



DNA Testing Form

Name:		Breeder Number:	
Address:		Phone Number:	
City:	State:	Zip:	
Email Address:			

***This form must be returned with all DNA samples. ***

All DNA testing for ABA registered Berkshires will use Neogen's GGP Porcine 50K chip. The 50K chip data results includes Stress (Hal 1843*), Napole (RN), Seek Gain: Animal Growth and Meat Quality, and Parentage.

ALL Berkshire SIREs are required to be Stress (Hal 1843*) and Napole (RN) tested.

***Starting 1/1/2025 ALL sires will be required to be NEGATIVE for both Stress (Hal 1843*) AND Napole (RN). ***

Correspond each blotter card to the appropriate service or diagnostic test that needs to be performed. See the Test Descriptions on the reverse side.

Sample Barcode (TSU or card number)	Ear Notch	Registration Number	Birthdate	Sex (M/F)	Sample Type T=TSU B=Blood S= Semen H= Hair	GGP Porcine 50K chip (TSU, Blood, Semen) \$37.50	GGP Porcine 50K chip (Hair) \$50	Parentage Contact the office before submitting DNA	Total Cost

☐ The card(s) is already banked, please run above test(s).

Total Testing Costs \$ _____

Certification: I/we certify the DNA sample taken from each animal identified above have correctly been labeled with corresponding identification numbers listed on this testing form. I also certify that I am the representative submitting this test form and have read and understand sample collection requirements. I/we agree to indemnify and hold ABA harmless against any losses, costs or damages, including attorney fees arising from the results of the performed tests. The ABA does not guarantee any test results.

Signature: _____

Date: _____

I have included payment ☐

Please bill my credit card - Visa ☐ MasterCard ☐

Credit Card # _____ Expiration Date: _____ Security Code: _____

Signature: _____

Shipping Instructions – Place the sample(s) in a zip lock bag to keep samples dry and mail to the American Berkshire Association. Samples can be mailed by regular first-class mail – no need to ship overnight.

***Testing can take four– eight weeks, so please plan accordingly.** The ABA reserves the right to use any licensed laboratory for testing.



Test Descriptions:

Neogen's GGP Porcine 50K Chip

Includes the following tests:

Hal-1843* (Stress Testing) – To show at an ABA sponsored show, all Berkshire swine must be stress negative (*Hal-1843* nm*) and this must be printed on the pedigree. This designation can be found under the animal's names on the left side of the pedigree. A negative mating is sufficient for show purposes (both the sire and dam are negative). If not a negative mating, the actual animal being exhibited at the show must be tested. All sires must be tested for the Stress gene. Beginning 1/1/2025, all sires must be negative for the Stress gene.

RN (Napole Gene) – This negative pork quality gene is found in some Berkshire animals. All sires must be tested negative for the Napole gene. Beginning 1/1/2025, all sires must be Napole negative.

Parentage – Contact the office if you have any questions on the need for a parentage testing.

Seek-Gain: Animal Growth – This is a group of porcine performance trait DNA marker test utilizing information from three unique genes that impact animal growth: Feed Intake/Conversion • Lean Growth • Weight Gain • Fat Content. Gene Markers tested: MC4R and CCKAR.

MC4R* - The melanocortin-4 receptor (MC4R) genetic test is associated with controlling growth and leanness. The producer and breeder can decide if they wish to choose the “fast” growth form of the gene (**AA**)(298Asn, A-nucleotide variation) or the “lean/efficient growth” form of the gene (**GG**)(298Asp, G-nucleotide variation). Effects are 3 days less to market weight for animals homozygous for the growth allele compared to those homozygous for the lean allele. Pigs homozygous for the lean allele have 9% less backfat and have a high feed conversion rate. Breeders can choose which characteristic (growth or leanness) is best for their program. These results have been well validated and are effective in all breeds tested to date except Hampshire. (Kim et. al., Mamm Genome. 2000 Feb;11(2):131-5.) (U.S. Patent #6,803,190). The allele affects appear additive. The heterozygotes fall between the extremes.

CCKAR - The cholecystokinin type A receptor (CCKAR) genetic test is associated with physiological control of feed intake, hunger fulfillment, and obesity. Animals with at least one copy of the dominant G-variant have, on average, ~5% higher daily feed intake, 3% higher daily gain, and 3% fewer days to reach 180 kg, when compared to homozygotes for the A-variant (Houston et. al., Genetics. 2006 Nov; 174(3):1555-63). – **Favorable Allele - G**

Seek-Gain: Meat Quality – This is a group of porcine trait DNA marker tests utilizing information from four unique genes that impact meat quality: Tenderness • Juiciness • Glycogen level, pH & Color. Gene Markers tested: PRKAG3, CAST 249, and CAST 638.

PRKAG3* - The protein kinase, AMP activated, gamma 3 subunit (PRKAG3) genetic test is associated with muscle glycogen content and meat quality. Certain variations of this gene has been referred to as the Rendement Napole (RN) gene – found to cause low ultimate pH and water holding capacity in pork, primarily observed in purebred or crossbred Hampshire populations. GeneSeek now offers a new test within this gene, available for use in all breeds tested to date (not only Hampshire), that determines the presence of another variation (199Ile, A-nucleotide variation) also associated with lower glycogen, higher ultimate pH and favorable color in loin and ham tissues. This new genetic marker test is valid in all breeds tested to date and there is considerable opportunity to increase the frequency of the beneficial allele and improve meat quality traits. (Ciobanu et.al., Genetics. 2001 Nov; 159(3):1151-62.) (U.S. Patent #6,919,177). – **Favorable Allele - A**

CAST* - The Calpastatin (CAST) genetic test is associated with meat quality. Calpastatin is responsible for inhibiting proteases that affect meat tenderness postmortem. Two variations within this gene have been identified that, collectively, are significantly associated with firmness, juiciness, Instron force, cooking loss, chewiness, and tenderness scores. Considerable meat quality improvements can be made by selecting for the favorable CAST (249Lys/638Arg, Anucleotide variation for both) alleles. (Ciobanu et.al., J Anim Sci. 2004 Oct;82(10):2829-39.) (U.S. Patent Application #20,070,172,848). – **Favorable Allele - A**

The effects of the genetic marker tests outlined here were described in peer-reviewed research publications by independent researchers with no affiliations with GeneSeek. There is no guarantee that effects observed following use of these tests will be similar to those previously described. Many variables can influence observed results, including but not limited to genetic background, environmental conditions and management programs. GeneSeek assumes no responsibility for the observed performance of pigs following genotyping with SEEK-GAIN™ tests.



DNA Submission Information

TSUs:

- Neogen recommends using tissue samples as their preferred method of genetic testing. Tissue samples are preferred due to their ease of sampling, longer storage life, and quicker turnaround time. Tissue samples are taken using an Allflex applicator tool to remove a sample from the animal's ear into a small tube for storing the sample. If you are interested in using tissue sampling, contact Neogen to order your applicator tool and sample collection units.
- TSUs can be stored at room temperature (out of direct sunlight) until they are shipped to the ABA.
- TSUs are recommended to be sent in a padded envelope or box. If they are sent in a regular envelope there is a high chance the envelope may be damaged during the mail process and the TSU vials may fall out of the envelope.

Blood Cards:

- Using a 4 dot DNA card, place enough (~3 drops of) blood to saturate blotting paper within the circle. Care must be taken to ensure that contamination does not take place from card to card.
- Do not soak the entire DNA card because of the risk of contamination from other DNA cards that might touch it.
- It is important that blood cards, wet with blood, are allowed to air dry (at least 24 hours) before closing the flap, and are not stacked before drying. Cards have to be completely dry before shipping. Once dry, blood cards can be stored at room temperature.
- It is recommended the blood cards be sent in a padded envelope or box. If the cards are sent in a regular envelope there is a chance the envelope may be damaged during the mail process and the cards may fall out of the envelope.

Semen Samples:

- Using a 4 dot DNA card, place enough (~3 drops of) semen to saturate blotting paper within the circle. Care must be taken to ensure that contamination does not take place from card to card.
- Do not soak the entire DNA card because of the risk of contamination from other DNA cards that might touch it.
- It is important that semen cards, wet with semen, are allowed to air dry (at least 24 hours) before closing the flap, and are not stacked before drying. Cards have to be completely dry before shipping. Once dry, semen cards can be stored at room temperature.
- Use raw semen if possible.
- Write on the DNA card that it contains semen.
- Semen has a higher failure rate than TSUs and blood which requires a retesting of the sample.
- It is recommended the semen cards be sent in a padded envelope or box. If the cards are sent in a regular envelope there is a chance the envelope may be damaged during the mail process and the cards may fall out of the envelope.

Hair Samples:

- Approximately 20-30 good follicles (those with the bulbs on the end of the hair and should be visible) are needed per animal.
- Follow instructions on the back of a GeneSeek hair collection card for proper sample preparations.
- Hair cards are also recommended to be sent in a padded envelope or box. If the cards are sent in a regular envelope there is a chance the envelope may be damaged during the mail process and the cards may fall out of the envelope.
- The hair DNA test is \$15/test higher than the other forms of DNA to be tested because of the extra handling and processing of the hair follicles.