

---

# CANADIAN LLAMA AND ALPACA ASSOCIATION

---

## DNA Testing in Canada

*The Canadian Llama and Alpaca Association uses the services of the Bova Can Laboratories in Saskatoon, SK for DNA profiling and parent verification of alpacas and llamas applying for registration. In an effort to streamline the DNA application and testing process the CLAA has entered into an agreement with Bova Can Laboratories and modified CLRC's involvement in the process. The laboratory would like all DNA testing to be done through the Association. All sample kits for DNA profiling are now available at the CLAA office rather than, as was previously the case, CLRC.*

### How to Obtain DNA sample kits?

Contact the Canadian Llama and Alpaca Association (CLAA) 1.800.717.5262

### What type of sample can be submitted?

1. **Whole blood** – collected in vials. Because of the quantity of blood required and the method of collecting whole blood, this is generally done by a veterinarian.
2. **Hair samples** - this method is perhaps the least intrusive to the animal, but care must be taken to ensure the hair has the required follicles. See attached instruction sheet.
3. **FTA cards** – a small amount of blood is collected on a specially treated card. This method does not usually require a veterinarian. See attached instruction sheet.

### Application for DNA Tests

1. Obtain the proper application form from the CLAA
2. Complete the form with all of the required information and submit the completed form along with the sample and payment to the Canadian Livestock Records Corporation (CLRC). You may also submit the animal's application for registration at this time.
3. CLRC will mail your FTA card and /or hair samples to the laboratory.
4. The CLRC will keep the application for registration on file and complete processing as soon as the DNA results are received from the laboratory.

The exception to this is whole blood. Due to the limited shelf life of whole blood, the vials must be sent directly to Bova Can. Breeders must send the completed "request for DNA testing form" and payment to CLRC prior to collecting the sample to ensure the lab receives the information before the sample arrives.

For breeders using foreign DNA reports please forward a photocopy of the animal's foreign certificate of registration and DNA profile (markers/genotype) with the CLAA application for registration. There is a data entry charge of \$8.40 (includes GST).



### **How much does the testing cost?**

There is no charge for the whole blood and hair sample kits. The FTA cards are \$5.25 ea (includes GST) and are paid to the CLAA. The fees for DNA testing are \$53.00 GST included and should accompany the DNA sample to CLRC.

### **Animal and Sample Identification**

Complete identification of the animal to be tested or registered is essential for accurate records. All animals should be identified by name, microchip number, sex, and birth date. The DNA sample must be labeled with the animal's microchip number. It is very difficult for the laboratory to locate a case number of an animal that was submitted for testing with only partial identification. As an example, submitting a sample with the name "Joe" as the only form of identification is not an accurate or complete record.

### **What is a DNA Genotype?**

"Results of a DNA test, expressed in a group of numbers that define an animal's genetic makeup as it is used for parentage testing". The genotype may also be referred to as a DNA profile.

### **What Type of Tests are Available?**

The laboratory offers a DNA based test only. The tests conducted on a sample produce a DNA genotype of the animal. From the animal's genotype, there are 4 options available: *In all cases, the test results and genotypes are permanently stored in the laboratory.*

1) **Permanent Genotype Only** –

this is a permanent record of the animal's DNA genotype. No parents are looked at. (this must be done for all male llamas before any offspring are eligible to apply for registration)

2) **Complete Parentage** (verification of both sire and dam) – all alpacas must have testing for complete parentage. The genotype of the animal submitted for testing is compared to the genotype of the named sire and dam.

*\* To complete this test, it is essential to have the DNA genotype of the sire and dam. If the named sire and named dam have not previously been tested to Bova-Can Labs, samples from these animals must also be submitted for testing or complete copies of their DNA profiles must be provided to the laboratory.*

3) **Verify to Sire** only –

The genotype of the animal submitted for testing is compared to the genotype of the named sire.

*\* Bova-Can Lab must receive a sample or have previously tested the named sire or have a copy of the complete DNA profile of the named sire.*

4) **Verify to Dam** only –

The genotype of the animal submitted for testing is compared to the genotype of the named dam.

*\* Bova-Can Lab must receive a sample or have previously tested the named dam or have a copy of the complete DNA profile of the named dam.*

Indicate the type of test that you require on the DNA application form that is sent to CLRC with the samples. Know the type of test you require for registration purposes before submitting the samples to the laboratory. If you are unsure contact the CLAA or CLRC for this information. *\* If the DNA is not on file with Bova Can you may supply a printed copy of the animal's DNA profile or markers from the Davis University Lab in California. There is a \$10.50 charge for manual data entry and it should be sent with the sample and other paperwork to CLRC.*



---

# CANADIAN LLAMA AND ALPACA ASSOCIATION

---

## DNA Questions Most Frequently Asked and the Answers

1. **What type of test is needed to register an alpaca or llama?**

All alpacas must be parent verified to dam and sire. The Board highly recommends llamas be parent verified. However, currently it is only mandatory that the sire of a llama applying for registration have a permanent genotype.

2. **How old can a whole blood sample be?**

Whole blood samples must be sent directly to the laboratory as quickly as possible after they have been drawn. If the blood has to be stored, refrigerate it. The blood should be useful for testing if it has been stored in the refrigerator for approximately 2 weeks. The condition of the blood depends on how it is handled after it was drawn. Keep the blood cool, but not frozen. Avoid overheating the blood sample.

3. **How old can an FTA blood sample be?**

If collected properly and kept dry an FTA card sample can be stored indefinitely.

4. **How long does it take to get results?**

In order to keep costs at a minimum the lab's policy is to perform testing only when a fairly large number of samples have arrived. If the required number is not met within 21 days the lab processes the samples that have arrived. Once the process begins it takes 10 – 14 days for the lab to get results. Breeders should allow a minimum of six (6) weeks for DNA testing.

5. **Who gets the test results?**

The results are sent electronically to the CLRC via the Internet. Paper copies of the results are sent to the owner.

6. **If I am registering an alpaca, how do I know if the sire and dam of my animal have genotypes on file with Bova Can?**

The easiest way is to ask the owner(s) of the sire and dam. You can also find an animal's DNA information on-line in the Association's Herdbook/Pedigree section of the web site [www.claacanada.com](http://www.claacanada.com).

7. **What if I'm registering my animal in the United States too?**

The CLAA also accepts the DNA testing services from three other laboratories. Maxxam/IRL, Davis University in California and the Geneseek/ARI. If a breeder has previously registered an animal with a foreign registry that uses these laboratories, the CLAA will accept a photocopy of the animal's foreign certificate of registration and a copy of the animal's DNA profile (or genotype) as proof of parent verification and it is not necessary to have the animals tested again in Canada.

8. **Is there a fee for using foreign DNA results?**

Yes. Because the information must be manually entered into the herd book database, there is a data entry fee of \$8.40 (includes GST).

