December 30, 2011

LabCorp
Laboratory Corporation of America

Seattle Sperm Bank
4915 25th Ave Ne Ste 204
SEATTLE, WA 98105

Test Results of: 8744, DONOR
[redacted] Age: [redacted] Sex: [redacted]
Collected on: 12/22/2011
Received on: 12/22/2011
Reported on: 12/30/2011

Branch Number: WAB55
Account Number: 46857540
Specimen Number: 356-129-0062-0
Specimen Type: Blood

Patient ID#: 8744

Physician: OLLIFFEJE

Test: **Cystic Fibrosis, DNA Analysis**

Result:

Negative for 32 mutations

Interpretation:
This individual is negative for the 32 most common cystic fibrosis (CF) mutations. This includes the mutations recommended by ACOG/ACMG for routine carrier screening. The detection rate varies with ethnicity and is listed below. In the absence of a family history, the remaining risk that a person with a negative result could be a carrier is listed in the table. If there is a family history of CF, these risk figures do not apply. Please contact LabCorp- Esoterix at 1(888) 690-3935 for a revised report. Diagnosis of cystic fibrosis should not rely on DNA testing alone, but should take into consideration clinical symptoms and other test results, such as sweat chloride analysis. The presence of a rare mutation cannot be ruled out. The diagnostic criteria for cystic fibrosis are:

At least one characteristic clinical feature, *or* Family history of CF, *or* Positive neonatal screening test	**AND**	Positive sweat chloride on 2 separate occasions, *or* Presence of 2 *CFTR* mutations, *or* Positive nasal transmembrane potential

Cystic fibrosis is a common genetic disorder resulting in chronic pulmonary and gastrointestinal/pancreatic disease. There is wide variability in clinical symptoms. CF is inherited in a recessive manner, which means that both parents must be carriers to have an affected child. When both parents are carriers, there is a 25% chance with each pregnancy that the child will be affected. Genetic counseling and CF molecular testing are recommended for the reproductive partners and at-risk family members of CF carriers.

Ethnicity	Detection Rate	Carrier Risk	Remaining carrier risk given a negative result
Ashkenazi Jewish	97%	1/25	1/800
Caucasian (non-Hispanic)	90%	1/25	1/240
African-American	69%	1/65	1/207
Hispanic	73%	1/46	1/168
Asian	55%	1/90	1/198

Mutations:

G85E	A455E	S549N	R1162X	711+1 G→T	2184delA	3876delA
R117H	ΔI507	S549R	W1282X	1078delT	2789+5 G→A	3905insT
R334W	ΔF508	G551D	N1303K	1717-1 G→A	3120+1 G→A	
R347H	V520F	R553X	394delTT	1898+1 G→A	3659delC	
R347P	G542X	R560T	621+1 G→T	2183AA→G	3849+10kb C→T	

Methodology:
DNA analysis of the *CFTR* gene was performed by the oligonucleotide ligation assay. Molecular-based testing is highly accurate, but as in any laboratory test, rare diagnostic errors may occur. When R117H is positive, reflex testing for 5T is performed. Reflex testing for the F508C, I506V and I507V polymorphisms is performed to rule out false positive ΔF508 homozygotes, using Tm Bioscience/Luminex primer extension chemistry. The assay provides information intended to be used for carrier screening in adults of reproductive age, as an aid in newborn screening, and as a confirmatory test for another medically established diagnosis in newborns and children. The test is not indicated for use in fetal diagnostic testing, pre-implantation screening, or for any stand-alone diagnostic purposes without confirmation by another medically established diagnostic product or procedure.

References:

1. Watson, et al. (2004) *Genet Med* 6:387-91
2. Richards, et al. (2002) *Genet Med* 4:379-391
3. Preconception and prenatal carrier screening for cystic fibrosis: (2001)ACOG.ACMG publication

Results Released By: Frank K. Fujimura, Ph. D., FACMG, Director
Report Released By: Frank K. Fujimura Ph.D.. FACMG, Director

Samuel H. Pepkowitz, MD
Medical Director, Esoterix

LabCorp - Esoterix
4301 Lost Hills Road, Calabasas Hills, CA, 91301 (888) 690-3935

genzyme Genetics

SMN1 Copy Number Analysis

Patient Name: Donor 8744
DOB: [redacted] Age: [redacted]
SSN #: Gender: [redacted]

Specimen #: [redacted]
Case #: 61881096 Patient ID #: [redacted]
Date Collected: 12/08/2011 Date Received: 12/09/2011

803037 / 803038
Seattle Sperm Bank
4915 25th Avenue East
Suite 204W
Seattle, WA 98105
USA

Referring Physician: Jeffrey Olliffe
Genetic Counselor:

Specimen Type: Peripheral Blood

Clinical Data: Carrier Test/Gamete donor

Client Lab ID #:
Hospital ID #:
Specimen ID #:
Specimen(s) Received: 2 - Yellow (ACD) 10 ml round bottom tube(s)
Ethnicity: Not Provided

RESULTS: SMN1 copy number: 2 (Reduced Carrier Risk)

INTERPRETATION:

This individual has an SMN1 copy number of two. This result reduces but does not eliminate the risk to be a carrier of SMA. Ethnic specific risk reductions based on a negative family history and an SMN1 copy number of two are provided in the Comments section of this report.

COMMENT:

Spinal muscular atrophy (SMA) is an autosomal recessive disease of variable age of onset and severity caused by mutations (most often deletions or gene conversions) in the survival motor neuron (SMN1) gene. Molecular testing assesses the number of copies of the SMN1 gene. Individuals with one copy of the SMN1 gene are predicted to be carriers of SMA. Individuals with two or more copies have a reduced risk to be carriers. (Affected individuals have 0 copies of the SMN1 gene.)

This copy number analysis cannot detect individuals who are carriers of SMA as a result of either 2 (or very rarely 3) copies of the SMN1 gene on one chromosome and the absence of the SMN1 gene on the other chromosome or small intragenic mutations within the SMN1 gene. This analysis also will not detect germline mosaicism or mutations in genes other than SMN1. Additionally, de novo mutations have been reported in approximately 2% of SMA patients.

Carrier Frequency and Risk Reductions for Individuals with No Family History of SMA				
Ethnicity	**Detection Rate[1]**	**A priori Carrier Risk[1]**	**Reduced Carrier Risk for 2 copy result**	**Reduced Carrier Risk for 3 copy result**
Caucasian	94.9%	1:35	1:632	1:3,500
Ashkenazi Jewish	90.2%	1:41	1:350	1:4,000
Asian	92.6%	1:53	1:628	1:5,000
Hispanic	90.6%	1:117	1:1061	1:11,000
African American	71.1%	1:66	1:121	1:3,000
Mixed Ethnicities	For counseling purposes, consider using the ethnic background with the most conservative risk estimates.			

METHOD/LIMITATIONS:
Specimen DNA is isolated and amplified by real-time polymerase chain reaction (PCR) for exon 7 of the SMN1 gene and two reference genes. A mathematical algorithm is used to calculate the number of copies of SMN1. Sequencing of the primer and probe binding sites for the SMN1 real-time PCR reaction is performed on all fetal samples, and on samples from individuals with 1 copy of SMN1 on carrier testing, to rule out the presence of sequence variants which could interfere with analysis and interpretation. False positive or negative results may occur for reasons that include genetic variants, blood transfusions, bone marrow transplantation, erroneous representation of family relationships or contamination of a fetal sample with maternal cells.

REFERENCES:
1. Carrier frequency and detection rate are calculated based on analysis of allele frequencies among > 1000 individuals from each ethnic group noted (Hendrickson BC, Donohoe C, et al. J Med Genet. 2009; 46:641-644). 2. Online review of SMA: http://www.genereviews.org/profiles/sma

Electronically Signed by: Hui Zhu, Ph.D. FACMG, on 12/14/2011

Reported by: /