Protein S Activity

Versiti offers a clotting-based test for Protein S.

Protein S (PS) is a coagulation pathway control protein and PS deficiency is associated with an increased risk of venous thrombosis. PS is the cofactor for activated protein C; it acts as an anticoagulant protein by accelerating degradation of factors Va and VIIIa. PS is a vitamin K dependent protein synthesized in the liver. It is also found in endothelial cells, platelets and megakaryocytes. PS exists in plasma in a free form (functional) and bound to C4b binding protein (non-functional). While PS antigen assays can measure both total and free PS antigen levels, they do not directly measure PS function. The PS activity assay measures the ability of PS to function as a cofactor for protein C. The PS activity assay is a useful screen for PS deficiency since both deficient amount (hypoproteinemia) and abnormal function (dysproteinemia) are detected.

Hereditary PS deficiency is associated with an increased risk of venous thrombosis, often presenting in the teens or early adulthood. If hereditary PS deficiency is suspected, the PS activity assay should be performed at a time remote from an acute thrombotic event. The patient should be off anticoagulants for at least one month. Family studies may be informative.

Low PS activity may be acquired during an acute thrombotic event or during disseminated intravascular coagulation. Other conditions associated with acquired deficiency include liver disease, oral anticoagulation with Coumadin, vitamin K deficiency, pregnancy, oral contraceptives, elevated C4bBP, sickle cell disease and nephrotic syndrome.

Indications for testing:

- Evaluation of patients with hypercoagulable state.
- Prediction of disease risk in individuals with a positive family member.

Test method:

Clotting assay which measures the patient's protein S activity in the presence of activated protein C, factor Va, and protein S depleted plasma.

Assay sensitivity and limitations:

The PS activity assay is not diagnostic during warfarin treatment. Patient should be off warfarin for at least 1 month before drawing sample. Plasma heparin levels < 1 unit/mL do not interfere with PS activity assay results. Some patients with the APC resistance/Factor V Leiden defect will have an artifactually low PS activity.

Specimen requirements:

0.5 mL of citrated plasma, frozen in a plastic tube.

SHIP

Shipping requirements:

Place the frozen specimen and the test requisition form in sealed plastic bags, and surround with at least 5 pounds of dry ice in a Styrofoam container. Place the sealed Styrofoam container in a sturdy cardboard box and tape securely. Ship the package in compliance with your overnight carrier guidelines. Send to:

Versiti Client Services
Hemostasis Reference Laboratory
638 N. 18th Street
Milwaukee, WI 53233
800-245-3117, ext. 6250

versiti™

ORDER

Required forms:

Please complete all pages of the requisition form.

CPT Codes/Billing/Turnaround time:

Test code: 1041

CPT code: For recommended CPT codes, visit the versiti.org/test-catalog

Turnaround time: 7-10 days

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