

Comparison of SV DNA Parentage and Proposed ANKC DNA Testing

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The SV has a robust system in place since 1995. This has been refined over the years, as laid out in timeline below. DNA is collected via a blood sample onto a "Go Card" using FTA papier, these cost 8 euro.

The sample is collected from each puppy at the time of microchipping for the litter, and sent to the Laboratory in Heidelberg and stored until the directive is received for the parentage to be tested. This is generally once the hip and elbow results have been received. Then parentage is 'Proven' and added to the Pink Pedigree.

The total cost for this process is approx. 110 euro (\$170) at this point in time.

SV DNA Program

The company used by the SV is only focussed on animals for DNA and genetic testing.

- Test sample taken.
- Result given.
- Mass screening can be done if required with stored samples.
- Based in Heidelberg.
- Working with the SV since 2001.
- Animal Trust Centre – provides internet access of the database with various access levels. Can be adapted to suit other organisations, such as the GSDCA, and can develop specific certificates if required.

Timelines

- 1995 DNA introduced by SV at base entry.
- 1998 Development of DNA markers and records used for research.
- 2001 Current company started.
- 2004 Further development of markers and larger pool of data.
- 2008 DNA Proven via Go Cards (checking parentage to DNA).
- 2008 Introduction of microchips (Microchips can be manipulated therefore need DNA testing). Improved quality assurance to ensure no duplication in database.

Go Cards

- Use FTA papier for blood droplets.
- Go cards are able to show if adequate blood for testing.
- No biohazard issues, a just need statutory declaration saying blood is from a healthy animal.
- Samples can be sent internationally.
- No issues with storage.
- 18 markers are the standard profile for ISAG.
- In July 2017, ISAG developed further markers to 27 markers and can go up to 45 markers if needed for identification.
- Can add genetic disease or general testing if requested e.g. long hair gene.
- Viability constantly tested of older samples, at this stage samples are still viable for testing that are 15 years old.
- Go card is 8 Euro, activation cost is to the owner. Cost to prove parentage is approx. 110E, this born by the owner of the animal when activated.

ANKC DNA Testing

The ANKC has an in principle agreement from the Canine Controls to proceed with DNA testing. This will be an item for states to vote on at the Directors Meeting in March 2018. The anticipated cost for the test is \$10.

This will be a requirement for registration for litters, so all breeders need to adhere to this to register litters via the ANKC.

The testing is anticipated to be a buccal swab (saliva) onto the same type of paper used by the SV. It will be stored at the local canine control. There is no intention to test parentage routinely. This will be the decision of an individual breeder or by a single breed club if they wish to pursue this option.

In our case it will be recommended that the parentage test would be undertaken once the hip and elbow results have been received.

The ANKC are hoping to implement this scheme in July 2018.

What does this mean for the GSDCA

The WUSV/SV require this as a basic component of the Harmonisation program to have DNA parentage tested via the SV laboratory in Germany. The ANKC will also require our breeders to have each registered puppy to have a specimen collection to enable registration.

The ANKC and the SV are using different ISAG markers and different collection methods, therefore the information cannot be exchanged.

The SV have a large database of DNA parentage information for GSDs in Europe. If DNA testing extends to disease identification, then a large pool of data is beneficial.

What needs to happen for us to progress down the SV path.

- We need to agree that we will proceed and implement a scheme that sees us utilise the SV system
- set up a process to ensure the validity of blood samples and identification of individual animals.
Does this need to be done by a veterinarian at time of vaccination/microchip?
- Arrange for an English version of the Go Card documentation.
- Arrange for shipping of Go Cards to Germany, via DHL? Is this done by state or individuals?
- Organise a process for individual animals to be activated by owners for parentage testing.
When is this done – after AZ completed? Will it become a prerequisite for HD/ED verification and Breed Survey?

We have several options:

1. Delay our decision - noting the ANKC scheme is yet to be accepted and/or formally put to us as members of the ANKC.
2. Once in place, we petition the ANKC to formally request an exemption from the ANKC program, but this will necessitate each puppy in the litter to be submitted to the SV scheme as that is what the intent of the ANKC scheme is, to resolve parentage if and when needed. My conversations with Karen Hedberg, indicated this approach would not be successful.
3. We decide to join the SV system now and if and when the ANKC system is formally introduced we abide by both.
 - a. It is understood that there will be significant cost associated with both schemes but noting the demand of consumers for better product, us taking this path will in fact assist the betterment of the GSD. It is noted that some breeders will absorb said costs as part of the purchase price for a puppy.
 - b. The advantage of this is that we meet our obligation to both the WUSV and ANKC.
 - i. In the case of SV scheme- we only use it to verify HD/ED results.
 - ii. Benefit is our gene pool is added to world wide database that can in the future be used to establish more genetic based testing of diseases.
 - iii. ANKC scheme will be used if there are disputes involving parentage.