

## Introducing the Nu.Q® Vet Cancer Screening Wellness Test

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Volition   
Veterinary

**nu·q**  
vet



# “Cancer is the most common cause of death in dogs over the age of 2 years in the US<sup>1</sup>.”

Up to 50% of all dogs over the age of 10 will develop cancer in their lifetimes<sup>2</sup>.

With approximately **77 million pet dogs in the United States**, there are an estimated 6 million pet dogs diagnosed with cancer each year<sup>3</sup>.

Earlier detection of cancer can not only help **save lives**, it can also improve the quality of life of the dog and more quality time with its owner.

Yet, as of today, unlike the human healthcare world where screening for certain cancers is commonplace (mammogram for breast cancer, colonoscopy for colorectal cancer, HPV for cervical cancer, to name but a few), there are few cancer screening tests on the veterinary market.

Currently, many dogs are only diagnosed when they are unwell and there is a suspicion of cancer. Even then dogs suspected of having cancer are often required to undergo a variety of tests that may be expensive, time consuming and/or painful for the animal.

We hope to change this with the introduction of the **Nu.Q® Vet Cancer Screening Wellness Test** – a simple, low-cost, easy to use ELISA based screening blood test to be used with the **annual wellness check** for older dogs (7 years and older).

It can also be a **complementary test** for younger dogs at high risk for developing cancer in their lifetimes such as, Golden Retrievers, Boxers, Flat Coated Retrievers, Beagles, Bernese Mountain dogs, Rottweilers and Shetland Sheepdogs as they age.

We believe using the **Nu.Q® Vet Cancer Screening Wellness Test** can help streamline the diagnostic process and shorten the path to diagnosis thereby allowing treatment to be initiated earlier.

The benefit for the veterinarian, the pet owner and the dog is a streamlined diagnostic process: simpler and quicker diagnosis with the goal of providing quality of life to the pet and more quality time with its owners, as well as providing valuable additional information to inform the clinical decision-making process.

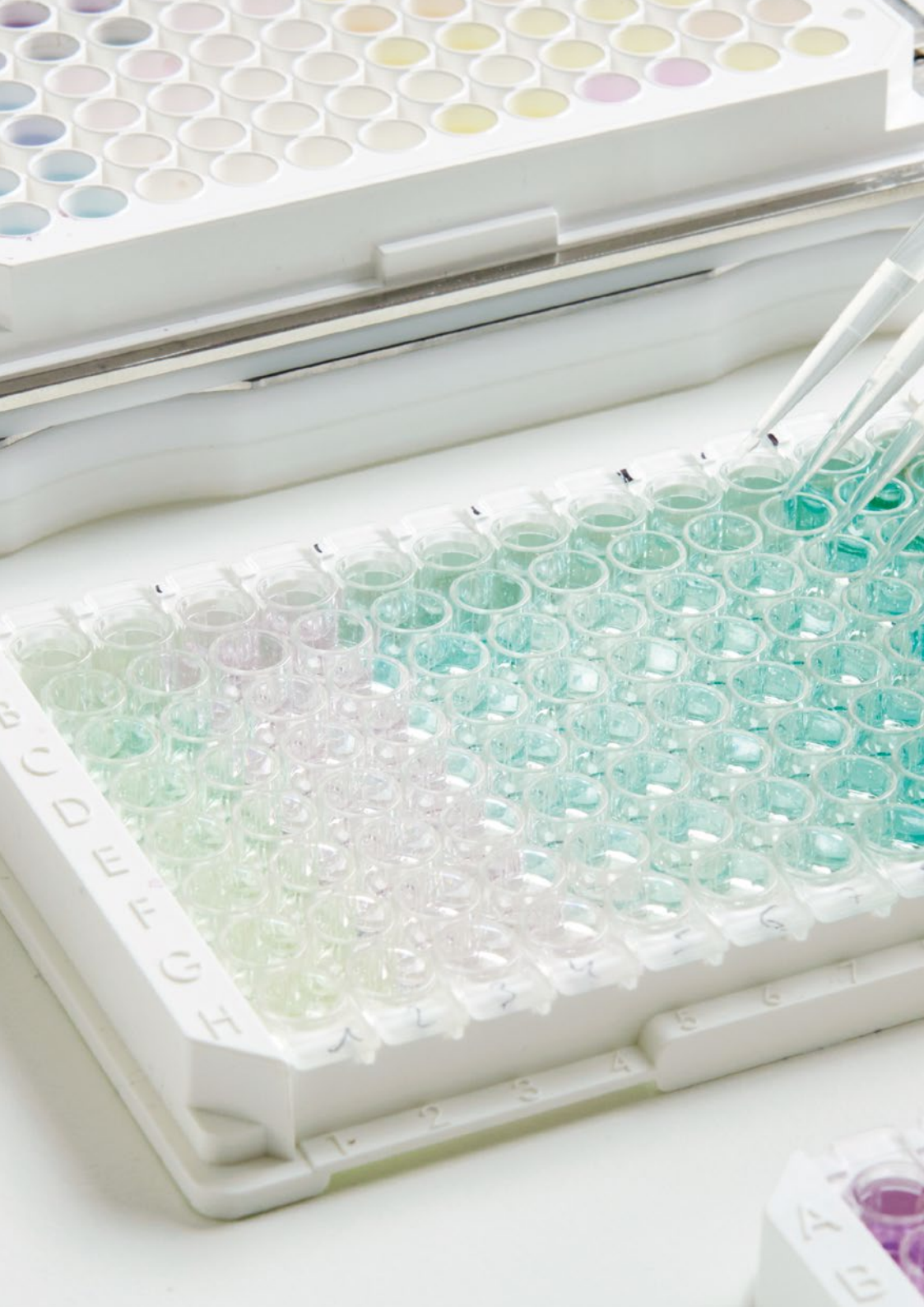


# How does the **nu·Q** vet Cancer Screening Wellness Test Work?

DNA is compacted within a cell's nucleus in the form of nucleosomes which are bead like structures comprised of DNA coiling around a histone protein core.

When a patient (human or canine) has cancer, nucleosomes from those cancer cells are released into the blood and can be measured using antibodies that are specific to nucleosomes.

By measuring and analyzing nucleosomes, our Nu.Q® Vet test can identify patients who may have a cancer. This must then be confirmed by follow up procedures - for example, a biopsy or scan.



# Clinical evidence

“In a study of over 330 dogs, at 100% specificity, the Nu.Q® Vet Cancer Screening Wellness Test identified **74%** of lymphomas and **89%** of hemangiosarcoma when compared to healthy controls. Together these account for approximately one third of cancers in dogs.”

Study presented at the 2020 Veterinary Cancer Society Meeting<sup>4,5</sup>

- Samples collected internally from Texas A&M Veterinary clinic and NIH's DCTD Biobank
- Samples were collected from 134 normal healthy dogs, 127 dogs with lymphoma and 73 dogs with hemangiosarcoma
- A variety of breeds, weights and cancer stages were represented in the dataset
- Samples collected according to pre-analytics previously described to maintain stable nucleosome levels<sup>6</sup> (Wilson-Robles et al., PloS One 2020)

# Key findings

Nucleosome levels were consistently low across normal healthy control dogs

Variability in Nucleosome Levels Across Normal Samples

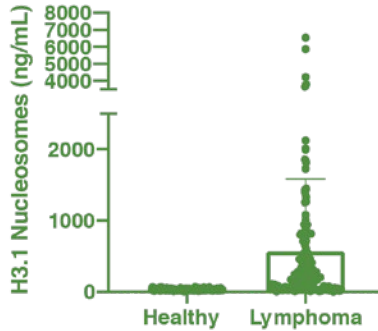


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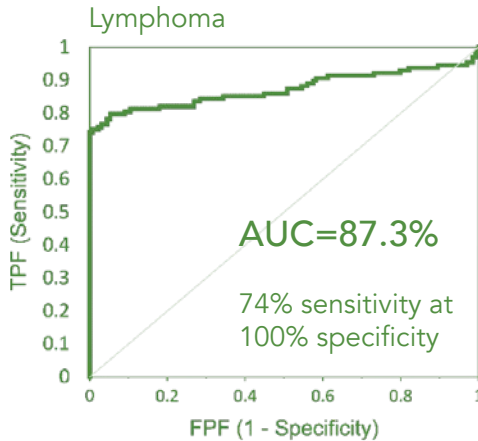
Veterinary Medicine  
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Nucleosome levels were elevated in lymphoma and variable across patients

### Elevated Nucleosome Levels in Lymphoma (LSA)



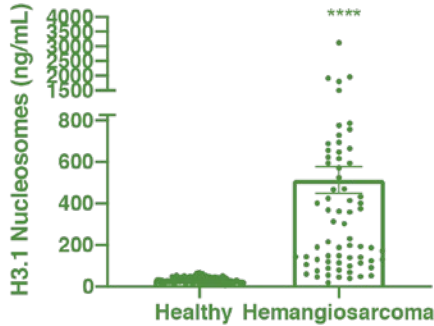
Nu.Q® Vet Cancer Screening Wellness Test has high specificity and sensitivity in detecting lymphoma



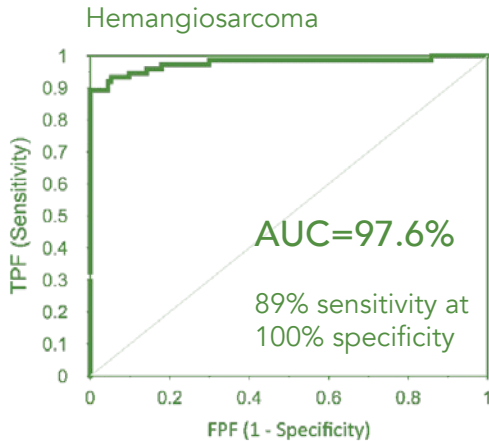


Nucleosome levels were elevated in hemangiosarcoma and variable across patients

### Elevated Nucleosome Levels in Hemangiosarcoma (HSA)



Nu.Q® Vet Cancer Screening Wellness Test has high specificity and sensitivity in detecting hemangiosarcoma



# How to order



Samples will be run through the Texas A&M GI Laboratory  
<https://vetmed.tamu.edu/gilab/>

To submit a sample:

- Patients should be fasted for this test to be accurate
- Draw down 2-5 mL of blood from a peripheral vein
- Immediately fill EDTA tube(s) with blood
- Spin the sample in-house at 3000xg for 10 minutes and transfer the plasma into a fresh tube one-hour of sampling
- Ship overnight on ice
- Reduced FedEx shipping is available through the GI lab website



“We believe using the Nu.Q® Vet Cancer Screening Wellness Test can help streamline the diagnostic process, shortening the path to diagnosis thereby allowing treatment to be initiated earlier.”

Introduce the Nu.Q® Vet Cancer Screening Wellness Test as part of your annual wellness check of older dogs.

Consider using the Nu.Q® Vet Cancer Screening Wellness Test for younger dogs at high risk for developing cancer in their lifetimes such as, Golden Retrievers, Boxers, Flat Coated Retrievers, Beagles, Bernese Mountain dogs, Rottweilers and Shetland Sheepdogs as they age.

- Accessible – non-invasive, easy to submit samples to the Texas A&M GI lab
- Affordable
- Reliable – at 100% specificity identifies 89% of hemangiosarcoma and 74% of lymphoma
- Rapid – results provide more time to optimize treatment strategies.

To find out more please visit our website <https://volition.com/veterinary> or contact us at [NuQVet@volition.com](mailto:NuQVet@volition.com)





## References

1. Fleming JM, Creevy KE, Promislow DE. Mortality in North American dogs from 1984 to 2004: an investigation into age-, size-, and breed-related causes of death. *J Vet Intern Med.* 2011 Mar-Apr;25(2): 187-98. doi: 10.1111/j.1939-1676.2011.0695.x. Epub 2011 Feb 25. PMID: 21352376
2. Davis BW, Ostrander EA. Domestic dogs and cancer research: a breed-based genomics approach. *ILAR J.* 2014;55(1):59-68. doi:10.1093/ilar/ilu017
3. AVMA Pet Ownership & Demographics Sourcebook 2018
4. Characterizing Circulating Nucleosomes in the Plasma of Dogs with Lymphoma 2020 VCS Virtual Conference Christopher Dolan, Heather Wilson-Robles, Tasha Miller, Jill Jarvis, Jason Terrell, Nathan Dewsbury, Marielle Herzog, Terry Kelly, Thomas Bygott, Gaetan Michel
5. Characterizing Circulating Nucleosomes in the Plasma of Dogs With Hemangiosarcoma 2020 VCS Virtual Conference Heather Wilson-Robles, Tasha Miller, Jill Jarvis, Jason Terrell, Nathan Dewsbury, Marrielle Herzog, Terry Kelly Nathalie Hardat, T Jean-Valery Turatsinze, Gaetan Michel
6. Evaluation of nucleosome concentrations in healthy dogs and dogs with cancer. Wilson-Robles H, Miller T, Jarvis J, Terrell J, Dewsbury N, Kelly T, et al. (2020) *PLoS ONE* 15(8): e0236228

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