Haematex
PREMIUM REAGENTS FOR INVESTIGATING THROMBOSIS & HAEMOSTASIS

# SURFACE ACTIVATED CLOTTING TIME (SACT-II)

## Product Code X9601-HB (10 x 5ml)

**PRODUCT DESCRIPTION**

The SACT-II reagent is a clear, stable, phospholipid-free suspension of an aluminosilicate mineral which activates contact factors similar to kaolin or silica. The SACT-II reagent can be used as a substitute for kaolin suspension in kaolin (KCT[1]) or silica clotting time SCT[2]) tests for lupus anticoagulants (LA), running in regular aPTT mode on manual, semi-automated or fully automated testing instruments. The correlation between the KCT and SACT-II results on various LA and other plasmas is excellent. The simplicity of the reagent means it is very cost effective. As the reagent is inorganic in nature, product stability is extremely long, but just to reduce potential contamination it should be stored refrigerated between 4° - 8°C. Mix briefly by gentle vial inversion before using in tests.

**METHOD**

For manual tests, mix 0.1ml test sample (usually a mix of patient and normal plasma) with 0.1 SACT-II.
Activate for 3-5 minutes at 37°C.
Add 0.1ml of pre-warmed 0.025M calcium chloride.
Determine the clotting endpoint time.
For automated tests, use aPTT mode preferably with extended acquisition time.

**TEST PROCEDURE**

SACT-II and KCT tests are usually carried out on mixes of patient and normal plasma[1]. These are often 1:1 or 1:4 mixes but the neat normal and patient plasmas should also be tested. Tests may be carried out with 0.1ml of test plasma pre-incubated at 37°C with 0.1ml of SACT-II or KCT reagent, then recalcified with 0.1ml of 0.025M calcium chloride and timed to a clotting endpoint. Because SACT-II reagent has a lower opacity, and is slower settling than the KCT reagent, the clotting endpoint can be determined in any electromechanical or photo-optical testing system capable of measuring up to a clotting time of 300 seconds (upper limit).

## SIGNIGICANCE

A prolonged SACT-II (or KCT) result on neat patient plasma indicates a coagulation defect in the intrinsic or common pathways. If the abnormal result persists in a mix with normal plasma, a lupus inhibitor may be present. The SACT-II or KCT[3] is usually more sensitive than most dRVVT and aPTT tests to weak LA and it may detect a different subtype of LA[4]. However SACT-II tests are not as specific as dilute Russell's viper venom tests (dRVVT) especially in the absence of phospholipid correction[5].

Lupus inhibitors are a diagnostic feature of antiphospholipid syndrome (APS[6]). Patients with APS may present with recurrent fetal losses, thrombosis or stroke. Occasional patients displaying lupus inhibitor may be asymptomatic or may have a lympho-proliferative condition. Lupus inhibitors only rarely cause bleeding and then mainly in conjunction with low prothrombin, detectable by an extended prothrombin time test. The laboratory diagnosis of APS remains complex and should be supported by clinical associations and tests for anti-cardiolipin or anti beta 2GPI antibodies[7].

## LIMITATIONS

Because no phospholipid is added in this type of test the clotting time result is strongly dependent on the endogenous content of phospholipid in the plasma samples as well as on the activity of most clotting factors. Thus residual platelets in freeze thawed plasmas can contribute to a short clotting time, possibly bypassing weaker lupus inhibitors. Conversely, plasmas with unusually low phospholipids (e.g. in filtered plasmas or in some plasmas from thrombocytopenic patients) can give grossly prolonged SACT-II results when tested on their own.

For these reasons, testing is more reliable on mixes of patient with normal plasma. The normal plasma for mixing should be carefully selected to provide results between 80 and 100 seconds. Normal plasma giving excessively prolonged SACT-II or KCT results (e.g.>110 seconds) can be mixed with freeze thawed platelet containing normal plasma to shorten the baseline results.

## REFERENCES


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