the Ro(SSA) antigen are one of the most frequent serological autoimmune markers in rheumatic diseases<sup>1,2</sup> (refer also to AroTec product ATR02 Ro(SSA) antigen). Anti-Ro-positive sera may contain two different types of autoantibody; those directed to a 60 kDa and those directed to a 52 kDa polypeptide component (referred to as Ro60 and Ro52 respectively)<sup>3</sup>. While the vast majority of Ro(SSA) positive sera react with both of these components, anti-Ro60 antibody has been reported to occur without anti-Ro52 antibody only in SLE sera<sup>4,5</sup> whereas anti-Ro52 antibody has been reported to occur in the absence of anti-Ro60 antibody in idiopathic inflammatory myopathy<sup>6</sup>, dermatomyositis<sup>7,8</sup> and scleroderma<sup>7,8</sup>. Antibodies to Ro52 have been observed to occur not only monospecifically or with Ro(SSA)/La(SSB), but also concurrently with antibodies to Jo-1<sup>9</sup> and to other aminoacyl transferases<sup>7</sup>, with anti-SRP<sup>7</sup>, anti-PMScl<sup>7</sup>, anti-CENP-B<sup>9</sup>, anti-RNP<sup>9</sup> and antihistones<sup>9</sup>. The differing serological and clinical associations of anti-Ro52 and anti-Ro60 suggest that anti-Ro52 should be considered as an additional connective tissue disease serum marker<sup>9</sup>, independent of anti-Ro60(SSA).

Ro52 is a member of the tripartite motif (TRIM) family of proteins. The TRIM motif includes three zinc-binding domains, a RING finger, a B-box type 1 and a B-box type 2, and a centre coiled-coil region (leucine zipper). TRIM proteins are believed to identify specific cell compartments through a process of homomultimerisation<sup>10,11</sup>. Other functional studies have suggested a role for a putative leucine zipper domain of Ro52 in protein dimer formation and inhibition of transcription activity<sup>12</sup>, and involvement of Ro52 in the ubiquitin pathway<sup>13,14</sup>. Although autoantibodies are known to bind to multiple epitopes on the Ro52 protein<sup>15-17</sup>, the leucine zipper domain and an area on the N-terminal side of it have been shown to constitute a prominent linear epitope<sup>18-21</sup>. Antibodies to the leucine zipper domain of Ro52 have been reported to bind to Ro60 in a conformationally-dependent fashion<sup>22,23</sup> suggesting there might be some degree of epitope spreading between Ro60 and Ro52.

Recombinant full-length human-sequence protein constitutes AroTec's Ro52 antigen. The antigen has been expressed and purified in a denatured form – denatured Ro52 is known to react well with Ro52-specific autoantibodies<sup>22,24</sup>. The use of recombinant antigen for the detection of anti-Ro52 antibodies has been described elsewhere<sup>25,26</sup>.

## Methodology

The following is an ELISA procedure which can be used to detect anti-Ro52 autoantibodies in human serum using the ATR05 purified Ro52 autoantigen:

1. Dilute the purified antigen to 0.2-0.5 µg/ml in PBS (10 mM potassium phosphate, pH 7.4, 0.15 M NaCl).
2. Coat ELISA plates with 100 µl of diluted antigen per well. Cover and incubate 24 hours at +4°C.
3. Empty the plates and remove excess liquid by tapping on a paper towel.
4. Block excess protein binding sites by adding 200 µl PBS containing 1% BSA per well. Cover and incubate at +4°C overnight.
5. Empty plates and apply 100 µl of serum samples diluted 1:100 in PBS / 1% BSA / 1% casein / 0.1% Tween® 20. Incubate at room temperature for 1 hour.
6. Empty plates and add 200 µl PBS / 0.1% Tween® 20 per well. Incubate 5 minutes then empty plates. Repeat this step twice.
7. Apply 100 µl anti-human IgG-enzyme conjugate (horseradish peroxidase or alkaline phosphatase) diluted in PBS / 1% BSA / 1% casein / 0.1% Tween® 20 per well and incubate for 1 hour.
8. Repeat step 6.
9. Add enzyme substrate and stop the reaction when appropriate.
10. Read absorbance in an ELISA spectrophotometer.

## References

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