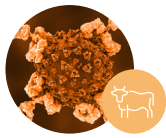


Product datasheet



ATJ01 Jo-1 Native Antigen

Product name	Jo-1 antigen
Description	Purified native protein
Source material	Calf thymus
Purity	>90% pure (by SDS-PAGE)

Antigen overview

Polymyositis (PM) and dermatomyositis (DM) are idiopathic inflammatory myopathies characterised by proximal muscle weakness, elevated muscle enzyme activities and electromyographic and histological features^{1,2}. The existence of autoantibodies to nuclear and cytoplasmic antigens, in particular to the aminoacyl-tRNA synthetase group of enzymes, in the sera of up to 89% of patients³ indicates that these diseases have an autoimmune origin.

The most common autoantibody in PM and DM is anti Jo-1, occurring in 15-20% of all myositis patients and about 30% of adult PM patients^{4,5}. In 1983 the Jo-1 antigen was reported by Mathews and Bernstein⁶ to be histidyl-tRNA synthetase (HRS), an enzyme which catalyses the coupling of histidine to its specific tRNA before transport to the ribosome followed by incorporation into a polypeptide chain during protein synthesis⁷.

Patient autoantibodies are capable of inhibiting histidyl-tRNA synthetase activity and can immunoprecipitate labelled enzyme as well as its specific tRNA^{6,8}. HRS has a molecular weight of

55 kDa in SDS-polyacrylamide electrophoresis, and is believed to exist as a dimer in its native state⁹. The amino acid sequence of human Jo-1 antigen has been determined by cloning and sequencing its cDNA¹⁰. It contains three structural motifs typical of class IIa aminoacyl transferases and two signature regions common to histidyl-tRNA synthetases.

The human enzyme amino acid sequence shows significant homology to those of the enzymes from yeast (47.5%) and *E. coli*. It is predicted to have a coiled-coil α -helical structure that is characteristic of many autoantigens and which contains the major autoantigenic epitope¹¹.

The primary structure of bovine HRS shares more than 96% sequence homology with the human sequence, and the fact that murine HRS¹² shares more than 98% sequence homology with the human enzyme that there exists a high degree of homology between mammalian HRS sequences. The use of bovine antigen for the detection of anti-Jo-1 autoantibodies has been described elsewhere^{13,14}.

Storage conditions & handling

- Store at -65°C or below
- Avoid repeated freezing and thawing
- Storage buffer contains 20% Glycerol as cryoprotectant
- Mix before use and keep on ice

Ordering information

ATJ01-02 - Jo-1 antigen (native) - 0.20 mg

ATJ01-10 - Jo-1 antigen (native) - 1.0 mg

Custom pack sizes available on request

Applications

Reactive in Western Blot and ELISA with anti-Jo-1 antibodies or anti-Jo-1 positive patient serum

Product profile

Fig 1 AROTEC Jo-1 Antigen Titration

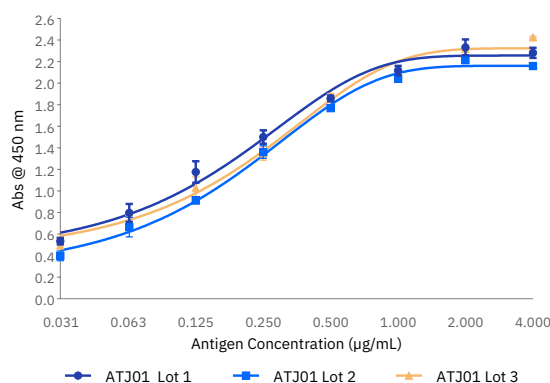


Fig 2

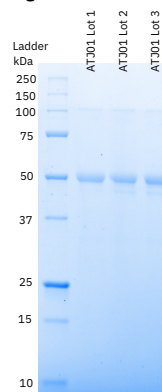


Fig 3

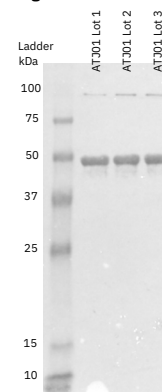


Fig.1. ELISA titration assay of ATJ01 Jo-1 antigen using patient serum (1:800 dilution)

Fig.2. SDS-PAGE of ATJ01 Jo-1 antigen; All lanes loaded with 2 µg protein concentration

Fig.3. Western Blot of ATJ01 Jo-1 antigen with positive patient serum (1:300 dilution)

References

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