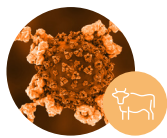


Product datasheet



ATS02

Sm Native Antigen

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

Antigen overview

Autoantibodies directed against the Sm autoantigen were first identified in 1966 using immunodiffusion¹. Anti-Sm antibodies are found in the sera of approximately 25% of all patients with systemic lupus erythematosus (SLE)² and their presence is considered to be a very specific marker of this disease³.

Autoantibodies to Sm are also known to often occur in combination with autoantibodies to other antigens²⁻⁴, including dsDNA, histone, RNP, SSA(Ro) and SSB(La). The term "Sm antigen" is now known to be synonymous with at least nine different polypeptides⁵. These proteins are also known as the common or core proteins of snRNP particles⁶.

snRNPs are a group of nuclear particles comprised of several polypeptides associated with a small nuclear RNA molecule⁷. The most abundant snRNPs are involved in pre-mRNA-splicing⁷. Since they bind to proteins common to different snRNP particles (B, D, E, F and G subunits), autoantibodies directed against Sm are able to precipitate a wide range of snRNAs^{8,9}.

The major Sm autoantigen is believed to be represented by the D

polypeptide^{6,10-11}, the B and D proteins are known to share at least one epitope based on monoclonal antibodies with multiple specificities^{6,12}. Sequence comparison has shown that all the known Sm proteins share two evolutionarily conserved structural sequence motifs¹³⁻¹⁴, a possible explanation for their immunological cross-reactivity.

Sm D polypeptide subtypes¹⁵ represent the most abundant components of AROTEC's Sm antigen. It has been shown elsewhere¹⁶ that the D polypeptide exhibits a much higher specificity for Sm autoantibodies than the B polypeptide does. Sm subunits (E,F,G) are also detectable.

The human Sm antigen sequences are known⁶, the very high degree of homology between bovine, human²⁰ and porcine²¹ Sm D2 sequences and the complete identity of human²² and mouse²³ Sm D1 would indicate that such antigens are highly conserved between mammalian species. The use of bovine antigen for the detection of anti-Sm antibodies has been described by several authors¹⁷⁻¹⁹.

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

ATS02-02 - Sm antigen (native) - 0.20 mg

ATS02-10 - Sm antigen (native) - 1.0 mg

Custom pack sizes available on request

Applications

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

Product profile

Fig 1 AROTEC Sm Antigen Titration

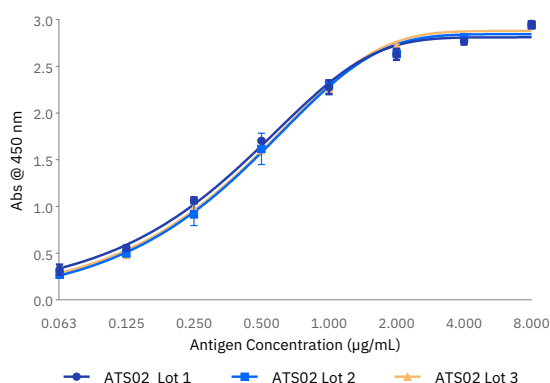


Fig 2

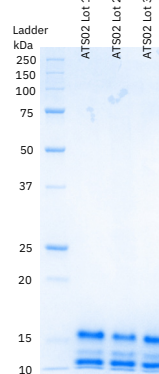


Fig 3

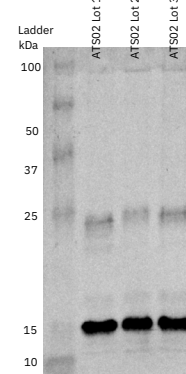


Fig.1. ELISA titration assay of ATS02 Sm antigen using patient serum (1:800 dilution)

Fig.2. SDS-PAGE of ATS02 Sm antigen; All lanes loaded with 2 µg protein concentration

Fig.3. Western Blot of ATS02 Sm antigen with positive patient serum (1:300 dilution)

References

1. Tan, E.M. & Kunkel, H.G. (1966) J. Immunol. 96, 464
2. Notman, D.D. *et al.* (1975) Ann. Intern. Med. 83, 464
3. Tan, E.M. *et al.* (1988) Clin. Immunol. Pathol. 47, 121
4. Habets, W.J. *et al.* (1990) Arthritis Rheum. 33, 834
5. Hoch, S. (1994) Man. Biol. Markers of Dis. (Kluwer Acad. Publ.) B2.4:1-29
6. Lerner, M.R. & Steitz, J.A. (1979) Proc. Natl. Acad. Sci. USA 76, 5495
7. Lüthmann, R. *et al.* (1990) Biochim. Biophys. Acta 1087, 265
8. Reuter, R. *et al.* (1990) Eur. J. Immunol. 20, 437
9. Pettersson, I. *et al.* (1984) J. Biol. Chem. 259, 5907
10. Combe, B. *et al.* (1989) Clin. Exp. Immunol. 75, 18
11. Francoeur, A.M. (1989) J. Clin. Immunol. 9, 256
12. Williams, D.G. *et al.* (1986) Immunology 58, 495
13. Seraphin, B. (1995) EMBO J. 14, 2089
14. Hermann, H. *et al.* (1995) EMBO J. 14, 2076
15. Lehmeier, T. *et al.* (1990) Nucleic Acids Res. 18, 6475
16. Blazek, M. *et al.* (1992) Z. Rheumatol. 51, 87
17. Duran, N. *et al.* (1984) Mol. Immunol. 21, 731
18. Yasuma, M. *et al.* (1990) J. Rheumatol. 17, 469
19. Zhang, W. & Reichlin, M. (1995) Clin. Immunol. Immunopathol. 74, 1995
20. Lehmeier, T. *et al.* (1994) Proc. Natl. Acad. Sci. USA 91, 12317
21. Winteroe, A.K. *et al.* (1996) Mamm. Genome 7, 509
22. Rokeach, L.A. *et al.* (1988) Proc. Natl. Acad. Sci. USA 85, 4832
23. Strausberg, R.L. *et al.* (2002) Proc. Natl. Acad. Sci. USA 99, 16899