**ELOVL4** gene analysis in Autosomal Dominant Stargardt-Like Macular Dystrophy

**Clinical Features:**
Autosomal dominant Stargardt-like macular dystrophy is clinically very similar to Stargardt disease. It is a highly penetrant retinal disorder, with typical onset in childhood characterized by progressive loss of central vision followed by a rapid progression to legal blindness. This disorder is characterized by an atrophic macular lesions with sharp borders associated with or without yellow fundus flecks. The lesion becomes more advanced over the course of a few years with increased atrophy of the retinal pigment epithelium that resembles the lesions seen in patients with autosomal recessive Stargardt disease. Temporal atrophy of the optic nerve head is present in almost all patients. Age of onset does vary greatly within and between families.¹

**Inheritance Pattern/Genetics:**
Variants in the ELOVL4 gene are inherited in an autosomal dominant manner.

**Test Methods:**
Testing for the ELOVL4 gene is offered in 2 sequential tiers. Using genomic DNA obtained from the submitted sample, exon 6 of ELOVL4 is PCR amplified and bi-directional sequence is obtained and analyzed. This Tier 1 test is expected to detect all variants reported to date. If no variant is identified in Tier 1, sequence analysis of the remaining exons (1-5) of ELOVL4 can be performed. Since this disorder is caused by variants that result in haploinsufficiency, partial and/or whole gene deletions may also cause the disease. If sequence analysis fails to identify a variant, targeted array CGH analysis with exon-level resolution (ExonArrayDx) is available to evaluate for a deletion or duplication of one or more exons of this gene. Any variant found in the first person of a family to be tested is confirmed by repeat analysis using sequencing, restriction fragment analysis, or another appropriate method.

**Test Sensitivity:**
Pathogenic variants in the ELOVL4 gene have been identified in all individuals diagnosed with autosomal dominant Stargardt-like macular dystrophy who were reported in the literature.²,³,⁴ Frameshift and nonsense variants have been reported in this gene and all occur within exon 6 (Tier1).

**References:**