Pregnancy Evaluation Report

RPL Standard Panel 1.3

Clinician: *Clinician Example*
Patient Name: *Example, Patient*
Date of Report: *11/04/2018*

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Illuminating Pathways to Reproductive Health™

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Pregnancy Evaluation Report

RPL Standard Panel 1.3

ReproSource
Illuminating Pathways to Reproductive Health™

Patient:	Example, Patient	Clinician:	Clinician Example
Gender: F Age: 28	Date of Birth: 01/03/1990	Telephone:	413.555.5555 Fax: 413.555.5556
Specimen:	T00001390	Address:	Example Clinic
Reported:	11/04/18		123 Example Street
Received:	11/02/18 Time: 10:00 am		Example City, EX 55555
Collected:	11/01/18 Time: 10:30 am		

Results Overview**

Category	Tests		Units	Range	In Range	Border-Line	Out of Range	Note
Endocrine	Thyroid stimulating hormone (TSH)		mIU/L	0.40 – 4.50	1.52			
Coagulation	Lupus anticoagulant (LA)		N/A	negative	negative			
Immunology	Anticardiolipin (aCL)	IgG	GLP	0-14	7			
		IgM	MLP	0-14	4			
	Anti-β_2Glycoprotein I (aBGPI)	IgG	SGU	0-20			50	positive
		IgM	SMU	0-20			31	positive
Genetics	Maternal Karyotype (blood)		N/A	46, XX			X	46,XX,t[3;4;14][q21;p14;q22.3] see comments
	Chromosomal Microarray, POC ClariSure® Oligo-SNP		N/A	46,XX OR 46,XY	46,XX			no maternal cell contamination

Comments:

THIS RESULTS OVERVIEW PAGE IS NOT INTENDED TO PROVIDE COMPLETE INFORMATION. PLEASE REVIEW THE INDIVIDUAL TEST RESULTS THAT FOLLOW.

1. Out of range results obtained for anti-B2 glycoprotein I IgG and IgM. Please review full results in detail.
2. An abnormal female chromosome complement with an apparently balanced complex rearrangement involving chromosomes 3, 4, and 14 is seen. Please review full results in detail.
3. POC: normal female microarray result. No maternal cell contamination. Please review full results in detail.

Please contact ReproSource Client Services with any questions **tel:** 800 667 8893 option 1 **email:** clientservices@reprosource.com **web:** www.reprosource.com

Current Testing Guidelines for Recurrent Pregnancy Loss (RPL)

Recurrent Pregnancy Loss Testing						
Criteria	Tests	ACOG	ASRM	ACG	ESHRE	Opinion
2 or 3 or more intrauterine pregnancy losses	Thyroid Stimulating Hormone		Yes	Yes	Yes	Yes
	Lupus anticoagulant (LA)	Yes	Yes	Yes	Yes	Yes
	Anticardiolipin (aCL) IgG IgM	Yes	Yes	Yes	Yes	Yes
	Anti-β_2GPI IgG IgM	Yes	Yes	Yes	Yes	Yes
	Karyotype X2 (both parents)	Yes	Yes		Yes	Yes

Reference Sources

ACOG: American College of Obstetrics & Gynecology
ASRM: American Society of Reproductive Medicine
ACG: Antiphospholipid Consensus Group
ESHRE: European Society of Human Reproduction & Embryology
Opinion: Expert Opinion Papers & Reviews

References

1. ACOG Practice Bulletin 150 (2015) Early Pregnancy Loss
2. ACOG Practice Bulletin 132 (2012) Antiphospholipid Syndrome
3. ASRM Committee Opinion (2013) Evaluation and Treatment of RPL
4. ACG International Consensus Statement (2006) Antiphospholipid Syndrome (APS)Recommendations
5. ESHRE Practice Guidelines (2017) Recurrent Pregnancy Loss
6. Stephenson M. Clinical Obstetrics & Gynecology (2007) Evaluation and Management of Recurrent Early Pregnancy Loss
7. Kutteh W. Seminars in Reproductive Medicine (2015) Novel Strategies for the Management of Recurrent Pregnancy Loss

TEST	UNITS	NORMAL RANGE	RESULT	COMMENT
RPL Standard Panel 1.3 Q8A				
Lupus Anti Coagulant		Negative	Negative	Negative

The determination of lupus anticoagulant in plasma includes the following tests: Activated Partial Thromboplastin Time (APTT), Dilute Russell Viper Venom Test (dRVVT) and Kaolin Clotting Time (KCT). If any of the three tests is prolonged over a normal control, `mixing studies` using normal plasma are performed (to correct for the presence of any factor deficiency, inhibitors, etc.) If after the mixing studies any of the three tests is still prolonged, a confirmatory test is performed to confirm the presence of a `lupus inhibitor` (antiphospholipid antibodies). Additionally, patient plasma containing anticoagulants invalidates testing which may yield false positive results.

TSH	mIU/L	0.40 - 4.50	1.52	Normal

Reference Range above is for adults aged 20 years or greater.

Pregnancy Ranges:
First trimester 0.26-2.66
Second trimester 0.55-2.73
Third trimester 0.43-2.91

Anticardiolipin IgG	GPL	<10	7	Negative
Anticardiolipin IgM	MPL	<10	4	Negative
Anti-Beta 2 glycoprotein I-IgG	SGU	<=20	50	**Positive**
Anti-Beta 2 glycoprotein I-IgM	SMU	<=20	31	**Positive**

Chromosome Analysis Q8A				
	N/A		46,XX,t(3;4;14)(q21;p14;q22.3)	**See Interpretation**

Karytoype: 46,XX,t(3;4;14)(q21;p14;q22.3)

Cytogenetic Reference : CB-18-000073
Test Setup Date: 10/05/2018
Test Completion Date: 10/05/2018
Specimen Source: Peripheral Blood
Clinical History:Not provided

Metaphases Counted:20 Analyzed:5 Karyotyped:3
Banding Level (G-bands):>=650

TEST	UNITS	NORMAL RANGE	RESULT	COMMENT

Interpretation and Comments
Abnormal female karyotype, high resolution G-banding. An abnormal female chromosome complement with an apparently balanced complex rearrangement involving chromosomes 3, 4, and 14 is seen. The rearrangement is a three way reciprocal translocation with the 3q terminal region translocated to 4p, the 4p terminal region translocated to 14q and the 14q terminal region translocated to 3q. Balanced reciprocal translocations confer a relatively high risk for adverse reproductive history (e.g., pregnancy loss, infertility, chromosomally unbalanced newborn).

That risk is considerably increased with regard to complex rearrangements, including three way translocations as seen here. This rearrangement is very likely the etiologic factor in the infertility for which this study was indicated. A general risk estimate of 48.3% for pregnancy loss and 18.4% for abnormal liveborn has been estimated. A review of complex balanced rearrangements can be found in Madan K. Am J Med Genet. 2012;58A:947-963.

Genetic counseling is recommended as is cytogenetic analysis of the patient`s first-degree relatives to determine their carrier status. Prenatal diagnosis is recommended in future pregnancies for any couple in which a carrier individual is determined. While the distinction between balanced and unbalanced outcomes would likely be clear in a prenatal G-banded chromosome analysis, it is recommended that oligo-SNP microarray analysis be considered in conjunction with any such studies.

Signature
Electronic Signature on File

_____
Steven A. Schonberg, Ph.D., FACMG
Technical Director, Cytogenetics and Genomics, 703-802-7156

Chromosomal Microarray,POC Q8M			See Below	**See Interpretation**

CYTOGENETIC RESULTS
Cytogenetic Reference #: TS-18-001998
Test Setup Date: 10/05/2018
Test Completion Date: 10/16/2018
Specimen Source: Membrane / Villi, Fetal Tissue
Clinical History:IUFD at 22 weeks, history of prior SAB x2
CYTOGENETIC RESULT:
NORMAL FEMALE MICROARRAY RESULT
ISCN: arr(1-22,X)x2

TEST	UNITS	NORMAL RANGE	RESULT	COMMENT

INTERPRETATION and COMMENTS:
This array assay did not reveal a genomic imbalance. Maternal cell contamination is common in products of conception (POC). Therefore, a normal female result should be interpreted with caution, as it may not represent the fetus. Couples experiencing recurrent spontaneous abortions are advised to have chromosome analyses to rule out the possibility of a balanced rearrangement carrier (Test code 14596X). For more information, please call Genetics Client Services at 1-866-GENE-INFO.

ASSAY INFORMATION: Thresholds for genome-wide screening are set at >2 Mb for gains, >1 Mb for losses, and 10 Mb for segments of homozygosity. These may be lower in cytogenetic relevant regions. This assay will not detect genomic gains or losses that are smaller than the resolution of the method. The additional ability to detect significant regions of allelic homozygosity (ROH) enhances the diagnostic value of this assay. This assay will detect dosage abnormalities only for genomic sequences represented in the array and will not detect balanced rearrangements (e.g., translocations, inversions). Copy number variations (CNV) with no phenotypic consequences are relatively common; CNVs identified as known variants in the general population and reported in the publicly available database of genomic variants will not be reported[http://projects.tcag.ca/variation/].

CNVs within or involving non-coding regions of the genome may not be reported. The performance of this test for detection of mosaicism has not been established. While this assay is validated and should have the capacity to detect a broad spectrum of specific disorders/syndromes, including aneuploidy and subtelomeric deletions, not all of these disorders have been detected in our laboratory due to their rarity. Other pertinent standard genetic tests should be considered in conjunction with a clinical evaluation of the patient. Please expect the results of any other concurrent test in a separate report. The oligo-SNP (oligonucleotide, single nucleotide polymorphism, Affymetrix CytoScan HD) assay uses a microarray containing over 2.67 million probes, including 1.9 million copy number probes and 750 thousand SNP probes. The overall average inter-probe distance is 1,150 base pairs. This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute, Chantilly, VA. It has not been cleared or approved by FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

Electronic Signature on File

Haiying Meng, M.D.,Ph.D., FACMG

TEST	UNITS	NORMAL RANGE	RESULT	COMMENT

Technical Director, Cytogenetics and Genomics, 703-802-7156
Test Performed by Quest, Chantilly,
Quest Diagnostics Nichols Institute,
14225 Newbrook Drive, Chantilly, VA 20151
Patrick W Mason, M.D., Ph.D., Director of Laboratories
(703) 802-6900, CLIA 49D0221801

Maternal Cell Contamination Q8M

See Below **See Interpretation**

Contamination Study Maternal Cell:
NO MATERNAL CELL CONTAMINATION WAS DETECTED

Comparative analysis of maternal and fetal DNA for fifteen short tandem repeats (STRs-CSF1PO, D2S1338, D3S1358, D5S818, D7S820, D8S1179, D13S317, D16S539, D18S51, D19S433, D21S11, FGA, THO1, TPOX, vWA) was performed by multiplex PCR and capillary electrophoresis. This assay can detect a minor DNA species of 5% or higher in a mixture of two DNA samples. This test was performed using a kit that has not been cleared or approved by the FDA. The analytical performance characteristics of this test have been determined by Quest Diagnostics Nichols Institute, Chantilly, VA. This test should not be used for diagnosis without confirmation by other medically established means.

Tests Performed At:

Q8A Quest Diagnostics CLIA: 49D0221801
14225 Newbrook Drive,
Chantilly, VA 20151

Q8M Quest Diagnostics CLIA: 49D0221801
14225 Newbrook Drive,
Chantilly, VA 20151