



Accuracy of DNA Testing

How accurate is DNA testing? The answer is that it is extremely accurate, especially when you understand that we are looking at one site in the DNA among 3 billion sites. At Gene Check, we believe that our method of testing (a method developed at and used exclusively by Gene Check) is the most accurate method of DNA testing available and is virtually fool proof.

The method actually involves two separate tests and we will never release results until both tests agree perfectly. If you have ever had Tresea call you and say that we were repeating one of your samples, you can be sure that it was because the two tests did not agree perfectly.

Our error rate is less (probably much less) than 1%, but not zero. Why not 0%? Human beings is the simple answer. The method always works when we deliver good DNA to it, but humans can mix things up before they get to the actual test. We have multiple checks and double checks in place to prevent mix ups and we do a very good job. But if we make a mistake on your sample, the error rate, no matter how low, is too high for you.

How do we handle mistakes? We retest the animal as well as any parents that are available - all at no cost to the customer. Because we have discovered that the most common mistakes are not made at Gene Check, but rather occur during breeding, lambing or blood collection, we also use parentage testing where necessary.

Could we do better? Yes, but it would be expensive. If we were to repeat each sample, starting from DNA extraction, the error rate would go down to less than one in 100,000. However, the livestock industry demands a low cost test (if we were doing human DNA testing, patients would pay 10 to 100

times as much for the same test) and we need to make a little money to stay in business. Therefore, we cannot afford to repeat the entire process for each sample. If you want insurance, and can afford to pay for it, you can increase your confidence by testing each sheep twice.

We at Gene Check are continually working to improve our testing and service. We welcome any suggestions and/or questions. Call us at **800 822-6740**.

Research News

Dr. Katherine O'Rourke and her colleagues from the Agricultural Research Service (ARS) have found that placentas from QQ lambs whose mothers are affected with scrapie are loaded with prions (the infectious protein molecules that cause scrapie).

The good news is that placentas from QR lambs are completely free of prions! This work is being published in the *Proceedings of the National Academy of Science* and confirmation from European labs is expected shortly. This means that, not only is the R containing prion protein resistant to conversion to a scrapie prion, but it also acts to prevent the formation of prions even when Q containing proteins are present. R containing proteins may even "scavenge" already converted prions. This also means that QR sheep will NOT be carriers of scrapie and gives even more confidence to sheep breeders that scrapie can be completely eliminated genetically.

Busy Testing Season

2002 is the busiest testing year in Gene Check's history. More and more breeders are using genetics and DNA testing as a way to eliminate scrapie and spider syndrome from their flocks.

Gene Check scientists are handling the increased load smoothly and there have been no delays in getting results to our customers. We try to help people who are in a hurry and want results faster than our normal turnaround time, but we cannot delay work on other customers' samples. Please try to get your samples in as early as possible. If you really need results in a hurry, expect to pay a rush fee to pay for the extra work we will need to do to keep everything else on schedule.

Also, if you are in a hurry, consider sending your samples by Federal Express or UPS rather than the US Mail. The post office is having a very difficult time making on time deliveries, presumably because of security measures introduced recently. Many "overnight" Express Mail packages are taking two days to reach Gene Check. This is not a problem for us, but does add a day to the turnaround time from your point of view. If you have any questions or need some advice, give us a call at **800 822-6740**.

Gene Check Website

Visit the updated Gene Check website. The look is new and we think you will find it easier to get around. There are now downloadable price lists and submission forms and the Gene Check scrapie articles and newsletters are now available in pdf format. Please let us know any ideas you have for more improvements.

www.genecheck.com