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Comparative study on the reliability of different tests for the detection of circulating antigen in Toxoplasma gondii infections

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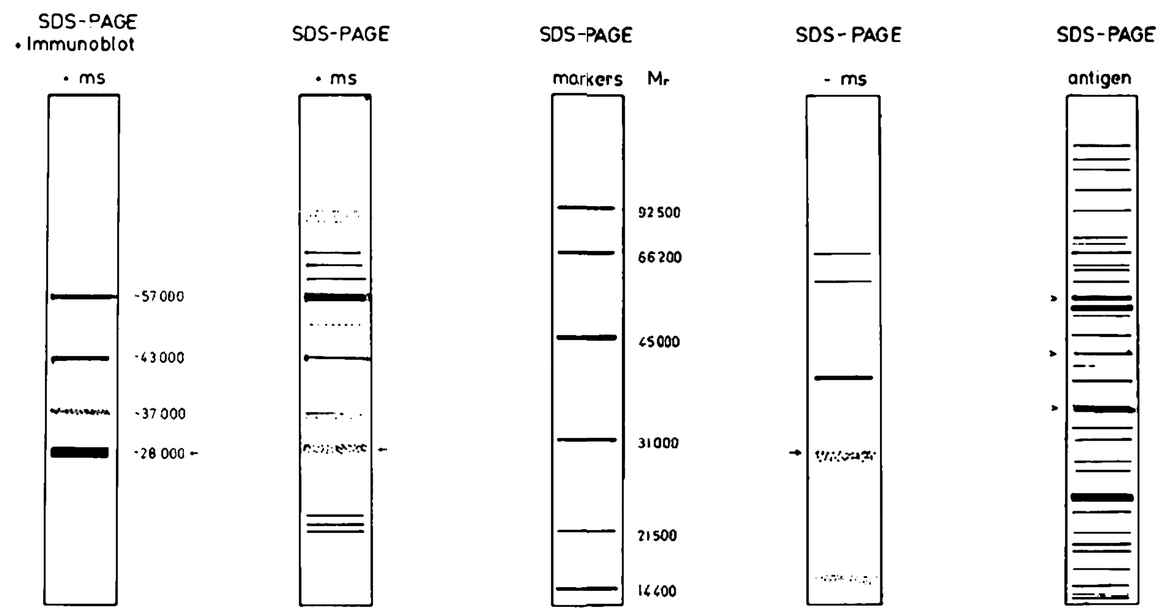
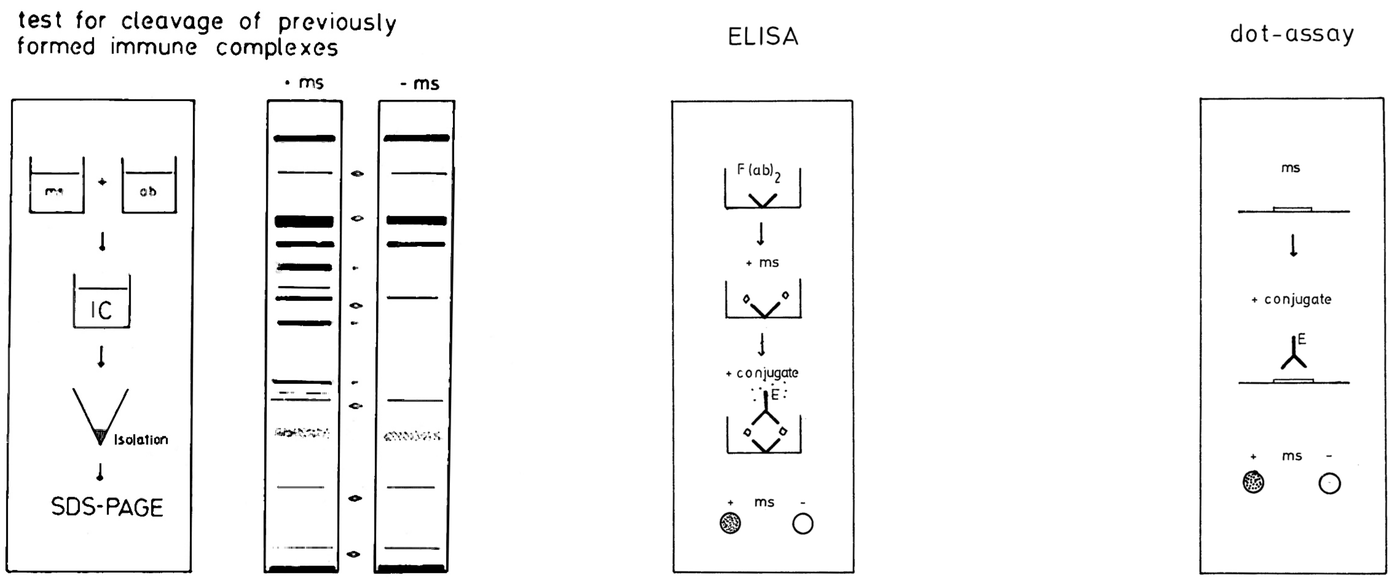
The demonstration of circulating Toxoplasma antigen (cag) in sera still holds an uncertain position in the diagnosis of toxoplasmosis. Commonly, sera of mice previously infected with Toxoplasma gondii are used as positive control sera in tests for cag detection. From these, cag can be isolated and studied by means of affinity chromatography and electrophoresis (SDS-PAGE). We obtained about 500 µg of antigen out of 1 ml mouse serum. In the SDS-PAGE several immunoreactive components with different molecular masses (M_r) were found:



The reliability of serotests for detection of cag highly depends on adequate sensitivity on one hand and on satisfying specificity on the other. With respect to these questions the following three test systems were compared:



Results: Properties of three different test systems for detection of cag

Sensitivity:	1 µg/ml	100 µg/ml	28 µg/ml
Specificity:	high	good	poor
work expenditure:	very high	moderate	small
false positive results due to rheumatoid factors:	no	rare	yes

From the results of this study one may conclude that the dot assay and, with some restrictions, the ELISA may be used as a screening test. For further and more exact examination of a single serum sample the test for cleavage of previously formed immune complexes offers considerable advantages:
1. larger volumes of sera (up to some ml) can be tested, and
2. besides cag, circulating immune complexes can be detected simoultaneously.