

Autoantibodies against DNA Topoisomerase I (Scl-70)

DNA topoisomerase I is a key nuclear enzyme that interconverts supercoiled DNA to the topological conformations required for DNA replication and transcription. In human tissues, DNA topoisomerase I is initially synthesized as a protein with a molecular weight of 100 kDa. Most of this precursor is then proteolytically processed to a 70 kDa form. The latter is the name-giving antigen for the so-called Scl-70 autoantibodies, which are considered a highly specific marker among the different autoantibodies known to occur in systemic sclerosis/scleroderma patients. This disease represents a rare connective tissue disorder that is characterized by abnormal thickening of the skin. Scl-70 autoantibodies are detected in approximately 30 – 40% of patients diagnosed with systemic sclerosis/scleroderma. However, some studies reported a prevalence of up to 75%. The presence of Scl-70 autoantibodies is very often associated with diffuse skin involvement and pulmonary fibrosis.

DIARECT produces DNA topoisomerase I (Scl-70) antigens in the baculovirus/insect cell expression system. To allow optimal assay development, DIARECT offers two distinct Scl-70 antigens: one is the full-length 100 kDa enzyme precursor (Scl-70; full length), the other one is a truncated variant resembling the processed 70 kDa form (Scl-70; truncated). Recombinant Scl-70 antigens are vigorously tested to meet DIARECT's high standards regarding quality and lot-to-lot consistency (Fig. 1,2).

Besides the two recombinant Scl-70, DIARECT additionally offers native Scl-70 isolated from bovine calf thymus (Scl-70; non-recombinant; bovine). Like its recombinant counterparts, the quality and lot-to-lot consistency of native Scl-70 is vigorously tested. The obtained data strongly suggest that the native and recombinant antigens perform equally well in immunodot analyses (Fig. 2).

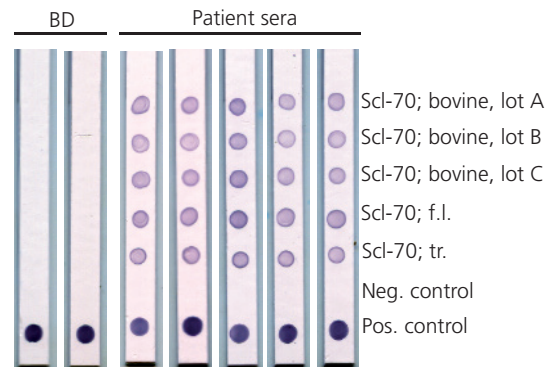


Figure 2: Immunodot analyses of sera from blood donors (BD) and patients with presumed systemic sclerosis. Recombinant full length Scl-70 (Scl-70; f.l.) and truncated Scl-70 (Scl-70; tr.) were analyzed and compared to three different lots of non-recombinant, native Scl-70 purified from bovine sources (Scl-70; bovine).

References:

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- D'Arpa *et al.* (1988) *PNAS.* 85: 2543-2547
- Douvas *et al.* (1979) *J Biol Chem.* 254: 10514-10522
- Hamaguchi (2010) *J Dermatol.* 37: 42-53
- Hudson *et al.* (2014) *J Autoimmun.* 48-49: 38-41
- Ho *et al.* (2003) *Arthritis Res Ther.* 5: 80-93
- Shero *et al.* (1986) *Science.* 231: 737-740
- Spencer-Green *et al.* (1997) *Am J Med* 103: 242-248
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Ordering Information

12400	DNA Topoisomerase I (Scl-70; full length)	0.1 mg
12401		1.0 mg
14500	DNA Topoisomerase I (Scl-70; truncated)	0.1 mg
14501		1.0 mg
11500	DNA Topoisomerase I (Scl-70; non recombinant; bovine)	0.1 mg
11501		1.0 mg

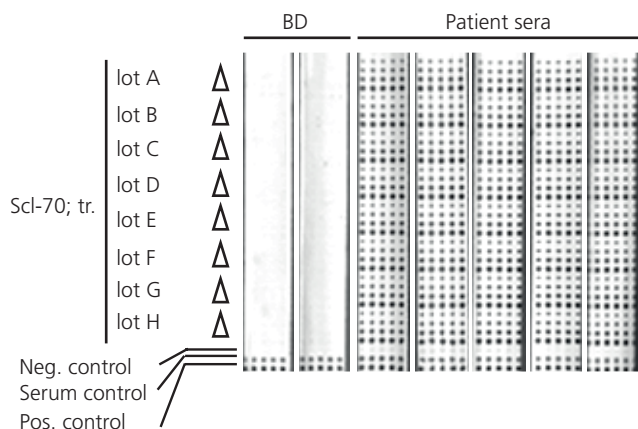


Figure 1: Immunodot analyses of increasing amounts of different lots of Scl-70 truncated (Scl-70; tr.) using sera from blood donors (BD) and patients with presumed systemic sclerosis.

In some countries the use of certain antigens in diagnostic tests may be protected by patents. DIARECT is not responsible for the determination of these issues and suggests clarification prior to use.

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