

## Protein S Activity, Plasma

**Test ID:** SFX

### Useful for:

Second-order testing for diagnosis of congenital or acquired protein S deficiency, ie, as an adjunct to initial testing based on results of protein S antigen assay (free protein S antigen, with or without total protein S antigen assay)

Evaluating patients with a history of venous thromboembolism

### Methods:

Optical Clot-Based

### Reference Values:

Males: 65-150%

Females:

<50 years: 50-150%

> or =50 years: 65-150%

Newborn infants have normal or near-normal free protein S antigen (> or =50%), although total protein S antigen is usually below the adult reference range. There are insufficient data concerning protein S activity in normal neonates, infants, and children; but normal or near-normal activity (> or =50%) probably is present by age 3 to 6 months

### Specimen Requirements:

<b>Patient Preparation:</b>	<b>Patient must not be receiving Coumadin</b>
<b>Specimen Type:</b>	Platelet-poor plasma
<b>Collection Container/Tube:</b>	Light-blue top (3.2% sodium citrate)
<b>Submission Container/Tube:</b>	Plastic vial
<b>Specimen Volume:</b>	1 mL
<b>Collection Instructions:</b>	<ol style="list-style-type: none"><li>1. For complete instructions, see <a href="#">Coagulation Guidelines for Specimen Handling and Processing</a>.</li><li>2. Centrifuge, transfer all plasma into a plastic vial, and centrifuge plasma again.</li></ol>

3. Aliquot plasma into a plastic vial leaving 0.25 mL in the bottom of centrifuged vial.
4. Freeze specimen immediately (no longer than 4 hours after collection) at -40 degrees C or below.

**Minimum Volume:** 0.5 mL

**Specimen Stability Information:**

Specimen Type	Temperature	Time
Plasma Na Cit	Frozen	14 days

**Cautions:**

Direct-acting oral anticoagulants (eg, direct thrombin inhibitors, such as dabigatran [Pradaxa], argatroban [Acova], bivalirudin [Angiomax]) and direct factor Xa inhibitors (eg, rivaroxaban [Xarelto], apixaban [Eliquis], edoxaban [Savaysa]) may cause the protein S activity to appear spuriously normal (or elevated), when protein S activity is truly decreased (or normal). Clinical correlation is suggested, and in the absence of anticoagulation therapy, consider repeating the protein S activity and antigen assay.

Coumadin therapy may result in decreased protein S activity (and free protein S antigen).

Acute or chronic inflammation can result in decreased protein S activity (and free protein S antigen).

Interpret protein S activity results with caution when any of the above patient conditions are present.

Protein S antigen assay (free protein S antigen, with concomitant or reflexive total protein S antigen assay), rather than protein S activity (functional) assay, is recommended as the initial testing approach for detecting congenital protein S deficiency, because of the greater variety of patient conditions that can interfere with the accuracy of functional testing as compared to antigen testing.

In general, it is preferable not to test for protein S deficiency during acute illness, pregnancy, or postpartum. Elective testing for protein S deficiency should be delayed for at least 30 days after cessation of warfarin therapy.

**CPT Code:**

85306

**Day(s) Performed:** Monday through Friday

**Report Available:** 1 to 4 days

**Questions**

Contact Bonnie Meyers, Laboratory Resource Coordinator at 800-533-1710.