ARUP Physician Services 004070
321 TESTING ANSR EXTRACT
Salt Lake City NY 84108

Date of Birth:
Gender: Female
ARUP ID: 535737
Requisition #:
Client Supplied ID:
Physician: 10082429.0 -TEST,
Printed: 11-Feb-19 12:22:37

Procedure	Result	Units	Ref Interval	Accession	Collected	Received	Reported/ Verified
RBC Antigen Genotyping Specimen	Whole Blood			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
Rh Antigen C/c	C-c+			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
Rh Antigen E/e	E-e+			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
Rh Antigen V/VS	V-VS+			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
Kell Antigen K/k	K-k+			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
Kell Antigen Kpa/Kpb	Kp(a-b+)			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
Kell Antigen Jsa/Jsb	Js(a-b+)			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
Duffy Antigen Fya/Fyb	Fy(a+b+weak)			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
Kidd Antigen Jka/Jkb	Jk(a-b+)			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
MNS Antigen MN	M-N+			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
MNS Antigen S/s/U	S-s+U+			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
Lutheran Antigen Lua/Lub	Lu(a-b+)			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
Diego Antigen Dia/Dib	Di(a-b+)			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
Colton Antigen Coa/Cob	Co(a-b+)			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
Dombrock Antigen Doa/Dob	Do(a-b+)			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
Dombrock Antigen Hy	Hy+			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
Dombrock Antigen Joa	Joa+			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
Landsteiner-Wiener Antigen LWa/LWb	LW(a-b+)			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
Scianna Antigen Sc1/Sc2	Sc:-1,2			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
Hemoglobin S Antigen	**Homozygous ***			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13
RBC Antigen Genotyping Interpretation	See Note f			19-037-900195	06-Feb-19 13:24:00	06-Feb-19 13:24:00	08-Feb-19 09:47:13

06-Feb-19 13:24:00 RBC Antigen Genotyping Interpretation:

One copy of the Fy(a) allele and one copy of the FY*02M allele were detected. The FY*02M allele predicts weak expression of the Fy(b) (FY2) antigen; serological anti-Fy(b) (FY2) reagents may not always react with such a weakened Fy(b) antigen expression. This genotype is predictive of an Fy(a+b+weak) (FY: 1,2) phenotype.

Two copies of the s allele were identified. This genotype is predictive of an S-s+U+ (MNS: -3, 4, 5) phenotype.

Two copies of the hemoglobin S variant, HBB c.20A>T, were detected consistent with sickle cell anemia. The presence of HbSC disease may result in a false positive HbSS genotype; therefore, this result should not be used for determination of sickle cell disease. This individual's reproductive partner and family members should be offered carrier screening for hemoglobinopathies.
Recommendations: Correlation with clinical findings and serological results is recommended.

Indication for testing: Predict RBC antigen specificities expressed to aid in selecting antigen negative RBCs for transfusion if indicated. Assess risk for hemolytic disease of the fetus / newborn.
Interpretation: Predicted phenotypes are reported for each antigen based on the alleles present. Rare nucleotide changes leading to altered or partial antigen expression and null phenotypes may not be detected. The genotype for the hemoglobin S variant is reported.

This result has been reviewed and approved by Pinar Bayrak-Toydemir, M.D., Ph.D.

***** = Abnormal, **#** = Corrected, **C** = Critical, **f** = Footnote, **H** = High, **L** = Low, **t** = Interpretive Text, **@** = Reference Lab

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06-Feb-19 13:24:00 RBC Antigen Genotyping Interpretation:
BACKGROUND INFORMATION: Red Blood Cell Antigen Genotyping

CHARACTERISTICS: Erythrocyte alloimmunization may result in hemolytic transfusion reactions or hemolytic disease of the fetus and newborn (HDFN). Clinical presentation is variable and dependent upon the specific antibody and recipient factors.
INCIDENCE: Erythrocyte alloimmunization occurs in up to 58 percent of sickle cell patients, up to 35 percent in other transfusion-dependent patients, and in approximately 0.8 percent of all pregnant women.
INHERITANCE: Typically co-dominant for red blood cell (RBC) antigens, autosomal recessive for hemoglobin S (HbS).
CAUSE: Antigen-antibody mediated red-cell hemolysis between donor/recipient or transferred maternal antibodies.
VARIANTS TESTED:
Rh blood group RHCE*2 (C), RHCE*4 (c): c.307C>T, p.Pro103Ser; 109bp insertion. RHCE*3 (E), RHCE*5 (e): c.676G>C, p.Ala226Pro. RHCE*01.20.01, *01.20.02, *01.20.04, *01.20.05 (V/VS): c.733C>G, p.Leu245Val; c.1006G>T, p.Gly336Cys.
Kell blood group KEL*01 (K), KEL*02 (k): c.578C>T, p.Thr193Met. KEL*03 (Kpa), KEL*04 (Kpb): c.841C>T, p.Arg281Trp. KEL*06 (Jsa), KEL*07 (Jsb): c.1790T>C, p.Leu597Pro.
Duffy blood group FY*01 (Fya), FY*02 (Fyb): c.125G>A, p.Gly42Asp. FY*02N.01 (FybES): c.-67T>C. FY*02M (Fyx): c.265C>T, p.Arg89Cys.
Kidd blood group JK*01 (Jka), JK*02 (Jkb): c.838G>A, p.Asp280Asn.
MNS blood group GYPA*01 (M), GYPA*02 (N): c.59T>C, p.Leu20Ser. GYPB*03 (S), GYPB*04 (s): c.143C>T, p.Thr48Met. (U), Silencing S (Uvar)
GYPB*03N.01, GYBP*03N.02, GYPB*03N.03, GYBP*03N.04, Silencing S (Uneg): c.230C>T, p.Thr77Met; c.270+5G>T.
Lutheran blood group LU*01 (Lua), LU*02 (Lub): c.230G>A, p.Arg77His.
Dombrock blood group DO*01 (Doa), DO*02 (Dob): c.793G>A, p.Asp265Asn. DO*04 (Hy): c.323G>T, p.Gly108Val. DO*05 (Joa): c.350C>T, p.Thr117Ile.
Landsteiner-Wiener blood group LW*05 (LWa), LW*07 (LWb): c.299A>G, p.Gln100Arg.
Diego blood group DI*01 (Dia), DI*02 (Dib): c.2561C>T, p.Pro854Leu.
Colton blood group CO*01 (Coa), CO*02 (Cob): c.134C>T, p.Ala45Val.
Scianna blood group SC*01 (Sc1), SC*02 (Sc2): c.169G>A, p.Gly57Arg.
Hemoglobin S: HBB c.20A>T, Glu6Val.
CLINICAL SENSITIVITY: >99 percent for c (RH4), C (RH2), e (RH5), E (RH3), k (KEL2), K (KEL1), Jka (JK1), Jkb (JK2), Fya (FY1), Fyb (FY2), M (MNS1), N (MNS2), S (MNS3), s (MNS4). Unknown for Kpa (KEL3), Kpb (KEL4), Jsa (KEL6), Jsb (KEL7), Lua (LU1), Lub (LU2), Dia (DI1), Dib (DI2), Coa (CO1), Cob (CO2), Doa (DO1), Dob (DO2), Joa (DO5), Hy (DO4), LWa (LW5), LWb (LW7), Sc1 (SC1), Sc2 (SC2), U (MNS5), V (RH10), VS (RH20), Hemoglobin S (HbS).
METHODOLOGY: Immucor PreciseType HEA Molecular BeadChip, which is FDA-approved for clinical testing. Predicted phenotypes are reported for each antigen and HbS based on the variants tested.
ANALYTICAL SENSITIVITY AND SPECIFICITY: >99 percent for c (RH4), C (RH2), e (RH5), E (RH3), k (KEL2), K (KEL1), Jka (JK1), Jkb (JK2), Fya (FY1), Fyb (FY2), M (MNS1), N (MNS2), S (MNS3), s (MNS4). Unknown for Kpa (KEL3), Kpb (KEL4), Jsa (KEL6), Jsb (KEL7), Lua (LU1), Lub (LU2), Dia (DI1), Dib (DI2), Coa (CO1), Cob (CO2), Doa (DO1), Dob (DO2),

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Joa (DO5), Hy (DO4), LWa (LW5), LWb (LW7), Sc1 (SC1), Sc2 (SC2), U (MNS5), V (RH10), VS (RH20), Hemoglobin S (HbS).
LIMITATIONS: Only the variants listed will be interrogated. Rare nucleotide changes leading to altered or partial antigen expression and null phenotypes may not be detected by this assay. This assay does not assess for RhD nor is it designed to diagnose sickle cell disease. Patients who have had hematopoietic stem cell transplants may have inconclusive results on this test. Abnormal signal intensities may result in indeterminate genotyping results for all tested antigens/HbS.