Client: Example Client ABC123
123 Test Drive
Salt Lake City, UT 84108
UNITED STATES

Physician: Doctor, Example

Patient: Patient, Example

DOB	7/31/1988
Gender:	Female
Patient Identifiers:	01234567890ABCD, 012345
Visit Number (FIN):	01234567890ABCD
Collection Date:	00/00/0000 00:00

Homocysteine, Total
ARUP test code 0099869

Homocysteine, Total	11 umol/L	(Ref Interval: 0-15)

INTERPRETIVE INFORMATION: Homocysteine, Total

Elevated total homocysteine (tHcy) concentrations may be associated with vitamin B12 deficiency, folate deficiency, or inherited disorders of methionine metabolism. tHcy may also be used as a weak-graded risk factor for cardiovascular disease or stroke.

Protein C, Functional
ARUP test code 0030113

Protein C Functional	100 %	(Ref Interval: 83-168)

INTERPRETIVE INFORMATION: Protein C, Functional

Patients on warfarin may have decreased protein C values. Patients should be off warfarin therapy for two weeks for accurate measurement of protein C levels. Artificially increased functional protein C values may be due to heparin therapy or the presence of direct thrombin inhibitors or factor Xa inhibitors.

Access complete set of age- and/or gender-specific reference intervals for this test in the ARUP Laboratory Test Directory (aruplab.com).

Protein S Free, Antigen
ARUP test code 0098894

Protein S Ag Free	92 %	(Ref Interval: 55-123)

INTERPRETIVE INFORMATION: Protein S Ag, FREE

Patients on warfarin may have decreased free protein S values. Patients should be off warfarin therapy for two weeks for accurate measurement of free protein S levels. Decreased levels of free protein S are also associated with DIC, liver disease, pregnancy, and inflammatory syndromes.

Access complete set of age- and/or gender-specific reference intervals for this test in the ARUP Laboratory Test Directory (aruplab.com).

H=High, L=Low, *=Abnormal, C=Critical

Antithrombin, Enzymatic (Activity)
ARUP test code 0030010

Antithrombin, Enzymatic (Activity)	99 %	(Ref Interval: 76-128)
	REFERENCE INTERVAL: Antithrombin, Enzymatic (Activity) Access complete set of age- and/or gender-specific reference intervals for this test in the ARUP Laboratory Test Directory (aruplab.com).	

Lupus Anticoagulant Reflex Panel
ARUP test code 3017009

Prothrombin Time (PT)	12.2 s	(Ref Interval: 12.0-15.5)
PTT-LA Ratio	0.88	(Ref Interval: <=1.20)
dRVVT Screen Ratio	0.98	(Ref Interval: <=1.20)
Anti-Xa Qualitative Interpretation	Not Performed	(Ref Interval: Not Present)
Thrombin Time (TT)	Not Performed s	(Ref Interval: <=19.5)
Anticoagulant Medication Neutralization	Not Performed	(Ref Interval: Not Performed)
Neutralized PTT-LA Ratio	Not Performed	(Ref Interval: <=1.20)
Neutralized dRVVT Screen Ratio	Not Performed	(Ref Interval: <=1.20)
dRVVT 1:1 Mix Ratio	Not Performed	(Ref Interval: <=1.20)
dRVVT Confirmation Ratio	Not Performed	(Ref Interval: <=1.20)
Hexagonal Phospholipid Confirmation	Not Performed s	(Ref Interval: <=7.9)
Lupus Anticoagulant, Interpretation	See Note	

H=High, L=Low, *=Abnormal, C=Critical

Lupus anticoagulant not detected.

This panel did not detect evidence for heparin, direct thrombin inhibitors, or direct Xa inhibitors and drug neutralization was not performed.

Lupus anticoagulant antibodies are heterogeneous and antibody titers fluctuate over time. Laboratory tests used to identify lupus anticoagulant demonstrate variable sensitivity. Testing is best performed when the patient is not acutely ill and not anticoagulated. If there is strong clinical suspicion for antiphospholipid antibody syndrome (APS), consider testing for cardiolipin and beta-2 glycoprotein 1 antibodies (IgG and IgM) if this testing has not already been performed.

INTERPRETIVE INFORMATION: Lupus Anticoagulant Reflex Panel

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the U.S. Food and Drug Administration. This test was performed in a CLIA-certified laboratory and is intended for clinical purposes.

Thrombotic Risk Reflex Panel

ARUP test code 3017156

Thrombosis Interpretation - Risk	See Note	

Activated protein C resistance due to a factor V Leiden mutation is identified as a risk factor for thrombosis.

INTERPRETIVE INFORMATION: Thrombotic Risk Reflex Panel

Refer to individual components

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Counseling and informed consent are recommended for genetic testing. Consent forms are available online.

Beta-2 Glycoprotein 1 Antibodies, IgG and IgM

ARUP test code 0050321

B2Glycoprotein 1, IgG Antibody	15 SGU	(Ref Interval: <=20)
B2Glycoprotein 1, IgM Antibody	16 SMU	(Ref Interval: <=20)

H=High, L=Low, *=Abnormal, C=Critical

INTERPRETIVE INFORMATION: B2Glycoprotein I, IgG and IgM Antibody

The persistent presence of IgG and/or IgM beta 2 glycoprotein I (B2GPI) antibodies is a laboratory criterion for the diagnosis of antiphospholipid syndrome (APS). Persistence is defined as moderate or high levels of IgG and/or IgM B2GPI antibodies detected in two or more specimens drawn at least 12 weeks apart (J Throm Haemost. 2006;4:295-306). B2GPI results greater than 20 SGU (IgG) and/or SMU (IgM) are considered positive based on the cutoff values established for this test. International reference materials and consensus units for anti-B2GPI antibodies have not been established (Clin Chim Acta. 2012;413(1-2):358-60; Arthritis Rheum. 2012;64(1):1-10.); results can be variable between different commercial immunoassays and cannot be compared. Strong clinical correlation is recommended for a diagnosis of APS. Low positive IgG and IgM B2GPI antibody levels should be interpreted in light of APS-specific clinical manifestations and/or other criteria phospholipid antibody tests.

Cardiolipin Antibodies, IgG and IgM

ARUP test code 0099344

Cardiolipin Antibody IgG	12 GPL	(Ref Interval: <=14)

INTERPRETIVE INFORMATION: Anti-Cardiolipin IgG Ab

<=14 GPL: Negative
15-19 GPL: Indeterminate
20-80 GPL: Low to Moderately Positive
81 GPL or above: High Positive

The persistent presence of IgG and/or IgM cardiolipin (CL) antibodies in moderate or high levels (greater than 40 GPL and/or greater than 40 MPL units) is a laboratory criterion for the diagnosis of antiphospholipid syndrome (APS). Persistence is defined as moderate or high levels of IgG and/or IgM CL antibodies detected in two or more specimens drawn at least 12 weeks apart (J Throm Haemost. 2006;4:295-306). Lower positive levels of IgG and/or IgM CL antibodies (above cutoff but less than 40 GPL and/or less than 40 MPL units) may occur in patients with the clinical symptoms of APS; therefore, the actual significance of these levels is undefined. Results should not be used alone for diagnosis and must be interpreted in light of APS-specific clinical manifestations and/or other criteria phospholipid antibody tests.

Cardiolipin Antibody IgM	10 MPL	(Ref Interval: <=12)

INTERPRETIVE INFORMATION: Anti-Cardiolipin IgM

<=12 MPL: Negative
13-19 MPL: Indeterminate
20-80 MPL: Low to Moderately Positive
81 MPL or above: High Positive

The persistent presence of IgG and/or IgM cardiolipin (CL) antibodies in moderate or high levels (greater than 40 GPL and/or greater than 40 MPL units) is a laboratory criterion for the diagnosis of antiphospholipid syndrome (APS). Persistence is defined as moderate or high levels of IgG and/or IgM CL antibodies detected in two or more specimens drawn at least 12 weeks apart (J Throm Haemost. 2006;4:295-306). Lower positive levels of IgG and/or IgM CL antibodies (above cutoff but less than 40 GPL and/or less than 40 MPL units) may occur in patients with the clinical symptoms of APS; therefore, the actual significance of these levels is undefined. Results should not be used alone for diagnosis and must be interpreted in light of APS-specific clinical manifestations and/or other criteria phospholipid antibody tests.

APC Resistance Profile with Reflex to Factor V Leiden

ARUP test code 0030192

APC Resistance	**1.44 L** (Ref Interval: >=2.00)

TEST INTERPRETATION: APC Resistance Profile

Ratios less than 2.00 suggest APC resistance. This method uses factor V deficient plasma; therefore, APC resistance due to a nonfactor V mutation will not be detected. Extreme factor V deficiency or presence of direct oral anticoagulants (DOACs) may cause an unreliable ratio.

FACV REF Specimen	Whole Blood
Factor V Leiden by PCR	**Heterozygous ***

H=High, L=Low, *=Abnormal, C=Critical

Indication for testing: Assess genetic risk for thrombosis.

HETEROZYGOUS: One copy of the factor V Leiden variant, c.1601G>A; p.Arg534Gln, was detected. This is associated with activated protein C resistance and a four to eight fold increased risk for venous thrombosis in comparison to individuals without this variant. Genetic consultation is recommended.

BACKGROUND INFORMATION: Factor V Leiden (F5) R506Q Mutation

CHARACTERISTICS: Venous thromboembolism (VTE) is multifactorial caused by a combination of genetic and environmental factors. The Factor V Leiden (FVL) variant is the most common cause of inherited VTEs, accounting for over 90 percent of activated protein C (APC) resistance. Because the FVL variant eliminates the APC cleavage site, factor V is inactivated slower, thus persisting longer in blood circulation, leading to more thrombin production. Other genetic risk factors for VTE include, male sex and variants in antithrombin, protein C, protein S, or factor XIII. Non-genetic risk factors include, age, smoking, prolonged immobilization, malignant neoplasms, surgery, pregnancy, oral contraceptives, estrogen replacement therapy, tamoxifen and raloxifene therapy.
INCIDENCE OF FACTOR V LEIDEN VARIANT: Approximately 5 percent of Caucasians, 2 percent of Hispanics, 1 percent of African Americans and 0.5 percent of Asians are heterozygous; homozygosity occurs in 1 in 1500 Caucasians.
INHERITANCE: Semi-dominant; both heterozygotes and homozygotes are at increased risk for VTE.
PENETRANCE: Lifetime risk of VTE is 10 percent for heterozygotes and 80 percent of homozygotes.
CAUSE: The pathogenic gain of function in the F5 gene variant c.1601G>A (p.Arg534Gln). Legacy nomenclature: R506Q (1691G>A)
CLINICAL SENSITIVITY: 20-50 percent of individuals with an isolated VTE have the FVL variant.
METHODOLOGY: Polymerase chain reaction and fluorescence monitoring.
ANALYTICAL SENSITIVITY AND SPECIFICITY: 99 percent.
LIMITATIONS: Diagnostic errors can occur due to rare sequence variations. F5 gene mutations, other than p.Arg534Gln, will not be detected.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

This result has been reviewed and approved by [redacted]

Prothrombin (F2) c.*97G>A (G20210A) Pathogenic Variant

ARUP test code 0056060

PT PCR Specimen	Whole Blood
Prothrombin (F2) G20210A Variant	Negative

H=High, L=Low, *=Abnormal, C=Critical

Indication for testing: Assess genetic risk for thrombosis.

NEGATIVE: The Factor II, prothrombin G20210A mutation, was not detected. Other causes of elevated prothrombin levels and hereditary forms of venous thrombosis have not been excluded.

Recommendations: If clinically indicated, testing for other inherited or acquired thrombophilic disorders is recommended including DNA testing for the factor V Leiden mutation, measurement of total plasma homocysteine concentration, serological assays for anticardiolipin antibodies, multiple phospholipid-dependent coagulation assays for lupus inhibitor, protein C activity, protein S activity or free protein S antigen, and antithrombin activity.

This result has been reviewed and approved [redacted]

BACKGROUND INFORMATION: Prothrombin (F2) c.*97G>A (G20210A) Pathogenic Variant
CHARACTERISTICS: The Factor II, c.*97G>A (G20210A) pathogenic variant is a common genetic risk factor for venous thrombosis associated with elevated prothrombin levels leading to increased rates of thrombin generation and excessive growth of fibrin clots. The expression of Factor II thrombophilia is impacted by coexisting genetic thrombophilic disorders, acquired thrombophilic disorders (eg, malignancy, hyperhomocysteinemia, high factor VIII levels), and circumstances including: pregnancy, oral contraceptive use, hormone replacement therapy, selective estrogen receptor modulators, travel, central venous catheters, surgery, and organ transplantation.
INCIDENCE: Approximately 2 percent of Caucasians and 0.3 percent of African Americans are heterozygous; homozygosity occurs in 1 in 10,000 individuals.
INHERITANCE: Incomplete autosomal dominant.
PENETRANCE: The risk of thrombosis is increased 2-4 fold for heterozygotes and further increased for homozygotes.
CAUSE: Homozygosity or heterozygosity for F2 c.*97G>A (G20210A).
PATHOGENIC VARIANT TESTED: F2 c.*97G>A (G20210A).
CLINICAL SENSITIVITY FOR VENOUS THROMBOSIS: Approximately 10 percent.
METHODOLOGY: Polymerase chain reaction and fluorescence monitoring.
ANALYTICAL SENSITIVITY AND SPECIFICITY: 99 percent.
LIMITATIONS: Diagnostic errors can occur due to rare sequence variations. F2 gene variants, other than c.*97G>A (G20210A), will not be detected.

This test was developed and its performance characteristics determined by ARUP Laboratories. It has not been cleared or approved by the US Food and Drug Administration. This test was performed in a CLIA certified laboratory and is intended for clinical purposes.

Counseling and informed consent are recommended for genetic testing. Consent forms are available online.

H=High, L=Low, *=Abnormal, C=Critical

VERIFIED/REPORTED DATES

Procedure	Accession	Collected	Received	Verified/Reported
Homocysteine, Total	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Protein C Functional	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Protein S Ag Free	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Antithrombin, Enzymatic (Activity)	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
APC Resistance	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Prothrombin Time (PT)	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
PTT-LA Ratio	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
dRVVT Screen Ratio	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Anti-Xa Qualitative Interpretation	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Thrombin Time (TT)	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Anticoagulant Medication Neutralization	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Neutralized PTT-LA Ratio	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Neutralized dRVVT Screen Ratio	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
dRVVT 1:1 Mix Ratio	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
dRVVT Confirmation Ratio	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Hexagonal Phospholipid Confirmation	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Lupus Anticoagulant, Interpretation	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Thrombosis Interpretation - Risk	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
B2Glycoprotein 1, IgG Antibody	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
B2Glycoprotein 1, IgM Antibody	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Cardiolipin Antibody IgG	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Cardiolipin Antibody IgM	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
FACV REF Specimen	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Factor V Leiden by PCR	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
PT PCR Specimen	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Prothrombin (F2) G20210A Variant	24-057-111850	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00

END OF CHART

H=High, L=Low, *=Abnormal, C=Critical