



determine the importance of that information and how reliable it is based on the methods employed. As an assistant professor, I teach my students how to critically review and evaluate available data and published articles. I have personally conducted studies on the effectiveness of breed-specific legislation.

2. The Council Bluffs Ordinance is a breed-specific ordinance, meaning that it specifically regulates a breed of dog. Thus breed-specific ordinances are the central issue to this litigation. I have reviewed the curriculum vitae, deposition testimony, and other documents provided on the Plaintiffs' expert witnesses: Dr. Victoria Voith, Dr. Kristopher Irizarry, Dr. Amy Marder, and Dr. Randall Lockwood. Based on this review, it appears that none of them have any experience researching or evaluating the effectiveness of breed-specific legislation. It is my opinion that each of these individuals either fail to set forth an actual basis for their claims that breed-specific legislation-such as the Council Bluffs Ordinance-is ineffective and/or are unqualified to testify about the effectiveness of breed-specific legislation due to the individual having no experience in researching the effectiveness of such legislation.

3. In addition, it is my opinion that the two studies authored by Plaintiffs' expert Virginia Voith (hereinafter Studies 1 and 2) are not reliable. This Affidavit is submitted following a detailed review of the two published studies and the methodology used in both Studies. Plaintiffs' other experts were also involved in the studies, with Plaintiffs' expert

Kristopher Irizarry being a co-author on Study 1 and Plaintiffs' expert Amy Marder being a co-author on Study 2.

4. Both Studies relied upon the same convenience sample of 20-dogs. Each of the 20 dogs were presumed to be mixed-breed of unknown lineage, and their breeds were determined through the use of the Wisdom Panel™ test. The Studies state that the DNA testing is only 84% accurate.

5. The statement that the DNA testing is 84% accurate is misleading and does not reflect the actual accuracy rate for the DNA testing of the 20-dog sample used in the Studies, since the 84% accuracy rate only applies when the dog being tested is derived from two purebred dogs of known origin.

6. Genetic researchers involved with the company that created the Wisdom Panel™ DNA testing have stated that the accuracy rate of the test decreases with each additional breed added into a dog's breed composition. In other words, the accuracy would be less than 84% if the dog tested was derived from one parent who was a purebred dog and one parent who was a mix of two-separate breeds. Likewise, the accuracy would be even less if both parents were mixed breeds of two-separate breeds.

7. Each of the 20-dogs used in the Studies were presumed to be mixed-breed dogs with unknown lineage. Based upon the DNA testing results, each of the 20-dogs used had breed compositions of more than two types of breeds. This is significant, because it suggests that each of the dogs were derived from parents where at least one parent was a



mixed-breed. The 84% accuracy rate referenced in the Studies would not be applicable to these dogs.

8. While it is known that the accuracy rate of the DNA testing goes down with each subsequent breed added into the parents' breed compositions, the accuracy rate for each subsequent breed added in is unknown. In other words, if only one of the parent dogs is a mixed-breed, the accuracy rate of the DNA testing on the offspring to determine its breed compositions is unknown. Because each of the dogs used in the Studies were derived from at least one mixed-breed parent, there is no known accuracy rate for the DNA testing that was performed. It is possible that the DNA testing accuracy could be significantly lower than 84% for each or some of the dogs in the 20-dog sample; however, it is scientifically impossible to know what the accuracy rate actually is.

9. Further, the 84% accuracy rate quoted is troublesome for another reason: it is unclear how this figure was derived. Indeed, the producer has not published any peer-reviewed journals explaining the accuracy of the DNA-testing. Likewise, the methods and quality-control procedures the producer uses for its DNA tests are kept confidential and have not been made available for review. Some sources reference the 84% figure as resulting from a study conducted by the National Canine Research Center ("NCRC"). I have looked through databases containing peer-reviewed scientific articles and have not found a peer-reviewed article published by the NCRC or Mars Veterinary (the producer of the DNA test) explaining how the 84% figure was determined. I have also conducted web

searches for the same information and have not been able to locate any non-peer-reviewed published materials that explain how the 84% figure was determined. If the NCRC was involved in the study that resulted in the 84% accuracy figure, this is potentially problematic since the NCRC was the entity which provided partial funding for at least some of the studies conducted by Dr. Voith. Subsequent to Dr. Voith's Studies, Mars Veterinary developed iterations of the Wisdom Panel test. From 2011 to at least 2017, Mars Veterinary refused to provide an accuracy rate for the Wisdom Panel tests on their public website.

10. Pit bull is not a breed in and of itself, but rather a composite term that refers to three breeds: American pit bull terrier, Staffordshire bull terrier, and American Staffordshire terrier. At the time that Dr. Voith's Studies were conducted, the Mars Wisdom Panel reference database did not include reference samples from American pit bull terriers or Staffordshire terriers. Of the 3 dog breeds regulated by the Council Bluffs ordinance, the Mars database only contained information from American Staffordshire terriers. Owing to this, it would have been impossible for the testing done by Dr. Voith to determine that a dog was an American pit bull terrier or Staffordshire terrier, even if the dog actually was one of those breeds. Consequently, it would be disingenuous of Dr. Voith to compare visual identification of dogs to DNA results in her study and claim that participants were not accurate at identifying pit bulls using visual identification.

11. In summary, there is no scientific way to determine the actual accuracy rate for the DNA testing that was used on the 20 dogs included in Dr. Voith's Studies. In my

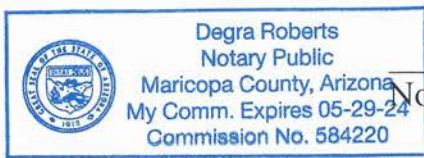
opinion, Dr. Voith' s Studies are hampered by a small sample size of 20 dogs, bias in how the sample was selected, lack of relevant information (such as animal age at breed identification), and the capabilities of the canine DNA testing available at the time of the study. Based upon my education, training, and experience, the methodology used in the Studies to determine the breed-composition of the 20-dog sample is unreliable and no legitimate conclusions can be drawn from these Studies.

12. Further, Dr. Voith's Studies are not relevant to breed-specific legislation and were not designed in a manner that mimics how breed-specific legislation is enforced. With breed-specific legislation, officials are only determining whether a dog is a regulated breed, they are not trying to determine exactly what breed the dog actually is. This is a different objective, consequently Dr. Voith's Studies are not relevant to the issues at hand.

FURTHER AFFIANT SAYETH NOT

*Felicia Trembath*  
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Felicia Trembath (sign name)

Subscribed and sworn to before me this 25<sup>th</sup> day of October, 2021, by Felicia Trembath who verified the foregoing instrument and acknowledged that she executed the signature above as her voluntary act and deed.



*Degra Roberts*  
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Notary Public in and for the State of Arizona