Hypophosphatasia: **ALPL** Deletion/Duplication

| Test Code: DSALP | Turnaround time: 2 weeks | CPT Codes: 81228 x1 |

**Condition Description**

Hypophosphatasia is a rare disorder characterized by impaired mineralization in bones and/or teeth due to deficiency in serum and bone alkaline phosphatase. At least six clinical forms are currently recognized based on age at diagnosis and severity of features. The highly variable clinical presentation ranges from a severe perinatal form to a mild odontohypophosphatasia form in which only teeth are affected. Clinical features may include prenatal long-bone bowing, infantile rickets with growth failure, craniosynostosis, scoliosis, costochondral enlargements, hypotonia, hypercalcemia and hypercalciuria, bone pain, and premature loss of deciduous teeth.

Hypophosphatasia is caused by pathogenic variants in the **ALPL** gene. The **ALPL** gene provides instructions for making the enzyme alkaline phosphatase, which is essential in the formation of strong bones and teeth.

Perinatal and infantile forms are inherited in an autosomal recessive manner, while milder forms, such as adult hypophosphatasia and odontohypophosphatasia, may be inherited in an autosomal recessive or autosomal dominant fashion. Severe forms of hypophosphatasia affect an estimated 1 in 100,000 newborns and appears most commonly in a Mennonite population in Manitoba, Canada.

**References:**

**Genes**

**ALPL**

**Indications**

This test is indicated for:
- Individuals with a clinical diagnosis of hypophosphatasia.

**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**

Deletion/Duplication: Detection is limited to duplications and deletions. The CGH array will not detect point or intronic pathogenic variants. 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**

Hypophosphatasia: *ALPL* Gene Sequencing