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

Physician: Doctor, Example

Patient: Patient, Example

DOB	[redacted]/1989
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

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

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) antigen. Two copies of the Fy(a) antigen were detected and the Fy(b) allele was not detected in this prenatal specimen. This genotype is predictive of an Fy(a+b-) phenotype; thus, this fetus is not predicted to be at risk for anti-Fy(b)-mediated alloimmune hemolytic disease.

One copy of the big S allele and one copy of the little s allele were identified in this prenatal sample. No rare U variant alleles were identified that alter expression of the big S antigen. This fetal genotype is predictive of an S+s+U+ phenotype.

Predicted fetal phenotypes are reported for each antigen based on the alleles identified in the prenatal sample. Antigens designated as positive (+) are predicted to be expressed in the fetus and antigens designated as negative (-) are predicted to not be expressed in the fetus. 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.

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

This result has been reviewed and approved by [redacted]

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 blood group antigens: Rh (c, C, e, E); Kell (k, K); Kidd (Jka, Jkb); Duffy (Fya, Fyb); MNS (M, N, S, s). Unknown for blood group antigens: Kell (Kpa, Kpb, Jsa, Jsb); Lutheran (Lua, Lub); Diego (Dia, Dib); Colton (Coa, Cob); Dombrock (Doa, Dob, Joa, Hy); Landsteiner-Wiener (LWa, LWb); Scianna (Sc1, Sc2); MNS (U); Rh (V, VS); 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 blood group antigens: Rh (c, C, e, E,); Kell (k, K,); Kidd (Jka, Jkb); Duffy (Fya, Fyb); MNS (M, N, S, s). Unknown for blood group antigens: Kell (Kpa, Kpb, Jsa, Jsb); Lutheran (Lua, Lub); Diego (Dia, Dib); Colton (Coa, Cob); Dombrock (Doa, Dob, Joa, Hy); Landsteiner-Wiener (LWa, LWb); Scianna (Sc1, Sc2); MNS (U); Rh (V, VS); 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.

VERIFIED/REPORTED DATES

Procedure	Accession	Collected	Received	Verified/Reported
RBC Antigen Genotyping, Fetal Specimen	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Rh Antigen C/c	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Rh Antigen E/e	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Rh Antigen V/VS	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Kell Antigen K/k	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Kell Antigen Kpa/Kpb	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Kell Antigen Jsa/Jsb	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Duffy Antigen Fya/Fyb	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Kidd Antigen Jka/Jkb	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
MNS Antigen MN	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
MNS Antigen S/s/U	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Lutheran Antigen Lua/Lub	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Diego Antigen Dia/Dib	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Colton Antigen Coa/Cob	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Dombrock Antigen Doa/Dob	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Dombrock Antigen Hy	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Dombrock Antigen Joa	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Landsteiner-Wiener Antigen LWa/LWb	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Scianna Antigen Sc1/Sc2	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
Hemoglobin S Antigen	25-342-101900	00/00/0000 00:00	00/00/0000 00:00	00/00/0000 00:00
RBC Antigen Genotyping Fetal, Interp	25-342-101900	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