5/28/11

Question 1

The quickest way to determine if there are detrimental or favorable recessive genes present is to do test crosses of UU to UU dogs. This is a technique that is routinely used in agriculture and animal husbandry. Therefore, since the VGL DNA test for Hyperuricosuria is now available, we can identify UU dogs at birth. It now is feasible to do test crosses early in a breeding program. If the primary concern of the LUA breeders is the betterment of the Dalmatian breed, then it would appear to be appropriate to do some UU x UU crosses, keep meticulous records and do complete health checks.

We agree that it is important to temper caution with reason and because of this it is important that more information is obtained about the Backcross dogs as well as the significance of high uric acid levels to the wellbeing of Dalmatians.

The Mars Veterinary Molecular Genetic Analysis report provided to DCA on May 2, 2011, compared DNA from 27 LUA and HUA Backcross dogs with Mars stored AKC purebred Dalmatian samples. Figures 1 through 5 are of first principle component analysis. Figures 6 and 7 are of second principle component analysis. In figures 6 and 7 of that report, it is evident that the two populations are not identical. The two groups of samples do not totally overlap indicating that there is genetic diversity between the two populations. From the data provided, no one can say what the difference is between the Backcross dogs and the purebred AKC Dalmatian, but there is some difference. The report states: "Further analysis may be able to reveal additional insights in the analysis of the Backcross data set, including individual chromosome analysis reporting…" We would like to see such analysis done.

Question #2

AKC demands that breeders keep careful records of all their litters and that these records be made available for inspection if AKC so requests. It is regrettable that such records are not available starting with the initial 1973 Pointer to Dalmatian cross. Yes, it does make a great deal of difference how many get have been born since the initial cross was made and what their health issues, if any, might be. Since there are no records, how can you know if the introduction of the Pointer DNA segment with the SLC2A9 gene has eliminated the issue of stone formation without introducing any other issues?

Question #3

Since the LUA registration proponents were not able to answer the question "how many of the HUA descendants of the backcross project have developed stones?", we can either assume no records were kept or none of the HUA backcross get developed stones. If no HUA backcross dogs developed stones, then why do we need to remove the high uric acid?

The 2001 DCA Health Survey has the typical limitations of any survey – that is that people with the problem will more often respond than those without the problem. The survey covers a total of 809 Dalmatians with 513 of the Dalmatians having full information. Unfortunately for some of the questions the survey lumped kidney, liver and urinary disease as one category. Therefore no conclusion can be drawn regarding high uric acid levels as far as the general health questions. In a different section, table 44 reports that 38 dogs out of 513 in the survey had bladder stones. This is 7.4% and is a far cry from the 34.3% Dr. Bannasch reports from her survey of 179 Dalmatians. Both are based on survey populations and therefore do not represent the general population of Dalmatians

In the answer to question #7, you indicate that 202 pups were born between 2005 and 2010. Since most of the LUA crosses are Uu to uu, we can assume that about 100 of the get are HUA. Of these 100, about 50 are likely to be males which are more likely to have blockage issues. If we use Dr. Bartges 23% survey rate of stone formation, then 10 or 11 of the HUA dogs should have formed stones. If we use Dr. Bannasche's 34.3% rate, then at least 15 should have formed stones. Yet you report no stones in either the LUA Backcross dogs or the HUA backcross dogs. If the HUA backcross dogs have no more stones than the LUA backcross dogs, why bother to continue this experiment of introducing the Pointer into the Dalmatian genome? The fact that you do not report any stone formers would indicate that in the petition to the AKC Health and Welfare Advisory Committee you significantly overstated the stone formation problem in the purebred Dalmatian population.

Question 4

Dr. Bartges and Dr. Osborn both state that there are numerous other factors that impact on stone formation besides high urinary uric acid levels. In an article from the Minnesota Urolith Laboratory, it says: "Although the formation of uroliths in Dalmatians appears to be associated with a genetic trait, the hyperuricuria associated with defective purine metabolism is a predisposing factor rather than a sole cause of urate urolith formation." Studies are underway to try to determine what the protective mechanism may be. If it is only high uric acid level, then all purebred Dalmatians should have stones. Obviously it is much more than just uric acid level.

At dog body temperature, urine is not supersaturated. The uric acid is in solution and needs some other factor to cause it to crystallize. The photographs in the LUA pamphlet contrasting LUA urine to HUA urine are misleading because the HUA urine has been chilled. The solubility of uric acid decreases as the urine is cooled. That is not how it appears in the living Dalmatian.

Question 5

Yes, sediment may lead to obstruction and stone formation. That is not the question. The question is how great a problem is it? About 2% as reported in European studies or the 34.3% by Dr. Bannasch in her sample of 179 Dalmatians.

Question 6

It is reassuring to know that since 2005, only one epilepsy/seizure disorder has been reported in the Backcross dogs. This is a very young population with only a few of the dogs having reached 6 years of age. Will more epilepsy/seizure disorders show up as the dog's age? Should we not wait for some of the dogs to reach 12 to 14 years of age before coming to a conclusion?

Question 7

This is exactly the type of information that is needed on all of the health related issues for the Backcross dogs.

Question 8

You asked the question if it would make a difference how we voted if AKC added an identifier to the Backcross dogs. We said no. As far as the other registries, we do not make the rules for them. If you choose to register the Backcross dogs at United K.C. or some other registry, you may do so.

Question 9

What evidence do you have that the LUA dogs have only the "SLC2A9 gene and some non-harmful genes that also reside on chromosome 3"? Dr. Bannasch reported that the T locus for ticking is near the SLC2A9 gene. This gene is involved in determining the unique spotting pattern of the Dalmatian. Do we know that by introducing the SLC2A9 gene we have not removed some protective anti-stone forming genes that were associated with the recessive gene? Even the Mars Veterinary Molecular Genetic Analysis report indicates that further study of chromosome 3 can be done.

Question 10

According to your answer to question #7, there have been 202 Backcross pups produced from 2005 to 2010. Only 17 have been OFA certified, but you did not indicate how many were good or excellent. This is too small a sample to draw any conclusions regarding what percentage have normal hips.

In many of your answers you spend a lot of effort explaining that if there are health issues they should be blamed on the Dalmatian portion of the Backcross dogs' genome. No one has said that these problems exist to a greater or lesser degree in the Backcross. What we are saying is that this information should be available so that people can make an educated decision regarding how to vote on the issue.