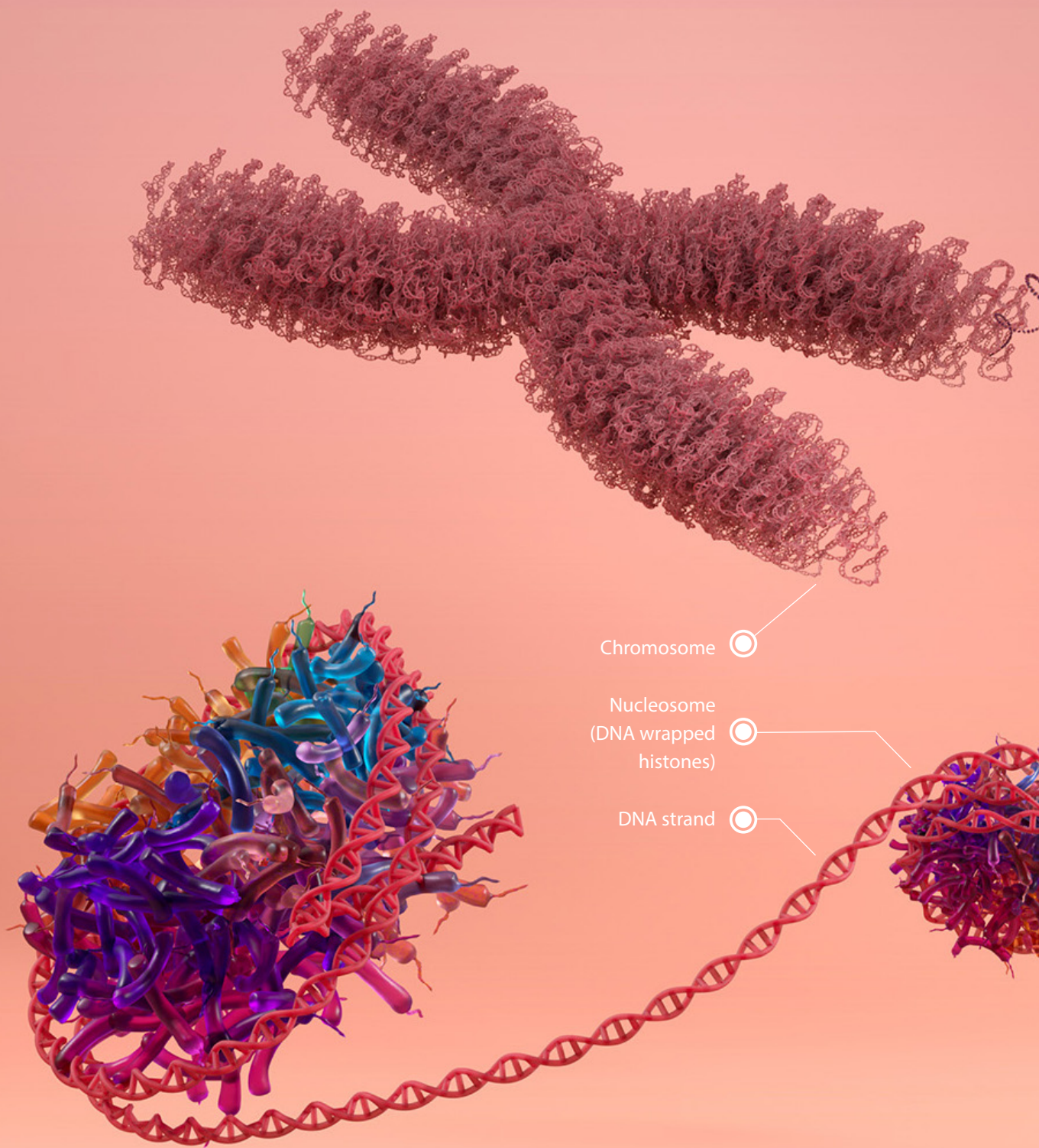




Canine Cancer Screen & Monitor

The human animal bond has never been stronger.







Canine Cancer Screen & Monitor

Point of Care exclusively from  HESKA

- Early Cancer Detection
- Simple Blood Test
- Small Sample Size
- Affordable and In-Clinic



In-clinic test coming soon, exclusively on



Detect. Diagnose. Treat. Monitor.

With approximately 84 million dogs¹ in the United States, there is no shortage of people who know how wonderful owning a dog can be. Our canine companions have moved from the backyard to the bedroom and have broadened the scope of how we define family. Families matter to us, and our work is guided by preserving that human-animal bond and keeping families whole.

Cancer is an emotional word, and a disease by which many of us have been touched. The incidence of cancer in dogs, approximately 1 in 4², is the same as that in humans. As with human cancer patients, early detection and treatment are crucial to achieving the best clinical outcomes.

Heska Nu.Q® Canine Cancer Screen and Monitor was developed with the goal of providing an accessible and affordable screening test to aid in early detection. Nu.Q® testing should be incorporated into wellness visits, alongside other common screening tests like heartworm and fecals.

In a case series presented at ACVIM 2022, Heska Nu.Q® Canine Cancer Screen and Monitor was shown to detect 76% of systemic cancers; lymphoma (77%), hemangiosarcoma (82%), and histiocytic sarcoma (54%), and was able to identify approximately 50% of all cancers researched at 97% specificity³. Lymphoma is the most common form of canine cancer, and together with hemangiosarcoma make up approximately one-third of all diagnosed canine cancers.

Alongside other routine blood work and imaging, Heska Nu.Q® Canine Cancer Screen and Monitor may help detect cancer at an early stage, before symptoms appear.

Heska Nu.Q® Canine Cancer Screen and Monitor is an accessible, affordable, and reliable screening blood test for all dogs 7 years and older and younger dogs 4 years and older with familial history and/or breed predisposition including:

- | | | | |
|--|----------------------|---|-----------------------|
|  | Labrador Retriever |  | Great Dane |
|  | French Bulldog |  | Miniature Schnauzer |
|  | Golden Retriever |  | Siberian Husky |
|  | German Shepherd |  | Bernese Mountain Dog |
|  | Beagle |  | Mastiff |
|  | Rottweiler |  | Irish Wolfhound |
|  | Boxer |  | Flat Coated Retriever |
|  | Pembroke Welsh Corgi |  | Scottish Wolfhound |

How does Nu.Q® Canine Cancer Screen and Monitor Work?

DNA is compacted within a cell's nucleus in the form of chromosomes. Nucleosomes, small, bead-like structures comprised of DNA and a histone core, allow chromosomes to stack and fold into their normal conformation with each cell nucleus.

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

By measuring and analyzing nucleosomes in patient plasma, Heska Nu.Q® Canine Cancer Screen and Monitor can identify patients who may have a cancer, even in early stages of disease.



How to Submit a Sample

Samples will be run through Heska's Veterinary Diagnostic Lab (VDL).

- 1 Patients should be fasted (minimum 4 hours)
- 2 Draw down 2-5ml of blood from peripheral vein
- 3 Immediately fill EDTA tube with blood
- 4 Spin the sample in-house at 1600xg (or "blood" setting) for 10 minutes within two hours of sampling
- 5 Remove plasma and place in a non-additive tube (be careful to not disturb buffy coat)
- 6 Ship overnight on ice - Overnight shipping labels included in every Heska Nu.Q® Sample Submission Kit*

The Nu.Q® Canine Cancer Screen and Monitor identifies patients who may have cancer. However, confirmatory diagnostics should be used to confirm the diagnoses.

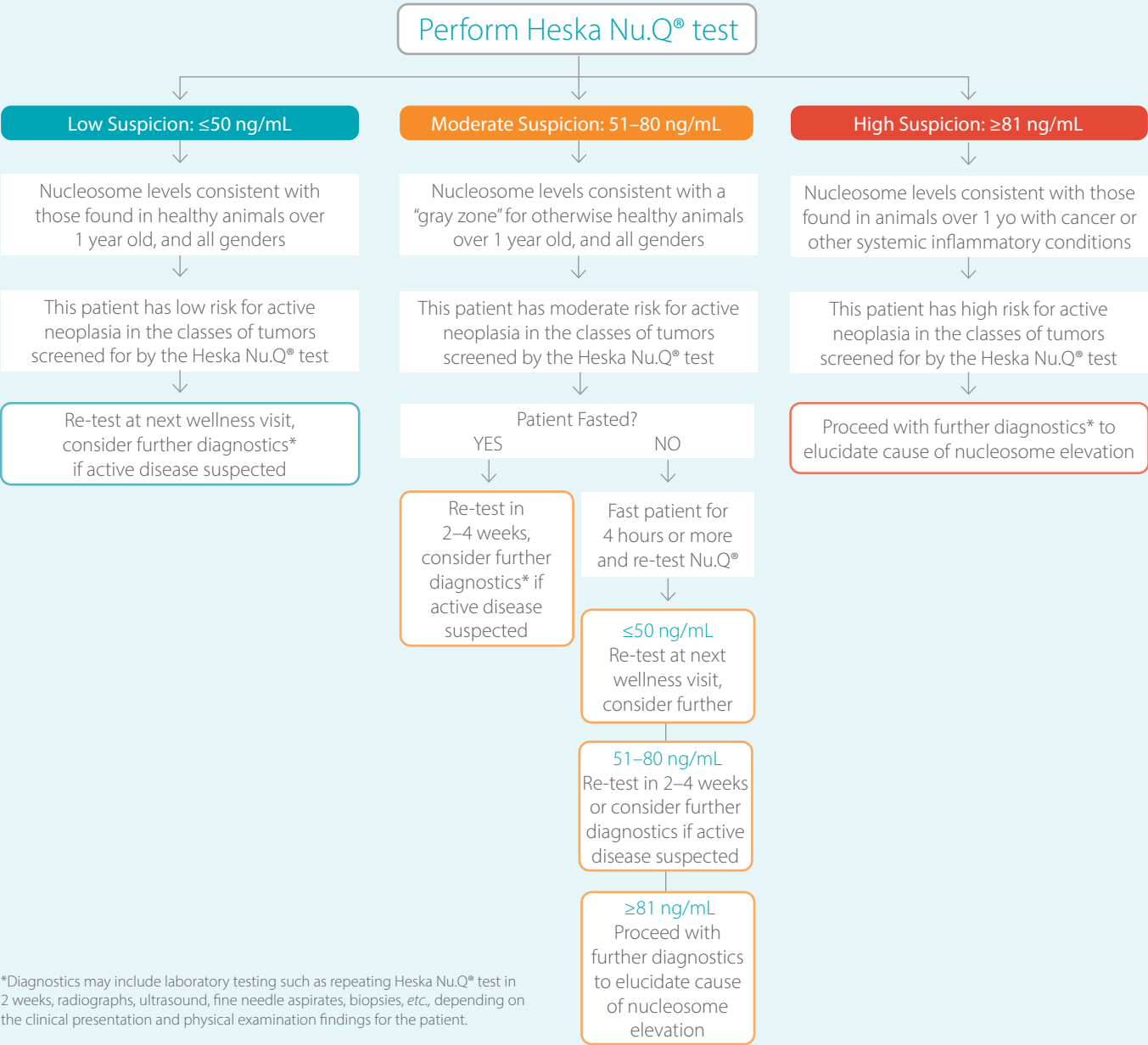
**Nu.Q® Sample Submission Kits can be ordered at no cost by contacting 800.464.3752, Option 1*

How to Interpret the Results of the Nu.Q® Canine Cancer Screen and Monitor

- Low Suspicion: ≤ 50 ng/mL
- Moderate Suspicion: 51–80 ng/mL
- High Suspicion: ≥ 81 ng/mL



Heska Nu.Q® Testing Protocols Flowchart



*Diagnostics may include laboratory testing such as repeating Heska Nu.Q® test in 2 weeks, radiographs, ultrasound, fine needle aspirates, biopsies, etc., depending on the clinical presentation and physical examination findings for the patient.

Clinical Evidence

The following case series was peer-reviewed, published, and presented at the 2022 American College of Veterinary Internal Medicine (ACVIM)^{4,5,6}.

- Samples were either collected at the Texas A&M Small Animal Teaching Hospital (AUPs CA 2019-0211 and 2017-0350) or from the NCI Division of cancer Treatment and Diagnosis Biorepository.
- A total of 662 dogs (134 healthy and 528 with cancer) were included in this study.
- A variety of breeds, weights and cancer stages were represented in the dataset.
- 7 cancers evaluated in this study: Lymphoma, Malignant melanoma, Hemangiosarcoma, Mast cell tumors, Osteosarcoma, Histiocytic sarcoma, Soft tissue sarcoma.
- Localized tumors are least likely to cause elevated plasma nucleosomes. If cancer is suspected and the Heska Nu.Q® score is low, continue with further screening and diagnostic testing.



At 97% specificity the Nu.Q® Canine Cancer Screen and Monitor was able to detect approximately 50% of all cancers researched, and 76% of systemic cancer (lymphoma, hemangiosarcoma, and histiocytic sarcoma).

Case Study

Belle - 5 year-old Golden Retriever FS

- Presenting for annual wellness exam
- Owner reports doing well at home, a little more tired since they got a new puppy
- TPR WNL
- PE- No significant findings
- Owner agrees to minimum database and Nu.Q® Canine Cancer Screen and Monitor

Minimum Database

CBC

- Mildly low platelets at 190,000
- Otherwise, normal

Chemistry

- Mild elevation in Alk Phos- 143 mg/dL

UA

- No significant findings



Nu.Q® Canine Cancer Screen & Monitor

Result: High Suspicion

Interpretation

Plasma nucleosome concentrations in the High Suspicion level are consistent with an increased risk of cancer in healthy animals over the age of 1 year, and all genders.

The Heska Nu.Q® Canine Cancer Screen and Monitor identifies patients who may have cancer. However, confirmatory diagnostics should be used to confirm the presence of disease.

Please Note: Nucleosome spikes may occur when patients have not been fasted for a minimum of 4 hours, as well as conditions such as immune-mediated disease, systemic inflammation, sepsis, and trauma.

What to do next?

- Owner agrees to an abdominal ultrasound and chest film
- Cranial mediastinal mass on chest rads
- Perform FNA to get definitive diagnosis

Result: Unfortunately, Lymphosarcoma.

Summary

The incidence of cancer in dogs, approximately 1 in 4, is the same as that in humans. As with human cancer patients, early detection and treatment are crucial to achieving the best clinical outcome.

Nu.Q® Canine Cancer Screen & Monitor is:

Accessible - no special tools required, routine blood draw.

Affordable - a cost-effective test price, no sedation required.

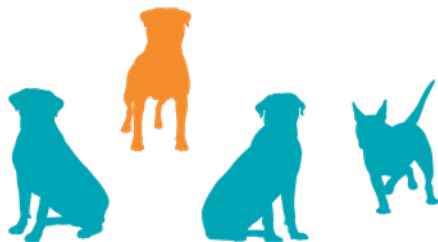
Reliable - at 97% specificity, detects 76% of systemic cancers.

Alongside other routine blood work and imaging, the Nu.Q® Canine Cancer Screen and Monitor may detect find cancer at an early stage, before symptoms appear.

With early cancer detection, Nu.Q® Canine Cancer Screen and Monitor gives veterinary professionals the chance at more comprehensive and effective therapies, and in turn, better outcomes.

Cancer diagnoses are often unexpected and debilitating for patients and pet parents alike. Catch those cases earlier with Nu.Q® and add canine cancer screening to your practice.

1 in 4 dogs
will develop
cancer



Resources Available

Heska Nu.Q Canine Cancer Screen and Monitor is now available through Heska's Veterinary Diagnostic Lab (VDL).

● Reach out to our Customer Service Specialists to place an order for a Heska Nu.Q® Sample Submission Kit:

Phone 1-800-464-3752 option 1, then option 2

Email Orders@heska.com

● Have general questions about the Heska Nu.Q® test or case management? Our team is here to help.

Phone 1-800-464-3752 option 5

Email MTCV@heska.com



Visit here for
more information



References

1. Larkin, M. (2021). Pet population still on the rise, with fewer pets per household. American Veterinary Medical Association. Retrieved 9 July 2022, from <https://www.avma.org/javma-news/2021-12-01/pet-population-still-rise-fewer-pets-household>.
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3. Wilson-Robles, H., Bygott, T., Kelly, T., Miller, T., Miller, P., & Matsushita, M. et al. (2022). Evaluation of plasma nucleosome concentrations in dogs with a variety of common cancers and in healthy dogs. BMC Veterinary Research, 18(1). <https://doi.org/10.1186/s12917-022-03429-8>
4. Dolan, C., Miller, T., Jill, J., Terrell, J., Kelly, T., Bygott, T., & Wilson-Robles, H. (2021). Characterizing circulating nucleosomes in the plasma of dogs with lymphoma. BMC Veterinary Research, 17(1). <https://doi.org/10.1186/s12917-021-02991-x>
5. Wilson-Robles, H., Miller, T., Jarvis, J., Terrell, J., Kelly, T., Bygott, T., & Bougoussa, M. (2021). Characterizing circulating nucleosomes in the plasma of dogs with hemangiosarcoma. BMC Veterinary Research, 17(1). <https://doi.org/10.1186/s12917-021-02934-6>
6. Wilson - Robles, H. (2022). Utility of Serial Plasma Nucleosomes Concentrations for Monitoring Treatment Response and Disease Progression In Canines with Hematopoietic Malignancies. Presentation, Syracuse, Italy.



Canine Cancer Screen & Monitor

The Heska Nu.Q® Canine Cancer Screen and Monitor is a groundbreaking new blood test able to detect some of the most common forms of systemic cancer in canines. Canine cancer diagnoses are often unexpected and debilitating for patients and pet parents alike. The Heska Nu.Q® Canine Cancer Screen and Monitor aids in early cancer detection, which leads to more comprehensive treatment, and in turn, better outcomes.