INVITAE | CombiMatrix

PATIENT

Patient Name:	Doe, John
Date of Birth:	1/2/03
Accession #:	M14-00123456
Patient Gender:	Male
Medical Record:	1234567
Reason For Referral:	Developmental Delay

SPECIMEN

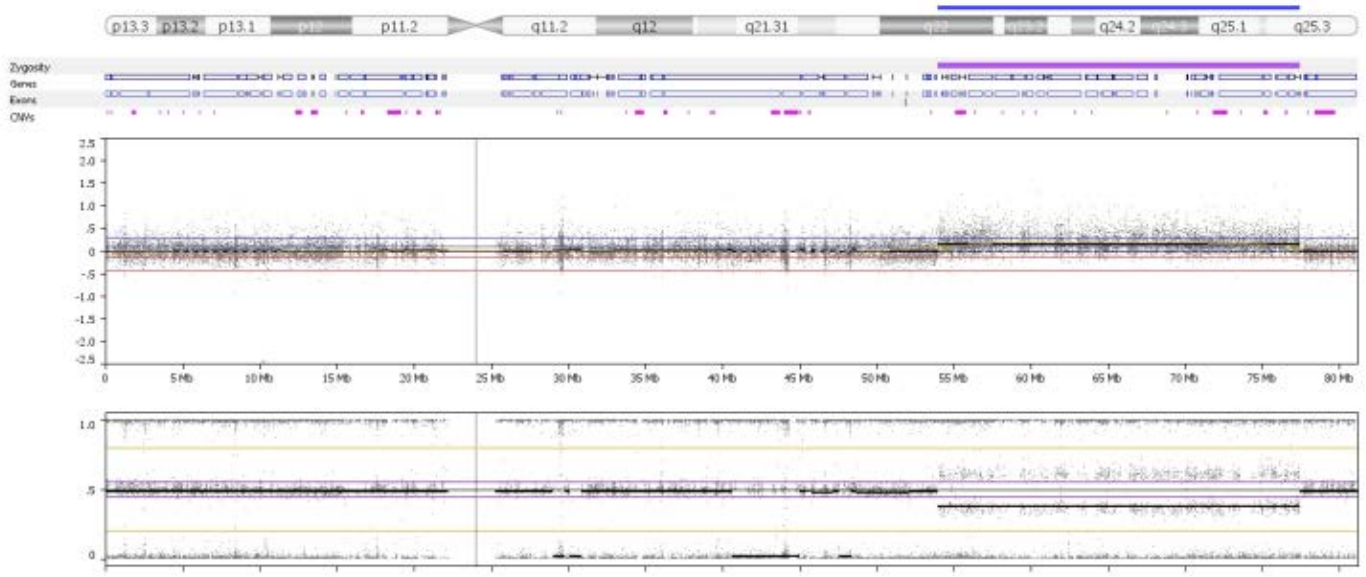
Collection Date:	1/2/2014
Received Date/Time:	1/3/2014 11:50:00 AM
Report Date/Time:	1/9/2014 8:35:17 AM
Specimen ID:	123-45-678
Specimen Type:	Whole Blood

FACILITY

Ordering Facility:	Anywhere Pediatrics
Ordering Physician:	Dr. John White
Address:	1234 Anyplace Ave. Suite 123
City/State/Zip:	Anywhere, CA 92000
Referring Physician:	Dr. Jane Black

Clinical History: dysmorphic facial features, poor growth, low muscle tone

CombiSNP™ Array for Pediatric Analysis Results	
Results	Male with a 17q22q25.3 duplication
ISCN	arr 17q22q25.3(53,954,418-77,453,087)x3



***INTERPRETATION:** This analysis showed a single copy number increase of 23.5 Mb on 17q22-q25.3 and a male sex chromosome complement. These results are consistent with a male with a heterozygous duplication of 17q22-q25.3.

There is a paucity of reports of individuals with pure partial trisomy of distal 17q similar to the one detected here. We were able to find reports of individuals with smaller, overlapping duplications of the distal region of 17q with the following clinical features: varying degrees of developmental delay/ intellectual disability, growth retardation, hypotonia and a large spectrum of dysmorphic features.

References:

- Sarri C, et al. Partial trisomy 17q22-qter and partial monosomy Xq27-qter in a girl with a de novo unbalanced translocation due to a postzygotic error: case report and review of the literature on partial trisomy 17qter. Am. J Med. Genet, 1997, 70, 8794.
- Lukusa T, et al. Pure de novo 17q25.3 micro duplication characterized by micro array CGH in a dysmorphic infant with growth retardation, developmental delay and distal arthrogryposis. Genet Couns. 2010;21(1):25-34.

CONFIRMATION: FISH analysis for this duplication is pending. Please see separate report.

RECOMMENDATION: Clinical correlation, genetic counseling and parental studies are recommended. If parental studies are desired, please collect 4 mL blood in a green top (NaHep) tube and send along with a completed CombiMatrix Test Requisition Form. For assistance, please contact Client Services at (800) 710-0624.

Karine Hovanes, Ph.D., FACMG
Laboratory Director
Electronic Signature

Richard Hockett Jr., MD, FACP, Medical Director. CLIA #05D1052995, CAP #7193645

METHOD: CombiSNP™ Array for Pediatric Analysis analysis was performed using a custom-designed Illumina single nucleotide polymorphism (SNP) array. This array contains >845,000 SNP markers covering both coding and non-coding human genome sequences. The median spatial resolution between probes is 1 Kb within gene rich regions and 5 Kb outside of gene-rich regions. Extracted DNA was evaluated for copy number changes involving ≥16 probes, and for regions of homozygosity of ≥5 Mb. Genomic imbalances are reported using UCSC Human Genome Build 19 (NCBI build 37, Feb 2009). Mosaicism for partial or whole chromosome aneuploidy is reported when present at or above the detection threshold of 15%. The CombiSNP™ Array for Pediatric Analysis lot number 9371575014 from Illumina was used. This test was performed by CombiMatrix Diagnostics (Irvine, CA; CLIA #05D1052995).

DISCLAIMER: The CombiSNP™ Array for Pediatric Analysis is designed to identify copy number changes genome-wide, covering regions of known clinical significance (recognized microduplication/microdeletion syndromes), pericentromeric and subtelomeric regions, and the genomic backbone. As with any microarray testing, the CombiSNP™ Array for Pediatric Analysis does not detect: point mutations; small intragenic deletions or duplications; balanced chromosomal aberrations such as Robertsonian or reciprocal translocations, inversions, and balanced insertions; or imbalances in genomic regions that are not represented on the microarray. Carrier status for recessive disorders due to a deletion/duplication of a single gene is typically not reported. Copy number gains and losses in the regions that do not contain no known or suspected clinical associations are not reported. The possibility of consanguinity will be reported if the regions of homozygosity (ROH) comprise ≥10% of the entire genome Uniparental disomy testing will be recommended for cases in which ROH on an imprinted chromosome is detected in the absence of other large ROH on other chromosomes. Although this test can detect uniparental isodisomy, it cannot detect uniparental heterodisomy. Thus, for ROH ≥20 Mb on imprinted chromosomes, UPD testing will be recommended. If an X-linked or autosomal recessive disorder is clinically suspected, please contact us for a list of detected ROH. A list of the genes according to inheritance pattern can be obtained by visiting the University of Miami's Online SNP Evaluation Tool at: http://www.ccs.miami.edu/cgibin/ROH/ROH_analysis_tool.cgi. Clinical assessment is required to determine if any of these genes may be implicated.

The clinical implications of some of the reported findings may be unknown at this time. Normal microarray results do not rule out the possibility of a genetic disorder or syndrome that is due to a genetic alteration not detected or evaluated by this test. Consultation with a genetics professional is recommended for results interpretation. As a participant in the International Collaboration for Clinical Genomics (ICCG), this clinical cytogenetics laboratory contributes submitted clinical information and test results to a HIPAA compliant, de-identified public database as part of the NIH's effort to improve understanding of the relationship between genetic changes and clinical symptoms. Confidentiality is maintained. Patients may request to opt out of this scientific effort by calling the laboratory at 800.710.0624 and asking to speak with a laboratory genetic counselor.

CombiSNP™ Array for Pediatric Analysis was developed and its performance characteristics determined by CombiMatrix Diagnostics. This test has not been cleared or approved by the U.S. Food and Drug Administration (FDA). The FDA has determined that such clearance or approval is not necessary. This test is indicated for clinical purposes. It should not be regarded as investigational or for research use only. CombiMatrix Diagnostics laboratory is certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA '88) as qualified to perform high complexity clinical laboratory testing.