



Genetic Testing at Gluck
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JUVENILE CATARACTS IN DOGS and the HSF4 Test

A mutation in the *HSF4* gene has been shown to be associated with early onset cataracts in the Staffordshire Bull Terrier, Boston Terrier and French Bulldog (Mellersh et al. 2006, Mellersh et al. 2007). These cataracts are detectable as early as

12 weeks of age by an ophthalmologist or in some cases by routine eye exam. They result in blindness by 18 months of age. Please keep in mind that there are numerous forms of cataract in dogs and this test is specific only for the early onset juvenile cataract in the specified breeds. In the Boston Terrier, there is *at least* one other form of juvenile cataract that begins developing at 3-5 years of age. This test does not detect that type of cataract.

Carriers of the *HSF4* mutation do not exhibit any detrimental effect. If they develop cataracts at a later age, they are NOT due to this mutation. The *HSF4* mutation is recessive and only causes cataracts when a dog inherits a mutated copy of the gene from each parent. Therefore the following is true:

If a dog tests **CLEAR** for the *HSF4* mutation, it is not a carrier and cannot produce an affected offspring, even when bred to a CARRIER.

If a dog tests as a **CARRIER** for the *HSF4* mutation, it has one copy of the mutation and one normal gene. This dog will not develop cataracts due to this mutation. This dog CAN be used for breeding, but should not be bred to another CARRIER. If it is bred to another carrier, there is a 25% chance an affected puppy will be produced.

If the dog tests **AFFECTED**, it has two copied of the mutated HSF4 gene, and this dog will have early onset juvenile cataracts. It should not be used for breeding.

To request test kits please email Dr. Kathryn Graves at ktgraves@uky.edu with the number of kits requested and mailing address.

Email questions to ktgraves@uky.edu.

Boston Terriers
Dog on the left has early-onset juvenile cataracts