

Anti-Phosphatidylserine (aPS): Proposal for Interpretive Ranges

Many laboratories perform aPS testing along with aCL and/or anti-beta 2 glycoprotein I (B2GPI), offering a more complete assessment of a patient's thrombotic risk. In fact, recent recommended testing algorithms now include aPS either in the initial screening, or as follow up testing for aCL negative patients with clinical history consistent with anti-phospholipid syndrome (APS). During in-house clinical studies using aCL, aPS and anti-B2GPI, the best correlation was demonstrated between aPS and anti-B2GPI test results. Other laboratories have independently confirmed these findings. In the same study, only patient samples from the high risk populations (SLE with history of thrombosis, and APS) tested positive for all three antibodies. Results from these studies were presented at the 8th International Symposium on Anti-phospholipid Antibodies in Sapporo, Japan (published in Lupus; 7, Suppl 2, 1998).

Suggested interpretive ranges have been available for the aCL assay for many years. The degree of positivity (low, moderate and high) can be used by physicians and other health care providers to assess a patient's current clinical status. In order to establish interpretive ranges for REAADS aPS assays, a large population of patients from various groups (n=290), including normal, infectious disease, non-related autoimmune, and relevant diseases associated with anti-phospholipid syndrome was tested. Listed below are the patient groups that were tested in this study.

- Healthy blood donors (n=100)
- Syphilis (n=41)
- Progressive Systemic Sclerosis (PSS) (n=42)
- Rheumatoid Arthritis (RA) (n=42)
- Unselected SLE (n=40)
- SLE with thrombosis (Secondary APS) (n=12)
- Primary antiphospholipid syndrome (APS) (n=13)

These samples were tested for IgG, IgM and IgA autoantibodies using the REAADS aPS ELISA test kits. Assays were performed per package insert instructions. Results were reported in GPS, MPS, and APS units, with assay cutoffs of 16, 22, and 20 units respectively. Based on the results from this testing, the following interpretive ranges are proposed:

Ranges	IgG GPS	IgM MPS	IgA APS
Normal	<16	<22	<20
Low Positive (+)	16 - 30	22 - 35	21 - 30
Moderate Positive (+)	31 - 50	36 - 50	31 - 45
High Positive (+)	>50	>50	>45

The results for each isotype, including the number of positive samples in each test population are presented in the following tables:

IgG aPS population	Mean Value GPS	Total % positive	Recovery (%) by Range			
			normal	low positive	moderate positive	high positiv
Healthy	9	2%	98%	1%	1%	0
Syphilis	18	48%	52%	39%	7%	2%
PSS	12	20%	80%	20%	0	0
RA	16	37%	63%	33%	2%	2%
Uns. SLE	20	53%	47%	33%	20%	0
SLE w/ throm.	42	75%	25%	25%	17%	33%
Primary APS	45	84%	16%	31%	15%	38%

IgM aPS population	Mean Value MPS	Total % positive	Recovery (%) by Range			
			normal	low positive	moderate positive	high positive
Healthy	9	2%	98%	2%	0	0
Syphilis	17	29%	71%	17%	12%	0
PSS	12	12%	88%	5%	7%	0
RA	10	10%	90%	10%	0	0
Uns. SLE	23	53%	47%	38%	12%	3%
SLE w/ throm.	17	16%	84%	8%	0	8%
Primary APS	35	60%	40%	30%	15%	15%

IgA aPS population	Mean Value MPS	Total % positive	Recovery (%) by Range			
			normal	low positive	moderate positive	high positive
Healthy	12	5%	95%	4%	1%	0
Syphilis	14	12%	88%	7%	2%	2%
PSS	16	14%	86%	10%	2%	2%
RA	15	19%	81%	19%	0	0
Uns. SLE	12	11%	89%	5%	5%	0
SLE w/ throm.	20	40%	60%	13%	27%	0
Primary APS	21	36%	64%	9%	9%	18%

The mean recovered values were highest in the clinically relevant populations. The prevalence of positive results was highest in the SLE and APS groups, with more samples in recovering in the moderate to high positive ranges. The samples which tested positive from the normal and non-relevant groups, recovered mostly in the low positive range. Overall, the aPS assay provided good discrimination between the relevant and non-relevant groups.

Scattergrams representing the test results from this study are shown on the reverse side of this page. This data and the proposed interpretive ranges provide additional guidelines for the clinical interpretation of aPS results.