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.

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.

### 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

* Preferred specimen type: Whole Blood

**Type:** Whole Blood

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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.

**Type: Saliva**

Specimen Requirements:

Oragene™ 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.

**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.