Cohen Syndrome: \textit{VPS13B} Gene Deletion/Duplication

\textbf{Test Code:} DVPS1  
\textbf{Turnaround time:} 2 weeks  
\textbf{CPT Codes:} 81407 x1

\textbf{Condition Description}

Cohen syndrome, an autosomal recessive condition, is characterized by failure to thrive, obesity, hypotonia, and developmental delays. Common features of Cohen syndrome include retinal dystrophy that appears by mid-childhood, progressive high myopia, acquired microcephaly, non-progressive intellectual disability, global developmental delay, hypotonia, and joint hypermobility. Less common features include short stature, small or narrow hands and feet, truncal obesity (which appears during or after mid-childhood), friendly disposition, and non-cyclic granulocytopenia.

Mutations in the \textit{VPS13B} gene (8q22-q23) (also known as \textit{COH1}) cause Cohen syndrome and can be detected in 88\% of individuals with typical clinical features of Cohen syndrome.

\textbf{References:}

- GeneReviews
- OMIM \#216550: Cohen syndrome
- OMIM \#607817: \textit{VPS13B} gene

\textbf{Genes}

\textbf{VPS13B}

\textbf{Indications}

This test is indicated for:

- Confirmation of a clinical diagnosis of Cohen syndrome in an individual in whom sequence analysis was negative.
- Carrier testing in adults with a family history of Cohen syndrome in whom sequence analysis was negative.

\textbf{Methodology}

DNA isolated from peripheral blood is hybridized to a CGH array to detect deletions and duplications. The targeted CGH array has overlapping probes which cover the entire genomic region.

Please note that a “backbone” of probes across the entire genome are included on the array for analytical and quality control purposes. Rarely, off-target copy number variants causative of disease may be identified that may or may not be related to the patient's phenotype. Only known pathogenic off-target copy number variants will be reported. Off-target copy number variants of unknown clinical significance will not be reported.

\textbf{Detection}

Detection is limited to duplications and deletions. The CGH array will not detect point or intronic mutations. Results of molecular analysis must be interpreted in the context of the patient's clinical and/or biochemical phenotype.

\textbf{Specimen Requirements}

Submit only 1 of the following specimen types

* Preferred specimen type: Whole Blood

\textbf{Type: Whole Blood}

Specimen Requirements:

In EDTA (purple top) or ACD (yellow top) tube:

- Infants (2 years): 3-5 ml
- Older Children & Adults: 5-10 ml

Specimen Collection and Shipping: Refrigerate until time of shipment. Ship sample within 5 days of collection at room temperature with overnight delivery.

\textbf{Type: Saliva}

Specimen Requirements:

Oragene\textsuperscript{TM} Saliva Collection kit (available through EGL) used according to manufacturer instructions.
Specimen Collection and Shipping: Store sample at room temperature. Ship sample within 5 days of collection at room temperature with overnight delivery.

Special Instructions

Sequence analysis is required before deletion/duplication analysis by targeted CGH array. If sequencing is performed outside of Emory Genetics Laboratory, please submit a copy of the sequencing report with the test requisition.

Related Tests

- Sequence analysis of the VPS13B gene is available and is required before deletion/duplication analysis.
- Custom diagnostic mutation analysis (KM) is available to family members if mutations are identified by targeted mutation testing or sequencing analysis.
- Prenatal testing is available only for known familial mutations to individuals who are confirmed carriers of mutations. Please contact the laboratory genetic counselor to discuss appropriate testing prior to collecting a prenatal specimen.
- X-Linked Intellectual Disability panels are available for 30, 60, and 90+ genes.