# Literature review

# The antiphosphatidylserine/prothrombin detection in solid phase assay is largely dependent on the type of samples

(Kumano, O. et al. Int J Lab Hematol. 2020;42:e177–e179)

Piet Meijer, ECAT, The Netherlands

The laboratory criterion for the antiphospholipid syndrome (APS) is the presence of antiphospholipid (aPL) antibodies. The presence of these antibodies can be measured by either lupus anticoagulant (LA) or antiphospholipid antibody IgG/IgM assays for anti-β2 glycoprotein I (aβ2GPI) and anti-cardiolipin (aCL) antibodies [1].

The Subcommittee on LAs and aPL Antibodies of the Scientific and Standardization Committee of the International Society on Thrombosis and Haemostasis (ISTH-SSC) recommend using citrated plasma or serum for the measurement of aβ2GPI and aCL [2].

The purpose of the study published by Kumano et al was to investigate the comparison between plasma and serum samples [3]. The authors also included in their study the measurement of antiphosphatidylserine/ prothrombin (aPS/PT) antibodies, because it is expected that aPS/PT could be an important biomarker for the diagnosis of APS. They include serum and plasma samples from 62 APS and APS-suspicious patients which were collected at the same time.

A summary of the results obtained is given in the table below (data taken from table 1 in reference [3]).

| | aβ2GPI | | aCL | | aPS/PT | |
|---|---|---|---|---|---|---|
| | IgG | IgM | IgG | IgM | IgG | IgM |
| The number of positive samples (plasma/ serum) | 56/ 60 | 9/ 10 | 6/ 10 | 2/ 3 | 16/ 15 | 5/ 5 |
| Agreement | 93.5% | 98.4% | 93.5% | 98.4% | 95.2% | 100% |

The agreement between plasma and serum for all 3 assays was more than 90%. They also observed with their in-house method for aPS/PT that the levels in serum were clearly lower than those of plasma and two samples were only positive in plasma samples. It is therefore recommended that each laboratory should validate their methods and assay kits for the type of sample used. Also the sample preparation, e.g. centrifugation, could be of influence.

*For further details about this study see reference 3.*

For your information, in the ECAT external quality assessment programme for anti-phospholipid antibodies citrated plasma samples are used.

1. Miyakis, S., M.D. Lockshin, T. Atsumi, D.W. Branch, R.L. Brey, R. Cervera, *et al.*, International consensus statement on an update of the classification criteria for definite antiphospholipid syndrome (APS). J Thromb Haemost, 2006; 4: 295-306.
2. Devreese, K.M., S.S. Pierangeli, B. de Laat, A. Tripodi, T. Atsumi, T.L. Ortel, *et al.*, Testing for antiphospholipid antibodies with solid phase assays: guidance from the SSC of the ISTH. J Thromb Haemost, 2014; 12: 792-5.
3. Kumano, O., M. Ieko, M. Yoshida, S. Naito, K. Ohmura and N. Takahashi, The antiphosphatidylserine/prothrombin detection in solid phase assay is largely dependent on the type of samples. Int J Lab Hematol, 2020; 42: e177-e179.