Lab Dept: Coagulation

Test Name: ACTIVATED PROTEIN C RESISTANCE V (APCRV)

General Information

Lab Order Codes:	APCRV
Synonyms:	APCRV; Activated Protein CV deficient
CPT Codes:	85307 – Activated Protein C Resistance V
Test Includes:	Activated Protein C Resistance (APCR) Ratio

Logistics

Test indications:	Useful for evaluating patients with incident or recurrent venous thromboembolism (VTE). Useful for evaluating individuals with a family history of VTE.
Lab Testing Sections:	Coagulation - Sendouts
Referred to:	Mayo Clinic Laboratories – Mayo Test: APCRV
Phone Numbers:	MIN Lab: 612-813-6280 STP Lab: 651-220-6550
Test Availability:	Daily, 24 hours
Turnaround Time:	1 – 3 days
Special Instructions:	Coagulation Guidelines for Specimen Handling and Processing

Specimen

Specimen Type:	Whole Blood
Container:	Light-blue top (3.2% sodium citrate)
Draw Volume:	2.7 mL blood in a 3 mL tube (Minimum: 1.8 mL in a 2 mL tube)
Processed Volume:	1 mL (Minimum: 0.5 mL) platelet-poor plasma

Collection:	If the patient's hematocrit is >55%, contact laboratory to obtain a special tube. Fill tube completely. Mix thoroughly by gentle inversion.
Special Processing:	Lab Staff: Centrifuge, transfer all plasma into a vial, and centrifuge again to prepare platelet-poor plasma. Aliquot top portion of plasma into a vial. Freeze plasma immediately (no longer than 4 hours after collection) at -70 degree C. Send 1mL (MIN: 0.5mL) platelet-poor plasma. Store and ship FROZEN.
Patient Preparation:	Patient cannot be receiving anticoagulant medication
Sample Rejection:	Gross hemolysis; gross lipemia; gross icterus

Interpretive

Reference Range:	APCRV Ratio > or = 2.3 Pediatric reference range has neither been established nor is available in scientific literature. The adult reference range likely would be applicable to children older than 6 months. INTERPRETATION: An activated protein C (APC) resistance ratio of less than 2.3 suggests abnormal resistance to APC of hereditary origin. If the APC resistance test is abnormal, DNA-based testing for the factor V Leiden mutation (F5DNA / Factor V Leiden [R506Q] Mutation, Blood) may be helpful in confirming or excluding hereditary APC resistance.
Critical Values:	N/A
Limitations:	This assay is highly sensitive and specific for inherited activated protein C (APC) resistance, most commonly due to the factor V Leiden mutation, but it will not detect patients with acquired APC resistance. Persons with acquired APC resistance are at similar risk for venous thromboembolism. Preanalytical conditions of the patient and the blood specimen are extremely important for reliable performance and interpretation of testing for APC resistance. Plasmas demonstrating prolongation of clotting times (prothrombin time, activated partial thromboplastin time) for reasons other than anticoagulant effects (eg, lupuslike anticoagulants or specific coagulation factor inhibitors) generally cannot be reliably tested for the presence or absence of APC resistance. Proper preparation of the blood (plasma) specimen is extremely important to help insure accuracy of results and interpretation. The activated protein C resistance ratio (APCRV) assay has greater than 99% sensitivity for detecting the presence of a factor V Leiden mutation. Discrepant results of plasma-based APCRV and DNA-based factor V Leiden testing may occur in recipients of liver or allogeneic hematopoietic stem cell transplants; or due to anticoagulant effects such as excess

heparin; direct thrombin inhibitors argatroban (Acova), bivalirudin (Angiomax), or dabigatran (Pradaxa); or direct factor Xa inhibitors rivaroxaban (Xarelto), apixaban (Eliquis), and edoxaban (Savaysa); or a sample mix-up. Clinical correlation is suggested. If clinically indicated, consider follow-up repeat APCR testing or direct DNA-based testing for the factor V Leiden (R506Q) mutation (F5DNA / Factor V Leiden [R506Q] Mutation, Blood).

Methodology: Optical Clot-Based

References: Mayo Clinic Laboratories (October 2022)