

# LUA DALMATIAN REGISTRATION

## PRO QUESTION 1

1. The AKC's Health and Welfare Advisory Committee has a standing committee that provides impartial guidance on scientific and ethical issues. The committee is made up of people with a wide range of credentials related to canine health. In 2009, the AKC Board asked that committee to do a thorough review of the Dalmatian backcross program. In their report to the Board, the committee stated: "Because the introduction of the low uric acid dogs into the AKC registry gives Dalmatian breeders a scientifically sound method of voluntarily reducing the incidence of the condition, this committee strongly recommends some controlled program of acceptance of these dogs. Where the strict health and welfare of the breed is the overriding concern, no other argument can be made." Do you believe scientists and veterinarians on this committees are qualified to make recommendations on this issue?

### CON ANSWER

Yes, we believe the scientists and veterinarians on this committee are qualified to make such a recommendation

- a. if they are provided with adequate and accurate information
- b. and if there had been an opportunity for them to also hear the concerns of other Dalmatian breeders and the Parent Club.
- c. Even if the Committee had adequate and unbiased information, their mission is to evaluate health and welfare issues.

Registration policy decisions are the responsibility of the AKC Board of Directors. There are many long-time and experienced breeders who express doubt about how frequently stone formation occurs in the general population of purebred Dalmatians and whether there is a need for such a drastic move as to introduce a whole new gene pool into the purebred Dalmatian. These breeders successfully manage their Dalmatians by

- a. feeding an appropriate diet which is low in purines
- b. adding water to their dogs' food to encourage hydration and by encouraging their dogs to drink large amounts of water
- c. giving them access to the outdoors where they can urinate as often as needed
- d. careful observation of their dogs

Both Dr. Bartges and Dr. Hughes suggested that increased water intake is protective against stone formation. We believe that the members on the AKC's Health and Welfare Advisory Committee were given incomplete and biased information. Please read the answer to question #2.

### PRO REBUTTAL

The above answer contains two inconsistencies: "Yes, we believe the scientists and veterinarians on this committee are qualified to make such a recommendation." And, "We believe that the members on the AKC's Health and Welfare Advisory Committee were given incomplete and biased information." The AKC asked their Health and Welfare Advisory Committee to investigate this issue. This committee of highly qualified scientists, geneticists, and veterinarians conducted their own informational search and concluded that LUA Dalmatians should be registered with the AKC. If you believe the committee is qualified to make this recommendation, why would you think they can't conduct their research professionally? Since long time Dalmatian breeders Dr. Garvin and Ms. Strand sat on the AKC Board at the time the committee made their decision, it is guaranteed that the committee was well informed. The committee conclusion was "Because the introduction of the low uric acid dogs into the AKC registry gives Dalmatian breeders a scientifically sound method of voluntarily reducing the incidence of the condition, this committee strongly recommends some controlled program of acceptance of these dogs."

We know that Dalmatians can still have urate stone disease and block despite the very best efforts of their owners. This issue is discussed in more detail in our response to Questions #2 and #3.

## PRO QUESTION 2

There is considerable disagreement among members of the Dalmatian fancy with respect to the incidence of stone formation in the breed and therefore just how much of a concern stone disease should be for Dalmatian breeders. Some indicators of the significance of the problem are: Most pet insurance companies exclude coverage of urate stone disease in Dalmatians and DCA has spent more money on educational efforts and research for urate stones than on any other health problem. Studies done at urolith laboratories at the University of Minnesota, UC Davis and the University of Guelph in Canada have shown that Dalmatians are significantly more likely to develop urates stones than any other breed. Various researchers reported, in peer reviewed scientific journals, that between 13.8% and 34.3% of male Dals, in their studies, had stones. How do you propose answering the question of whether or not urate stone disease is a significant problem in the breed?

## CON ANSWER

We agree that there is “considerable disagreement among members of the Dalmatian fancy with respect to the incidence of stone formation in the breed”. The following are some things to consider regarding the evidence given in question #2.

- a. We are aware of pet insurance companies that do not cover inherited diseases in general. VPI pet insurance has the following exclusions for Dalmatians on its website: Petinsurance .com: “Abnormal uric acid metabolism resulting in urate urolithiasis; Bronzing syndrome; Deafness; Hereditary laryngeal paralysis; Hereditary nephritis (familial renal disease); Hereditary storage abnormality (ceroid lipofuscinosis); Leukodystrophy; Muscular cramping; Pannus (superficial keratitis); Scotty cramp”. Deducing the significance of a disease in our breed from insurance company exclusions would lead us to some very inaccurate assumptions about the frequency of these conditions.
- b. It is not valid to say that because DCAF has funded urate stone research it is a very significant problem in the breed. It is just as likely that the funding is a result of the furor that has ensued among the Dalmatian fancy since the initial registration attempt of the backcross dogs. The funding of research is an attempt to try to scientifically investigate the significance of the urate stone issue in purebred Dalmatians.
- c. The AKC Canine Health and Welfare Advisory Committee was provided with a frequency of stones from 13.8% to 34.3% in the general population. The 34.3% number came from a published study by Dr. Danika Bannasch which consisted of a self-reporting survey that consisted of a 179 Dalmatians. That is way too small a sample. The 13.8% comes from review of 565 patients of the Veterinary Medical Teaching Hospital, University of California-Davis that is part of the same publication. (Inheritance of Urinary Calculi in the Dalmatian, D. L. Bannasch, et.al., J Vet Intern Med 2004; 18:483-487) Therefore, the Advisory Committee used only information from one researcher. In a letter dated July 22, 2010, on University of California- Davis letterhead, Dr. Bannasch writes: “The survey was a tool to obtain pedigree data from dogs with known affected and unaffected status in order to perform the heritability analysis. The reported prevalence was for dogs ‘in the survey’ as stated very clearly in the abstract of the paper; at no time was the population of dogs surveyed intended to be or represented as a probabilistic sample of the owned population of Dalmatians in the United States.” It is unfortunate that the AKC Health and Welfare Advisory Committee was provided with

these statistics which even Dr. Bannasch states are not representative of the total population.

d. All the stone studies show that Dalmatians are more likely to form urate stones than any other type of stone. However, there are no studies that accurately determine the prevalence of stone formation in the general population. The studies are either of veterinary clinics and university hospitals reporting the incidence of stone formers in their patients. This is a biased 3 population and results in over-reporting. The Minnesota Urolith Laboratory report quantifies the types of stones analyzed. Quoting from that publication: "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." (Evaluation of the association between sex and risk of forming urate uroliths in Dalmatians, JAVMA, Vol 227, No.4, August 15, 2005. p. 565).

e. Dr. Susan Hughes, in 2005 and 2006, ultrasounded 377 Dalmatians. At that time only one of the 377 dogs had a 3mm stone that might have resulted in blockage. That is less than 0.3% of the dogs ultrasounded. If the incidence of stones was even 1%, there should have been 3 or 4 dogs with stones. If the incidence was 34.3% as cited in the AKC Canine Health & Welfare Advisory Committee recommendation, Dr. Hughes should have found 129 dogs with stones.

f. It is obvious that to date we do not know the true prevalence of stone formation in the purebred Dalmatian. If it was possible 7 years later to again ultrasound the 377 dogs in Dr. Hughes study, we would gain extremely valuable information regarding how many of the dogs with urinary sediment actually went on to form stones.

g. Data from other countries does not support the claim that between 13.8% and 34.3% of purebred Dalmatians form stones. Data from the United Kingdom, Norway and the Netherlands suggest a much lower incidence averaging closer to 2% in their survey populations.

## **PRO REBUTTAL**

We asked a very simple question: "How do you propose answering the question of whether or not urate stone disease is a significant problem in the breed?" This question was not answered, but instead the Cons made a large number of statements that require our comments in order to fully explore the issues. Please excuse this very long answer, but we believe that the facts should be stated. Our responses are presented in the order of the Cons statements.

Regarding insurance companies, it is important that we not confuse the frequency of a disease with the significance of a disease. Insurance companies do not. Significance has several components:

- a. severity, b. cost of treatment, c. effectiveness of treatment, d. incidence in a breed, e. rate of recurrence

Insurance companies are concerned with each of these simply because they must minimize their total cost for insuring a dog, and each of these affect an insurance company's bottom line. For Dalmatian breeders, these factors together, not the incidence alone, determine how we should respond to a hereditary disease.

Regarding DCAF, to effectively serve their mission statement, the DCAF board must be responsive to the concerns of Dalmatian owners and breeders. In April 2001, DCAF asked Dalmatian owners around the world to fill in a health survey on their dogs. The primary purpose of the survey was to direct research and avenues of inquiry into the health issues that are of greatest concern and prevalence in Dalmatians. Urinary tract problems and stones were near the top of the list for "Diseases and Health-related Conditions Respondents Felt Are Most Critical to be Studied for Dalmatians." From the survey report: among the most frequently

prescribed drugs allopurinol was second only to heartworm pills and was reported at a rate of 10%. Allopurinol is prescribed to treat urate stones, but not all dogs with urate stones are on allopurinol; hence, based on this survey alone, 10% provides an estimated lower bound for the incidence of urate stones.

Dr. Bartges conducted a study *Studies on Urate Urothiasis in Dalmatians* in 2006. As with the Bannasch report, the Bartges study attempted to estimate the prevalence of stone formation in the Dal breed. Dr. Bartges reported on 2,118 Dalmatians owned by 1,031 owners. "Of 2,118 dogs, 1,635 (77.2%) had no history of stone disease while 483 (22.8%) had a history of stone disease. The mineral composition of the 483 stones were reported as: Urate = 317 (65.6%)..." Without correcting for the unknown stone category, the Bartges study provides an estimate of about 15% for the incidence of urate stones.

There are, of course, unavoidable biases inherent in any attempt to estimate the incidence of disease. But let us not lose sight of the one essential and undeniable fact: urinary stone disease is, and probably always has been, a significant problem for the Dalmatian breed.

Osborne and his collaborators at Minnesota have been quoted selectively by project critics, but the quotes never include the following:

CANINE and FELINE NEPHROLOGY and UROLOGY, Carl A. Osborne and Delmar R. Finco, editors --Williams & Wilkins, 1995, Chapter 41 --Canine and Feline Urolithiasis: Relationship of Etiopathogenesis to Treatment and Prevention (Carl A. Osborne, Jody P. Lulich, Joseph W. Bartges, Lisa K. Unger, Rosama Thumchai, Lori A. Koehler, Kathleen A. Bird, Lawrence J. Felice -- Page 809 -

*"Regardless of the theory proposed for nucleation and nidus formation, an essential requirement is supersaturation of urine with a urolith-forming crystalloid. A crystal nidus cannot be formed if urine is undersaturated with the crystalloid in question."*

The authors make it clear that *"excessive supersaturation of urine with stone-forming crystalloids is the primary event in lithogenesis."*

Other factors such as pH, promoters, and inhibitors are also involved. However, only when the supersaturation criterion is satisfied do these other factors come into play to either mitigate or exacerbate the effect.

Logic requires that we distinguish between necessary causes and sufficient causes. A necessary cause is a condition that must be present for the effect to follow. A sufficient cause is a condition that guarantees the effect in question.

Saturated urine is a necessary cause of urinary stones; however, since every Dal with saturated urine does not develop stones, it is not a sufficient cause. Secondary causes can be controlled, and doing so will help, but it will not guarantee that stones will not form. However, *if the urine is not saturated, urinary stones cannot form.* All this is simply repeating what has been said before: "You can't build a brick house without bricks."

Supersaturation of urine with uric acid is tied to a genetic defect in the SLC2A9 gene. Replacing the defective gene with its normal counterpart eliminates this anomaly peculiar to Dalmatians. The LUA project has corrected the defect that Osborne called the "essential requirement" for the

formation of urate stones.

First, to correct an obvious misunderstanding of what epidemiologists mean by incidence rate: a stone incidence rate of 34.3% does not mean that on any particular day an examination of 377 Dalmatians is likely to find that 129 of the dogs have stones. An incidence for urinary stones, as Dr. Bartges noted in his report mentioned above, is the lifetime occurrence rate not a single-day snapshot. If you add all the snapshot data for every day in the entire lives of these dogs and divide by 377, you will get an estimation of the incidence rate.

Further, the 34.3% incidence is not what the AKC Canine Health & Welfare Advisory Committee cited as the singular basis for their conclusion that urate uroliths are a significant health issue in Dalmatians. This is a quote from the Executive Summary:

"While the exact frequency of urate stones in Dalmatians is unknown, based on the published data, the frequency of stone formation in male Dalmatians has been reported in peer reviewed scientific journals between 13.8% and 34.3%. In a twenty year survey of the Minnesota Urolith Laboratory, 9,095 Dalmatians were diagnosed with urate stones. This represents almost 500 Dalmatians a year from this center alone."

The committee's recommendation was not based on a single statistic. It was based on incidence data from various sources including the highly respected Minnesota Urolith Laboratory.

*Cf. "Prevalence of cystine and urate uroliths in bulldogs and urate uroliths in dalmatians," by Bartges JW, Osborne CA, Lulich JP, Unger LK, Koehler LA, Bird KA, Clinton CW, Davenport MP.*

*"Data were evaluated from all dogs admitted to the University of Minnesota Veterinary Teaching Hospital (UMVTH) between June 1, 1981 and Dec 31, 1991. During this period, uroliths were retrieved and analyzed from 452 of 37,574 dogs admitted. ... The odds that uroliths from Dalmatians were composed of urate were 228.9 times greater than for other breeds. The odds that a Dalmatian admitted was affected with urate uroliths were 122.4 times greater than for other breeds."*

It's time to move on from the disputation over incidence rates and claims of biased surveys. The abstracted report above from acknowledged leaders in the field: "228.9 times greater than for other breeds...122.4 times greater than for other breeds" leaves no doubt that urate uroliths are a significant problem for Dalmatians.

The DCA pamphlet on Urinary Stone Disease in Dalmatians makes the seriousness of the stone problem indisputably clear:

"EMERGENCY! Dalmatian Cannot Pass Urine -- Rush dog to your veterinarian or emergency clinic! Obstruction of the urinary pathway can quickly reach life-threatening status within 24 to 72 hours as urine relentlessly backs up into the dog's body system instead of being expelled out of it."

## PRO QUESTION 3

3. Some people believe that male Dalmatians can be managed so that urate stones do not become a problem. Veterinary and scientific literature as well as anecdotal evidence from veterinarians, indicate that the typical owner of a male Dalmatian is not effective in preventing their dogs from needing medical treatment for urate stones. Can you describe the evidence or data that supports a different conclusion?

### CON ANSWER

A brief search by Kelly Flannigan, D.V.M., for veterinary and scientific literature supporting the concept that it is difficult for owners to keep their dogs well hydrated and adequately exercised did not yield any results. If such literature exists, it should be made available to the membership. Anecdotal evidence should be defined before anyone is misled to believe it is a significant source of true value. From Wikipedia: "The expression **anecdotal evidence** refers both to evidence that is factually unreliable, as well as evidence that may be true but cherry-picked or otherwise unrepresentative of typical cases.....In both cases the conclusion is unreliable." Please see the full Wikipedia entry for more information about "anecdotal evidence". As for producing evidence or data that proves that it is easy to keep dogs well hydrated and adequately exercised, standard research journals typically do not publish that kind of work. However, long experience with Dalmatian owners and puppy buyers suggests that it is easy to provide the conditions necessary to minimize the formation of clinically significant urate stones.

### PRO REBUTTAL

The discussion by the cons of "anecdotal evidence" has no bearing on the subject. What does have a bearing is that there is no evidence or data to support the claim that male Dalmatians can be easily managed by the typical owner so that urate stones do not become a problem. This is simply not true. Perfectly managed Dalmatians have still formed urate stones and blocked. Even though DCAF spent \$11,000 on a Urinary Stone Pamphlet to be mailed to all the members we still hear all too often of yet another dog that has blocked. Even though the AKC includes a letter with each puppy registered informing the new owner that ***a peculiarity intrinsic to the Dalmatian is the tendency to form urinary stones***, some typical owners are still undergoing the heartbreak of finding out their much loved pet has a painful urinary blockage that will require costly surgery or their dog will die. The con side's answer to question # 3 states that if literature exists it should be made available to the membership. The literature does exist and it has been made available to the membership by the DCA and to every Dalmatian registered by the AKC. It has not accomplished the goal. Registering LUA dogs so breeders have the option to use them can and will brighten the future for our wonderful breed.

The recurrence of urate stones was studied as part of Dr. Bartges' project for DCAF. As part of the questionnaire, owners were asked to answer questions related to measures taken to prevent urate stone recurrence in their dog. Data was analyzed for the 451 Dalmatians identified as having formed stones composed of either URATE or DON'T KNOW; dogs with calcium oxalate, cystine, and struvite stones were excluded. From these 451 dogs, information on recurrence was available for 348 dogs: NO RECURRENCE = 223 (65.2%); RECURRENCE = 125 (34.8%). The majority of the recurrences were urate stones; only 5 of the 121 were identified as xanthine (although information was not given for mineral composition for more than one-half, 73 dogs).

A recurrence rate for purine stones (urates plus xanthine) of 34.8% belies the contention that "it is easy to provide the conditions necessary to minimize the formation of clinically significant

urate stones." These Dals, having already formed stones, were almost certainly maintained under veterinary supervision, yet more than one third suffered recurrences. **URATE STONE DISEASE IS NOT EASY TO PREVENT OR MANAGE!**

## PRO QUESTION 4

4. It has been suggested by some people that if uric acid levels are lowered Dalmatians will form other types of stones that are more difficult to treat than urate stones. Can you provide any evidence to support that theory?

### CON ANSWER

Dr. Joseph Bartges at the University of Tennessee in his letter to then DCA President Eva Berg on April 27, 2006, reported that out of the 483 Dalmatians with stones in his survey, 317 were identified as urate stones. That is 65.6%. The other stones were identified as: 27.5% did not know 2.9% struvite 1.9% calcium oxalate 1.7% cystine 0.4% (2 stones) xanthine That means that 6.5% of the identified stones in Dr. Bartges survey were not urate stones. The Minnesota Urolith Center reports that 4.4% of stones they analyzed in the Dalmatian were not urate stones. Those of us who have high uric acid AKC registered Dalmatians cannot provide the evidence that low uric acid Dalmatians will or will not form other types of stones since our dogs have high uric acid. It is up to the LUA backcross breeders to keep records and to provide the evidence. Even if the LUA backcross dogs do not form urate stones, there will be a small number forming other types of stones. It would be a terrible oversight if LUA dog owners were lulled into complacency thinking that their dogs could not form stones. They might not form urate stones, but they will still form all of the other types of stones. Dr. Bartges at the University of Tennessee is currently testing the hypothesis that Dalmatians may possess a genetically determined inhibitor that prevents crystal and stone formation even though there is a high level of urinary uric acid. These inhibitors, if identified, would explain why only a small portion of purebred Dalmatians form stones.

### PRO REBUTTAL

There is no evidence to support the idea that LUA Dalmatians are more likely to develop oxalate or other difficult-to-treat urinary stones than HUA Dalmatians or any other breed of dog. LUA Dalmatians are expected to form non-urate stones with the same frequency as non-Dalmatian dogs. According to the figures provided above, this would eliminate 94 - 96% of the stones that have been identified in Dalmatians.

The accepted veterinary treatment for stone-forming Dalmatians is to reduce uric acid in the urine using medication and diet modification. There are no reports in the scientific literature or veterinary textbooks of any stone-forming Dalmatian requiring treatment for non-purine-related stones after urinary uric acid has been reduced below the threshold of urate stone formation.

When asked for more information about the idea that LUA Dalmatians would be likely to form "other stones", Dr Bartges brought up the relationship between cigarette smoking and cancer. No one suggests that there is a benefit to smoking based on the fact not all smokers get cancer and that some non-smokers do get cancer, so it's not clear how that comparison can be interpreted to imply that LUA will put Dalmatians more at risk.

The answer provided above indicates Dr. Bartges current work proposes "...that Dalmatians may possess a genetically determined inhibitor that prevents crystal and stone formation even though there is a high level of urinary uric acid." This hypothesis suggests that Dalmatians may be generally MORE resistant to stone formation than other dogs, which is in

opposition to the idea that LUA Dalmatians are at a greater risk. His research does not propose that Dalmatians possess some factor which promotes stone formation, in addition to HUA.

For LUA Dalmatians to be more at risk of urinary stone formation than non-Dalmatians dogs requires an assumption that Dalmatians possess a stone-promoting defect in addition to HUA. It seems unlikely that the developers of the breed would have selected dogs doubly predisposed towards urinary stones. Dr. Bartges hypothesis that some HUA Dalmatians produce a stone inhibitor that may compensate for HUA makes sense.

Nothing in scientific publications, veterinary textbooks, Dr. Bartges' proposal or his available communications with the Dalmatian community leads to the conclusion that LUA Dalmatians will be at greater risk for urinary stone formation than non-Dalmatian dogs.

## **PRO QUESTION 5**

In 1973 a single breeding to an AKC Champion Pointer was done to transfer the gene for low uric acid to a line of Dalmatians. The generations that followed were bred only to Dalmatians. Most of the LUA Dalmatians alive today are at least 11 generations away from that one Pointer. Mathematically that makes them 99.6% Dalmatians. Since the AKC was willing to accept descendants of the backcross program as purebred Dalmatians at the 5th generation, what additional criteria would you use to determine if descendants of the backcross project should be recognized as purebred Dalmatians?

### **CON ANSWER**

Late on Monday, May 2, 2011, the day of the DCA discussion, we received a copy of the report "Molecular Genetic Analysis of Backcross Dalmatians Compared to AKC Dalmatians, UK Dalmatians, Pointers and Other Breeds." The 27 Backcross samples were provided by Denise Powell. The US Dalmatian samples were selected from Mars Veterinary stored samples. Mars Veterinary ran a "first principle component analysis". As would be expected from a first principle analysis, the Pointer, the UK Dalmatians and the combined AKC Dalmatians and Backcross dogs formed 3 distinct clusters. Both Pointers and Dalmatians have maintained closed stud books for many years. The UK Dalmatians have been an isolated population on the islands because of the strict rabies quarantines and therefore either genetic drift or selection pressures have led to a different gene pool. The Backcross dogs have been bred back to AKC registered Dalmatians and we would expect them to be more closely related to AKC Dalmatians than to UK Dalmatians or the Pointer. In other words, this report did not provide any unexpected information. What is interesting in this report is that in Figures 6 and 7, the AKC US Dalmatians and the Backcross dogs do not completely overlap. The report states that "the backcross and US Dalmatians separated by the second principle component." 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, but these comparisons have not been possible to date given the limited timescale available to perform this report in time for the meeting for which it is intended." It is no surprise that a study of genetic markers would find that the LUA breeding program is closely related to the AKC registered Dalmatians – they have been breeding AKC dogs into the line since 1973. These markers in no way identify recessive traits that could be expressed when the homozygous LUA dogs are bred to each other. Only test breedings will illuminate the best and worst traits of the line.

### **PRO REBUTTAL**

Instead of responding to our question concerning additional criteria for determining purebred status of the LUA's, the Cons are again questioning the science behind the recent AKC Health and Welfare Committee commissioned Mars Veterinary study of the "Backcross Dalmatians." The results of this study confirms that the "Backcross Dalmatians' are indeed purebred Dalmatians.

Regarding the study, all Dalmatians in the Mars Study (UK, US and Backcross Dalmatians) are considered to be purebred Dalmatians in their respective registries (KC, AKC and UKC), and cluster in the same area in the Mars Veterinary study. They are not near the Pointer or any other breed. The fact that the three sources of purebred Dalmatians tend to be stratified within their cluster is evidence of higher degrees of relationship between individual dogs within each registry than between dogs from different registries. DNA swab samples of Backcross Dalmatians were collected by individual owners from HUA and LUA descendants of Stipples from 22 different litters all over the US and submitted to Mars Labs.

When the Dalmatian subgroups are compared to other breeds (Figures 2 & 3), and especially when they are compared only to Pointers (figure 4), there is a lot of overlap between the AKC and US Dals and less with the UK Dals. It is only when one examines the 3 Dalmatian groups in the absence of samples from other breeds that any distinction can be discerned between the AKC and LUA Dals.

The conclusion from the MARS report is that the AKC Dals and LUA Dals are more closely related to each other than AKC Dals are to UK Dals. Yet, it is possible to register a less closely related UK Kennel Club Dal with the AKC than it is to register a more closely related LUA Dalmatian with AKC. Additionally, the MARS report demonstrates that a mating between an AKC Dal and a UK Dal is more of an outcross than a mating between an AKC Dal and an LUA Dal.

The AKC H & W committee concluded "The US Dalmatians and Backcross Dalmatians overlap in their molecular genetic signatures, but still retain differences based on differences between dogs with different family/pedigree backgrounds. Any mating between Backcross Dalmatians and AKC Dalmatians are more similar than matings between either group and UK Dalmatians."

## **PRO QUESTION 6**

6. The AKC will register foreign born Dalmatians based on a three generation pedigree. The AKC has an outreach program which researches pedigrees of dogs that do not have AKC paperwork to determine if the dog comes from AKC registrable stock. A dog can qualify for AKC registration if the pedigree shows no break in AKC lineage and the dogs in the pedigree originate from AKC registrable stock. This is done on the basis of documentation provided by the breeder or owner such as pedigrees, contracts or bills of sale. DCA has not objected to registration of any of those Dalmatians. Health testing has never been required for any dog to be registered with the AKC. Yet the DCA Board continues to insist that more testing and data is needed before registration for LUA Dals can even be considered. Why should LUA Dalmatians be held to completely different requirements for registration than any other Dalmatians, including those that are come in from other countries and those that come from some of the less than reputable alternate registries that exist in this country?

## CON ANSWER

Because the LUA Dalmatians would be registered specifically with the intention of providing a health benefit, it would seem reasonable to first prove that such a benefit exists. At this time there is no accurate estimate of how many Dalmatians form large enough urate stones to cause blockage and a medical emergency. Dalmatians imported from countries on AKC's accepted registry list are eligible for AKC registration if they present a certified export certificate and a complete three-generation pedigree. Foreign registries that are acceptable to AKC adhere to certain AKC registration requirements. Naturally, AKC reserves the right to modify its acceptance of a foreign-bred dog if the registration policies of a previously approved registry change. AKC's outreach program is a pedigree research service that enables customers to prove that their dogs meet AKC registration policies. Only dogs that originate from AKC registrable stock that can demonstrate complete pedigrees and show no break in their AKC lineage are eligible for registration. The descendants of the Dalmatian-Pointer cross that seek registration as Dalmatians do not qualify for this program because of the break in their lineage. Backcross proponents make the case for registering the descendants of the Dalmatian<sup>6</sup> Pointer cross on the basis of health related issues. Specifically they assert

- (1) that the high levels of uric acid excreted by Dalmatians in their urine cause or are the primary cause of urate stones in Dalmatians,
- (2) that the incidence of urate stone formation in Dalmatians is so high and the symptoms so severe that the condition justifies crossing breeds in order to correct it and
- (3) that the descendants of the Dalmatian-Pointer cross warrant registration because the gene transfer accomplished by the cross was successful and the descendants will not form urate stones.

Given the many health claims, counter claims and concerns of DCA members, it is not only reasonable, but also right that the DCA, whose purpose it is to protect the Dalmatian breed, would want to review all health-related information and evidence available before supporting registration. In addition, the DCA has an obligation to uphold the vote of its membership, which has repeatedly considered the question and persistently opposed registration. In light of the lack of information about the backcross descendants, it is not possible to do a valid risk-benefit assessment. This lack of information remains a significant hindrance to progress. AKC has not been faced with a registration request of this nature before. In the past when AKC has been asked to alter its registration policies for a single breed, that request has always come from a parent club. In this case the request reached the AKC Board of Directors via a petition put forward by a minority faction of a parent club whose membership had already voted against the request. In a perfect world, the 1973 Dalmatian-Pointer cross would have been accompanied by a well-designed experiment endorsed by the parent club. It is regrettable that recognized and commonly accepted research protocols were never established for this experiment. A good experimental design articulating the hypotheses, goals, testing methods, data collection, record keeping requirements and outcome analysis might have led to a different outcome. In the absence of standard research protocols, and/or until AKC adopts specific policies for dealing with open gene pools, accepting these dogs would set a dangerous precedent.

## PRO REBUTTAL

Accepting the LUA Dalmatians into the AKC studbook sets no precedent at all. In fact, the current request does not even ask the AKC to open the studbook but merely to lift the hold on Stocklore Stipples registration to allow the descendants of *an AKC registered and champion pointed Dalmatian* to be listed in the AKC studbook.

Currently dogs from other countries (and/or their offspring) can be included/accepted into the AKC registry with nothing more than a three generation pedigree and a DNA profile. This is true for dogs from the UK, Europe as well as the Australasian countries. At no point in time, are the owners (or importers) of foreign bred Dalmatians asked to provide *\*any\** health clearances. In fact, during an attempt to acquire a CHIC number for a foreign sire of an AKC litter, OFA's response was that they could not do so because the databases are not interconnected and that

foreign countries use different evaluation methods and ratings scales.

Here in the US, the AKC has actively encouraged “large scale breeders” who have moved to other registries, to return to registering their pups with the AKC. As long as there is a three generation documented pedigree of ancestors who **could have been registered** with the AKC, and no break in the pedigree, those dogs are accepted into the AKC registry and stud book. Again, at no time are any health clearances asked for or required.

Current LUA breeders are doing the exact same health clearances on LUA breeding stock and using the same guidelines for selecting dogs/bitches for LUA litters as they do for any AKC litter that they would breed. This includes the DCA mandated testing required for a CHIC number. In fact, there are 17 LUA Dalmatians currently listed in the OFA CHIC database. This represents about 25% of the LUA's over one year of age that are alive today.

There is also precedence for opening of the AKC studbook – both with and against the wishes of the parent club.

- With support and cooperation from the Basenji Club of America, basenjis from the jungles of Africa were imported and registered with **no known pedigree** and were granted admission to the AKC studbook on the basis of **physical appearance alone**.
- With support and cooperation from the Saluki Club of America, salukis from the desert regions of Africa were imported and registered with **no known pedigree** and were granted admission to the AKC studbook on the basis of **physical appearance alone**.
- An entire large private registry of Black and Tan Coonhounds was granted admission to the AKC studbook, against the wishes of the BTCA.
- The National Greyhound Association greyhound population was granted admission to the AKC studbook, against the wishes of the GCA

In all of these cases, the decision makers at the AKC felt that there was merit in opening the studbook and made their decision based on what they felt was best for the breed and for the American Kennel Club.

To say that the DCA membership has “repeatedly considered the question and persistently opposed registration” is at best an exaggeration and at worst a full-fledged untruth. The issue has been brought to the membership for a vote exactly two times; once in 1984 and more recently (after 30 years of forbidden discussion of this issue) in 2008. Although the 2008 vote fell short of the 2/3 majority needed to pass, it was very nearly a 50/50 split. As DCA members have continued to learn more about this issue and the LUA Dalmatians, an increasing number of DCA members have either bred an LUA Dalmatian litter, allowed one of their males to sire an LUA Dalmatian litter or purchased an LUA Dalmatian pup. Many of these breeders are AKC Breeders of Merit and have produced BIS, BISS, Futurity, Sweepstakes, Group and Breed winners. The same care and consideration that went into planning those Dalmatian litters goes into the planning of an LUA Dalmatian litter

## PRO QUESTION 7

7. Many people focus on the fact that not every LUA Dalmatian meets the ideal for a show quality Dalmatian and miss the fact that only a small percentage of the general population of Dalmatians have what it takes to be successful in the show ring. Show dogs result from intense efforts of those who show in conformation and who breed for pups that can be competitive. If you object to AKC registration of LUA Dalmatians based on perceived lack of show quality, do you also support withholding AKC registration for all pet quality puppies? If so, who should decide which pups in a litter are show quality?

### CON ANSWER

If you read the 10 questions presented by the group which at this time is opposing registration of the Backcross dogs, you will find that not a single question addresses the show quality issue. Our hesitancy at this time is based on the following:

- a. How prevalent is stone formation in the purebred Dalmatian population? There are no studies that we are aware of that do not have a selection bias. All studies are either self-reporting surveys or veterinary clinic and veterinary teaching hospital data. These types of studies will always over-estimate the affected individuals. Does the breed have a significant enough problem to warrant opening the stud book? We do not have an answer.
- b. There is a lack of adequate records regarding any health issues that might have been introduced from the Pointer. The American Pointer club surveys its breeders every 5 years with the last survey being in 2007. We are concerned about changes in frequency of some characteristics that have multifactorial inheritance which at this time we do not understand. (1) Epilepsy is listed in a 2007 Pointer breeder survey as being the 2<sup>nd</sup> most significant concern by Pointer breeders. Dalmatians have some epilepsy issues as well. What is the status of epilepsy in both the LUA and HUA backcross dogs? (2) OFA records show that 8.1% of Pointers are dysplastic while 4.6% of Dalmatians are dysplastic. How many of the LUA and HUA backcross dogs have had their hips OFA'd? How many are dysplastic? (3) When Dr. Schaible first asked for registration of the Pointer/Dalmatian backcross get, his hypothesis was that the high uric acid was contributing to dermatitis and urinary calculi. In the 1970's Dalmatian coats were horrible. Today the coats of AKC Dalmatians are remarkably improved. The 2007 Pointer survey still lists skin disorders and contact dermatitis as 3<sup>rd</sup> and 4<sup>th</sup> problems. (4) The Pointer is predominantly a white-coated breed and deafness is known to be more prevalent in white animals including dogs and cats. The American Pointer Club does not require BAER testing for a CHIC number. What type of records have been kept for both the LUA and HUA Backcross dogs for deafness? Once recessive genes for multifactorial genetic inheritance are introduced into a population, they are almost impossible to remove from the gene pool. Deafness, hip dysplasia, epilepsy and allergies have inherited tendencies for which we do not understand the genetic mechanism.

### PRO REBUTTAL

The Cons did not answer our question dealing with the quality of the LUA Dalmatians and how it can be measured. We maintain that the best determination of quality is in the AKC show ring; and that is one of the reasons why AKC registration is important. The Cons did use this

question as a launching point to discuss two other issues that have been asked and answered many times. We are pleased to offer another summary response.

The prevalence of urate stone formation in the Dalmatian population will never be known, but we do know, and almost everyone agrees, it is a significant problem. The raw number of urate stones and incidence of urate stone disease in our breed reported in the literature, together with the effort that insurance companies, dog food companies, research institutions and the DCA expend on the disease should be sufficient proof to everyone that this is an issue that needs resolution if at all possible. Opening up the AKC stud book to allow AKC breeders to work on reducing urate stone disease in our breed is not a radical solution – almost all of the dogs in the pedigrees are AKC registered Dalmatians already.

The Pointer Issue has also been debated a great deal, and so has the “lack of adequate records regarding any health issues that might have been introduced from the Pointer” The breeding to the single Pointer was 39 years ago; does anyone really believe that today’s descendants could possibly have any Pointer health issues? How could any Pointer issues, except the “harvested” SLC2A9 gene for normal uric acid, possibly survive the dilution by over 4,000 Dalmatians? To dwell on this point simply is not rational. In any event, the health issues of the Pointer in 1972 may have relevance, not the results of Pointer health surveys that have been conducted after that point. The Pointer was an exceptionally healthy breed in 1972, and interviews with the owner of the Pointer used by Dr. Schaible confirmed that he was a very healthy individual that lived a long life. Current Pointer problems with epilepsy and dwarfism were introduced into the breed by imports from England in the 1990’s.

Yes, Dr. Schaible and Dr. Nelson had hoped that by restoring canine normal uric acid to the Dalmatian, hearing and allergies could be improved. Since AKC registration of Stocklore Stipples in the late 1970’s, the concerted effort was on eliminating urate stone disease. However, hearing records of the initial generations of LUA Dalmatians were better than the overall Dalmatian average because of the specific AKC Dalmatians that were included in the breeding program. BAER records have been maintained on the descendants since the program’s inception.

The phrase "recessive genes for multifactorial genetic inheritance" makes no sense. There are dominant and recessive genes (both autosomal and sex-linked). There are mitochondrial disorders which are passed down only from the dam so these characteristics are immediately excluded from consideration since the Pointer was male. There are multifactorial and polygenic disorders with different phenotypic expressions: continuous, meristic (numerical), and threshold traits. It is impossible to interpret what the respondent means by "recessive genes for multifactorial genetic inheritance."

Further, the respondent, by discussing the incidence of disorders such as dysplasia in the Pointer breed, seems to be confusing a backcross program (to get the specific allele, SLC2A9, from the donor breed) with a breed-merging program (where large scale crossbreeding takes place to develop an entirely new breed). Only when two distinct inbred breeds are merged are allele frequencies relevant. A backcross program does not alter the allele frequencies of the recipient breed, Dalmatians. Since allele frequencies of Dalmatians are unaltered, so also are the incidences of hereditary diseases.

It is easy to allay the respondent's concerns on the inheritance of polygenic disorders from the Pointer ancestor. Consider the case where  $n$  genes are involved, and the effects are additive. The probability of a current-generation LUA Dalmatian carrying any one of the genes from the Pointer is less than one in a thousand. Since the genes segregate independently, the probability of carrying a pair of additive polygenes from the Pointer is less than one in a million; three, less than one in a billion ...

Finally, in simple terms, the warning about introducing undesirable recessive characteristics into the Dalmatian gene pool from this single breeding to a Pointer 39 years ago is without scientific foundation or even logical speculation. It is simply intended to instill doubt and fear.

## **PRO QUESTION 8**

8. Some people are concerned that, as time goes, it will become difficult to tell by looking at pedigree, if a Dalmatian is a descendant of the backcross project. That problem could be avoided if AKC registration numbers for descendants the backcross project contained a special character to make it easy to spot them in a pedigree. Would the addition of a special identifier for these Dalmatians make a difference in how you vote on the question of AKC registration for descendants of the backcross project?

### **CON ANSWER**

If AKC chooses to register the backcross dogs, we would hope that they would add a special identifier. However, it would not make a difference in how we personally would vote.

### **PRO REBUTTAL**

We now know that beyond any reasonable doubt, the descendents of the backcross project are Dalmatians. They are Dalmatians by pedigree analysis, by DNA analysis by phenotypic analysis (they look like Dalmatians) and by instinct, disposition and temperament. When given the opportunity, LUA Dalmatians have proven their acceptable breed type in the Conformation Ring. Stocklore Stipples, an LUA registered by AKC in 1981, had accumulated several AKC Championship points; Fiona, an LUA exported to England, has had major wins and qualified for Crufts. Many LUA descendants have achieved their Championships and been honored at UKC shows. Why should the LUA's be segregated? Why should they not be AKC registered without special identification? AKC and other registries have used special identifiers to designate dogs that are admitted into their registries if the pedigrees cannot be determined or if the dogs come from unacceptable registries. In the case of the LUA Dalmatians, with the exception of typically one UKC UU or Uu Dalmatian in each generation to forward the normal gene for producing canine normal uric acid, the pedigrees are entirely AKC Dalmatians. If the reason for special identifiers is to provide for easy identification of the descendants of the program, any person doing any breeding can locate them by simple pedigree research as is accomplished for any planned breeding. However, If AKC will register these Dalmatians only if an identifying symbol is used, it can be considered.

## **PRO QUESTION 9**

9. Some Dalmatian breeders have candidly expressed that their objection to AKC registration is based on concerns that registration of LUA Dalmatians will negatively affect their ability to sell pups from HUA litters. What many people do not realize is that most of today's LUA Dalmatians carry the gene for HUA, which means that they can produce HUA pups when bred to other Dals with the gene for HUA. The experience of those who are breeding from LUA Dals is that most puppy buyers simply want a puppy that appeals to them and to get it from a breeder they feel they can trust. Does the fact that LUA Dalmatian breeders will continue to have HUA pups in their litters and that they have had no problem placing HUA pups change your views about AKC registration for descendants of the backcross project?

### **CON ANSWER**

If the stated purpose of the LUA breeders is to rid the Dalmatian breed of the mutant gene which results in the production of high uric acid, why do the LUA breeders continue to produce high uric acid dogs? Why not use only homozygous UU dogs in your breeding programs? That way all of the dogs produced would have low uric acid levels. We are also concerned that puppy buyers might be allowed to believe that because their dogs are LUA they will not form any type of stone even though we would expect them to form the non-urate stones at the same rate as all HUA Dalmatians. Headlines such as "Guaranteed Stone-Free Dalmatians? YES!" are at least misleading if not an outright misrepresentation. (Canine News You Can Use. 4 June 2010, Belvoir Media Group, LLC – misspelling of Dalmatian is in the article headline) The LUA breeders need to be extremely vigilant about what claims they make.

### **PRO REBUTTAL**

The reason for not limiting the LUA breeding program to homozygous UU Dalmatians has been explained at length – in summary, LUA breeders are trying to avoid a genetic bottleneck and produce as much diversity in their breeding programs as possible. Most breeders with a working knowledge of genetics understand this, as well as the wisdom of keeping Uu and uu Dals in their breeding programs. Most LUA breeders have been extremely vigilant about the health claims for the LUA Dals. We all know that the LUA Dals have EXACTLY the same health issues as the present AKC Dalmatians except that they will not form urate stones.

We take great exception to the misrepresentation created during the panel discussion by showing a piece of paper with the title "Guaranteed Stone-Free Dalmatians? YES!", implying that this was an ad from an LUA proponent. In fact, this was an article explaining the LUA project in an on-line magazine written by a reporter who had no relationship with any LUA proponent. This false implication has no place in the discussion of evaluating the science of introducing the gene for normal uric acid Dals into the general Dalmatian population.

### **PRO QUESTION 10**

10. The AKC Health and Welfare Committee and other experts have recommended that LUA Dalmatians be carefully incorporated into the general population of Dalmatians. Doing this will require involvement of many knowledgeable breeders. There are a significant number of experienced and reputable Dalmatian breeders, in the US and other countries, who have indicated they would like to include LUA Dalmatians in their breeding programs. But they will not do so if they cannot compete with their LUA Dals in the venues they currently enjoy. AKC registration is the key to rapid improvement in the quality of LUA Dalmatians, because it is going to take participation of a diverse group of experienced breeders who know how to produce Dalmatians with proper breed type, good health and temperament. Since there is no

obligation for any breeder to incorporate LUA Dals in their breeding program why do you believe DCA should stand in the way of those who would like to work toward this goal within the AKC?

### **CON ANSWER**

The stated purpose of registering the backcross dogs in the Health and Welfare Committee recommendation is for “the strict health and welfare of the breed” and does not refer to the pro-registration group’s question #10 assertion that “AKC registration is the key to rapid improvement in the quality of LUA Dalmatians, because it is going to take participation of a diverse group of experienced breeders who know how to produce Dalmatians with proper breed type, good health and temperament.” If the purpose of registering the Backcross dogs is to eliminate the uu gene, then breeding to AKC uu dogs defeats the purpose of the Pointer-Dalmatian backcross experiment. Continued use of high uric acid purebred Dalmatians (uu genotype) in breeding programs will not lead to a decrease of high uric acid producers in the general population. DCA is planning to have a vote of its membership regarding the registration of the Backcross dogs. If there is a “significant number of experienced and reputable Dalmatian breeders.....who...would like to include LUA Dalmatians in their breeding programs” they will have the opportunity to vote in favor of the registration. The DCA Board’s intent is to run a democratic organization that is responsive to the wishes of the membership. In the previous votes, the majority of members voted not to recommend the registration of the Backcross dogs.

### **PRO REBUTTAL**

The Cons did not answer our question of why DCA should block registration, especially since the ultimate authority of registration is the AKC. The Cons instead bring up a separate issue by stating that breeding to AKC Dals will not decrease high uric acid production in the general population. This is false. Every breeding of an AKC Dal to an LUA Uu Dal will produce approximately 50% low uric acid producing puppies, and every breeding to an LUA UU Dal will produce 100% low uric acid producing puppies. Most Dal breeders have a working knowledge of simple genetics and understand this. Their answer includes the statement, "The DCA Board's intent is to run a democratic organization that is responsive to the wishes of the membership" when the reality is that the Board has indicated its opposition to registration by authoring the unscientific rebuttal to the AKC Health & Welfare Committees' Summary Report. Additionally, sitting Board members have openly stated their opposition to registration and have attempted to influence the DCA membership to oppose registration of the LUA Dalmatians.