Ichthyosis Follicularis with Atrichia and Photophobia (IFAP) Syndrome: MBTPS2 Gene Deletion/Duplication

**Test Code:** DMBTP  
**Turnaround time:** 2 weeks  
**CPT Codes:** 81228 x1

### Condition Description
Ichthyosis follicularis with atrichia and photophobia (IFAP) syndrome is an X-linked condition characterized by follicular ichthyosis, total or partial atrichia (alopecia), and varying degrees of photophobia. The most prominent feature of the syndrome is congenital atrichia with the majority of affected boys having total atrichia at birth. There have been reports of sparse or thin hair. In more severe cases, other findings of this syndrome may include neurological abnormalities, including seizures and intellectual disability, failure to thrive, nail dystrophy, atopic manifestation, inguinal hernia, aganglionic megacolon, and renal, vertebral, and testicular anomalies. It is inherited in an X-linked manner. Female carriers may be phenotypically normal or may have a milder phenotype including a linear pattern of follicular ichthyosis, hypohidrosis, hypotrichosis, and mild atrophoderma. Phenotypic variability has been reported between families but there is usually very minor variability within a family.

In five out of six unrelated IFAP syndrome patients, missense mutations were identified in the MBTPS2 gene (Xp22.1).

For patients with suspected IFAP syndrome, sequence analysis is recommended as the first step in mutation identification. For patients in whom mutations are not identified by full gene sequencing, deletion/duplication analysis is appropriate.

### References:

### Genes
- MBTPS2

### Indications
This test is indicated for:
- Confirmation of a clinical diagnosis of IFAP syndrome in an individual in whom sequence analysis was negative.
- Carrier testing in adults with a family history of IFAP syndrome in whom sequence analysis was negative.

### 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.

### 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.

### Specimen Requirements
*Submit only 1 of the following specimen types*

**Type: Whole Blood (EDTA)**

**Specimen Requirements:**
- EDTA (Purple Top)  
- Infants and Young Children (2 years of age to 10 years old): 3-5 ml  
- Older Children & Adults: 5-10 ml  
- Autopsy: 2-3 ml unclotted cord or cardiac blood

**Specimen Collection and Shipping:**
Ship sample at room temperature for receipt at EGL within 72 hours of collection. Do not freeze.

**Type: DNA, Isolated**

**Specimen Requirements:**
- Microtainer  
- 3µg  
- Isolation using the Perkin Elmer™Chemagen™ Chemagen™ Automated Extraction method or Qiagen™ Puregene kit for DNA extraction is recommended.

**Specimen Collection and Shipping:**
Refrigerate until time of shipment in 100 ng/µL in TE buffer. Ship sample at room temperature with overnight delivery.

**Related Tests**

- Sequence analysis of the MBTPS2 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.