

POAG in the PBGV

Clear by Parentage: To test or not to test? That is the question.

By Laura Liscum, Assistant Chair, PBGVCA Health Committee

What is POAG? Primary open angle glaucoma (POAG) is a painful, blinding disease. The normal eye has cells that produce fluid and the drainage of this fluid from the eye must match its production in order to maintain normal pressure within the eye. When drainage is blocked, the increased intraocular pressure damages the optic nerve and results in pain and impaired vision.

How does my dog get POAG? POAG is an inherited disease in the PBGV. If your dog's sire and dam are carriers of the POAG mutation, it is possible that your dog will develop glaucoma. There is a genetic test that can determine your dog's POAG status.

CLEAR: Your dog inherited good genes with no mutations from both parents. S/he will not develop POAG and will not pass the disease to offspring.

CARRIER: Your dog inherited a good POAG gene from one parent, but a bad POAG gene from the other parent. S/he will not develop POAG but can pass the defective gene to offspring.

AFFECTED: Your dog inherited bad POAG genes from both parents. S/he is very likely to develop POAG and will pass the defective gene to all offspring.

Breeder Alert! A PBGV litter may also be designated as 'clear by parentage' if the sire and dam have been tested and are clear. Let's look at when a POAG test is needed.

Clear by Parentage. If a sire who was tested and is CLEAR is bred to a dam who was tested and is CLEAR, then the litter is considered 'clear by parentage' and is designated CBP1. If a PBGV with CBP1 status is bred to a CLEAR or CBP1 PBGV, then the litter is designated CBP2.

PBGVCA policy is that CBP1 and CBP2 litters do not need to be POAG tested.

Is that clear? (pun intended). Let's recap:

CLEAR X CLEAR ® CBP1 Litter

CBP1 X CLEAR ® CBP2 Litter

CBP1 X CBP1 ® CBP2 Litter

If the same CLEAR X CLEAR breeding is performed a second time, the litter is still CBP1.

If the CLEAR sire is bred to a different CLEAR dam (or vice versa), the litter is CBP1.

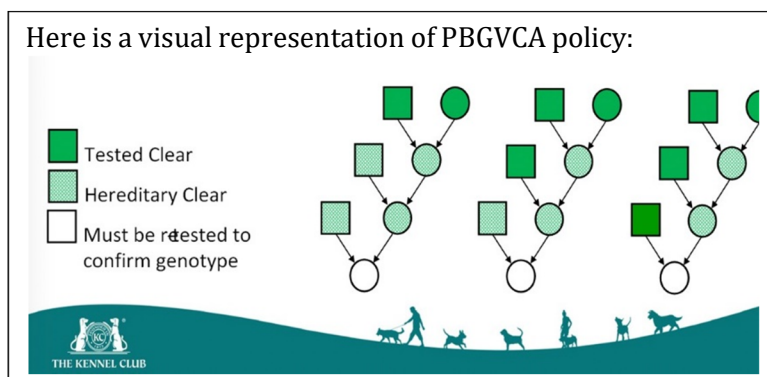
The above litters do not need to be tested.

However,

CBP2 X CLEAR ® Litter must be tested

CBP2 X CBP1 ® Litter must be tested

CBP2 X CBP2 ® Litter must be tested



**If you have a CBP1 or CBP2 litter, please send that information to
Jo Quintenz at jquintenz@gmail.com**

so that the litter's clear status can be entered into the PBGVCA Pedigree Database.

Do you need a POAG test kit? As of January, 2023 here is where POAG tests are available:

Animal DNA Diagnostics, Ltd. Cambridge UK.

<https://www.animaldnadiagnostics.co.uk/breed/dog/255>

Canine Genetic Testing, Cambridge UK

<https://www.cagt.co.uk/breed/basset-griffon-vendeen-petit/>

Wisdom Panel Premium, Mars, Inc. US.

<https://www.wisdompanel.com/en-us/dog-dna-tests/premium>

For up-to-date labs, [SEE POAG testing lab information https://pbgyhrf.org/poag](https://pbgyhrf.org/poag)

Note that the Animal DNA Diagnostics test is much less expensive and only tests for POAG. The Wisdom Panel tests for many genetic traits that are not relevant to our breed.

What do I do with test results? Please submit your test results to the Orthopedic Foundation of America (OFA) open database. Find out how to submit test results *and* be reimbursed for the cost here: <https://pbgyhrf.org/poag>

Have POAG tests made a difference? YES! The gene responsible for POAG in the PBGV was discovered in 2015 by the laboratory of Dr. Catherine Mellersh at the Animal Health Trust, UK. The PBGVCA pedigree database has incorporated POAG test results ever since. Let's compare PBGVs in the PBGVCA pedigree database born from 2010 to 2015 (before the test) and 2016 to 2021 (after the test).

2010-2015: 456 PBGVs tested, 240 clear, 182 carriers, 34 affected.

2016-2021: 325 PBGVs tested, 189 clear, 134 carriers, 2 affected.

Breeders have done a fabulous job of sharply reducing the incidence of POAG in our breed (with only one 'oops' litter). You might be disheartened to see that the number of POAG carriers remains high, at 40% of the tested dogs. But that is actually good news. It means that breeders are maintaining the existing genetic diversity of the breed. Rapid elimination of carriers from the population would reduce our gene pool by half with devastating consequences.

Are you a puppy buyer? Ask the breeder for the POAG status of your puppy. You should not buy a PBGV puppy from a breeder who cannot document the POAG status.

My dog's test indicates that s/he is clear or a carrier. Does that mean s/he will never get glaucoma? Unfortunately, glaucoma can occur due to other risk factors. For example, if there is a structural problem with your dog's eye, s/he may be susceptible to closed angle glaucoma. The Health Committee recommends having all dogs 2 years and older checked by a board certified ophthalmologist at regular intervals.