

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

Physician: Doctor, Example

Patient: Patient, Example

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

Red Blood Cell Antigen Genotyping, Fetal

ARUP test code 3016639

RBC Antigen Genotyping, Fetal Specimen Cultured Amnio

Rh Antigen C/c C+C-

Rh Antigen E/e E-e+

Rh Antigen V/Vs V-Vs-

Kell Antigen K/k K-k+

Kell Antigen Kpa/Kpb Kp(a-b+)

Kell Antigen Jsa/Jsb Js(a-b+)

Duffy Antigen Fya/Fyb Fy(a+b+)

Kidd Antigen Jka/Jkb Jk(a-b+)

MNS Antigen MN M-N+

MNS Antigen S/s/U S-S+U+

Lutheran Antigen Lua/Lub Lu(a-b+)

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

Diego Antigen Dia/Dib	Di (a-b+)
Colton Antigen Coa/Cob	Co(a+b-)
Dombrock Antigen Doa/Dob	Do(a+b+)
Dombrock Antigen Hy	Hy+
Dombrock Antigen Joa	Joa+
Landsteiner-Wiener Antigen LWa/LWb	LW(a+b-)
Scianna Antigen Sc1/Sc2	Sc:1,-2
Hemoglobin S Antigen	Negative
RBC Antigen Genotyping Fetal, Interp	See Note

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Please send any postnatal outcomes concerning this prenatal result to ARUP Genetic Counseling fax: 801-584-5236.

Indication for testing: Fetal genotyping to predict expression of RBC antigen specificities and assess risk for alloimmune hemolytic disease.

Interpretation: According to information provided to ARUP, the mother of this fetus is sensitized to the red blood cell (RBC) Fy(b) and E antigens. One copy of the Fy(a) allele and one copy of the Fy(b) allele were detected in this prenatal sample. This genotype is predictive of an Fy(a+b+) (FY: 1,2) phenotype; thus, this fetus is predicted to be at risk for anti-Fy(b)-mediated alloimmune hemolytic disease.

In addition, two copies of the RHCE*5 (e) allele were detected in this prenatal sample; the RHCE*3 (E) allele was not identified. Homozygosity for e allele predicts expression of e antigen and lack of expression of E antigen (also referred to as RhE-e+ phenotype) in this fetus; thus, this fetus is predicted to not be at risk for anti-E-mediated alloimmune hemolytic disease.

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

Predicted fetal phenotypes are reported for each antigen based on the alleles identified in the prenatal sample. 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.

Sample type received by ARUP: amniotic fluid
Sample cultured at ARUP: yes
Sample type used for reported results: cultured amniocytes

This result has been reviewed and approved by [REDACTED]

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

BACKGROUND INFORMATION: Red Blood Cell Antigen Genotyping,
Fetal

CHARACTERISTICS: Erythrocyte alloimmunization may result in hemolytic transfusion reactions or hemolytic disease of the fetus and newborn (HDFN). Clinical presentation is variable and dependent on 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 individuals.

INHERITANCE: Typically codominant 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: See the "Additional Technical Information" document.

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 (TM) HEA Molecular BeadChip which is FDA-approved for clinical testing. Predicted phenotypes are reported for each antigen and HbS based on the variants tested/Polymerase Chain Reaction (PCR)/Fragment Analysis.

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), Joa (DO5), Hy (DO4), Lwa (LW5), Lwb (LW7), Sc1 (SC1), Sc2 (SC2), U (MNS5), V (RH10), VS (RH20), Hemoglobin S (HbS).

LIMITATIONS: Bloody amniotic fluid samples may give false-negative results because of maternal cell contamination. Only the targeted variants 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.

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.

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

Maternal Contamination Study Fetal Spec

Fetal Cells

Single fetal genotype present; no maternal cells present. Fetal and maternal samples were tested using STR markers to rule out maternal cell contamination.

Maternal Contam Study, Maternal Spec

whole Blood

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

VERIFIED/REPORTED DATES				
Procedure	Accession	Collected	Received	Verified/Reported
RBC Antigen Genotyping, Fetal Specimen	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Rh Antigen C/c	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Rh Antigen E/e	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Rh Antigen V/VS	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Kell Antigen K/k	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Kell Antigen Kpa/Kpb	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Kell Antigen Jsa/Jsb	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Duffy Antigen Fya/Fyb	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Kidd Antigen Jka/Jkb	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
MNS Antigen MN	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
MNS Antigen S/s/U	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Lutheran Antigen Lua/Lub	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Diego Antigen Dia/Dib	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Colton Antigen Coa/Cob	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Dombrock Antigen Doa/Dob	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Dombrock Antigen Hy	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Dombrock Antigen Joa	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Landsteiner-Wiener Antigen LWa/LWb	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Scianna Antigen Sc1/Sc2	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Hemoglobin S Antigen	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
RBC Antigen Genotyping Fetal, Interp	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Maternal Contamination Study Fetal Spec	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Maternal Contam Study, Maternal Spec	25-309-123503	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00

END OF CHART

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