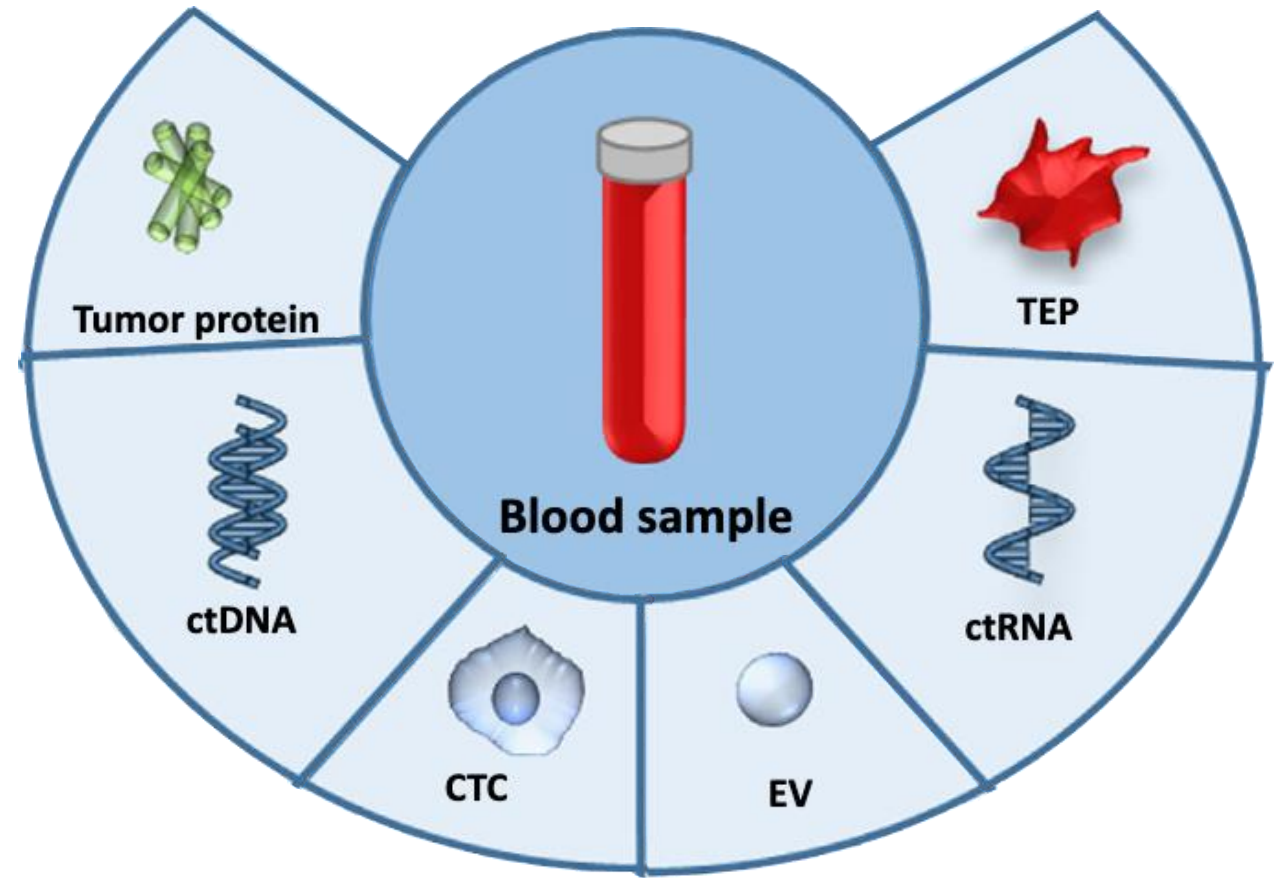
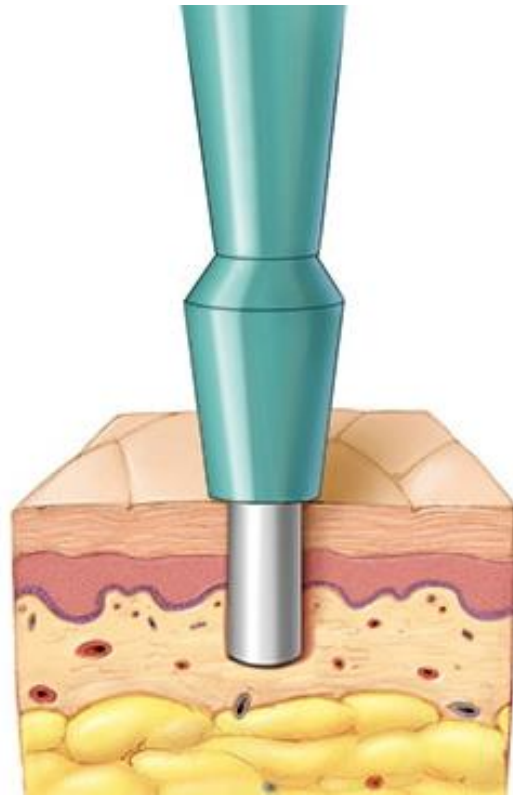

CHARACTERIZING CIRCULATING NUCLEOSOMES IN THE PLASMA OF DOGS WITH LYMPHOMA

Dolan, Christopher; Wilson-Robles H; Miller, T; Jarvis, J; Terrell J;
Dewsbury N; Herzog, M; Kelly, T; Bygott, T; Michel, G

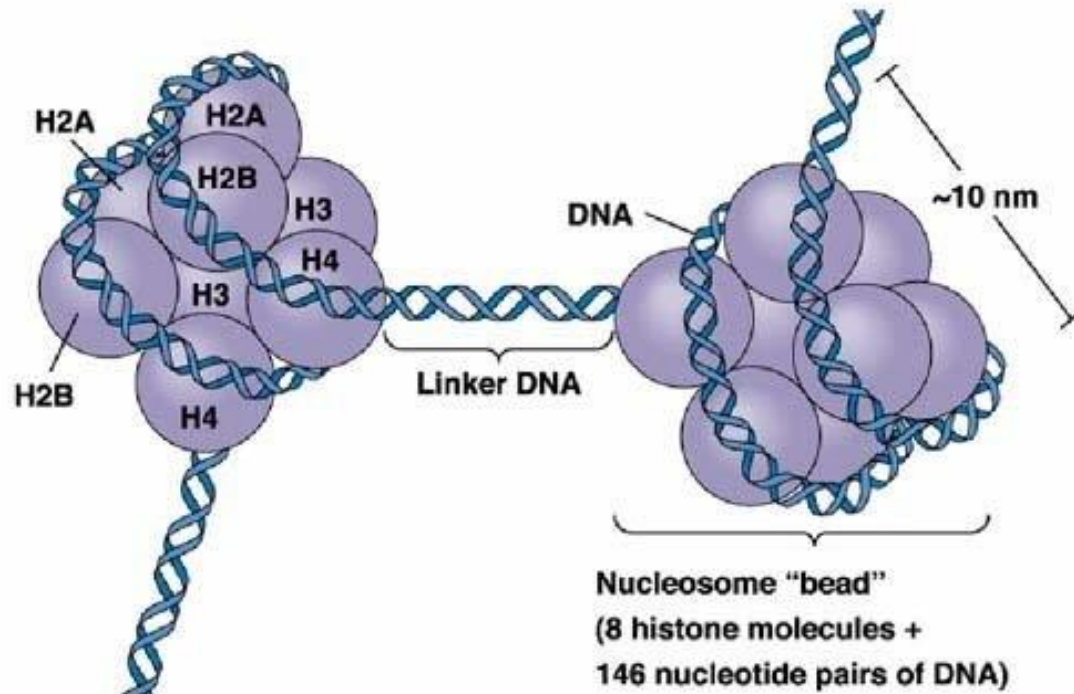
Funding Disclosures

- Funding for this project was provided by:
 - Volition Veterinary Diagnostic Development, LLC
 - The Fred and Vola Palmer Chair in Comparative Oncology (held by Dr. Wilson-Robles at Texas A&M University)

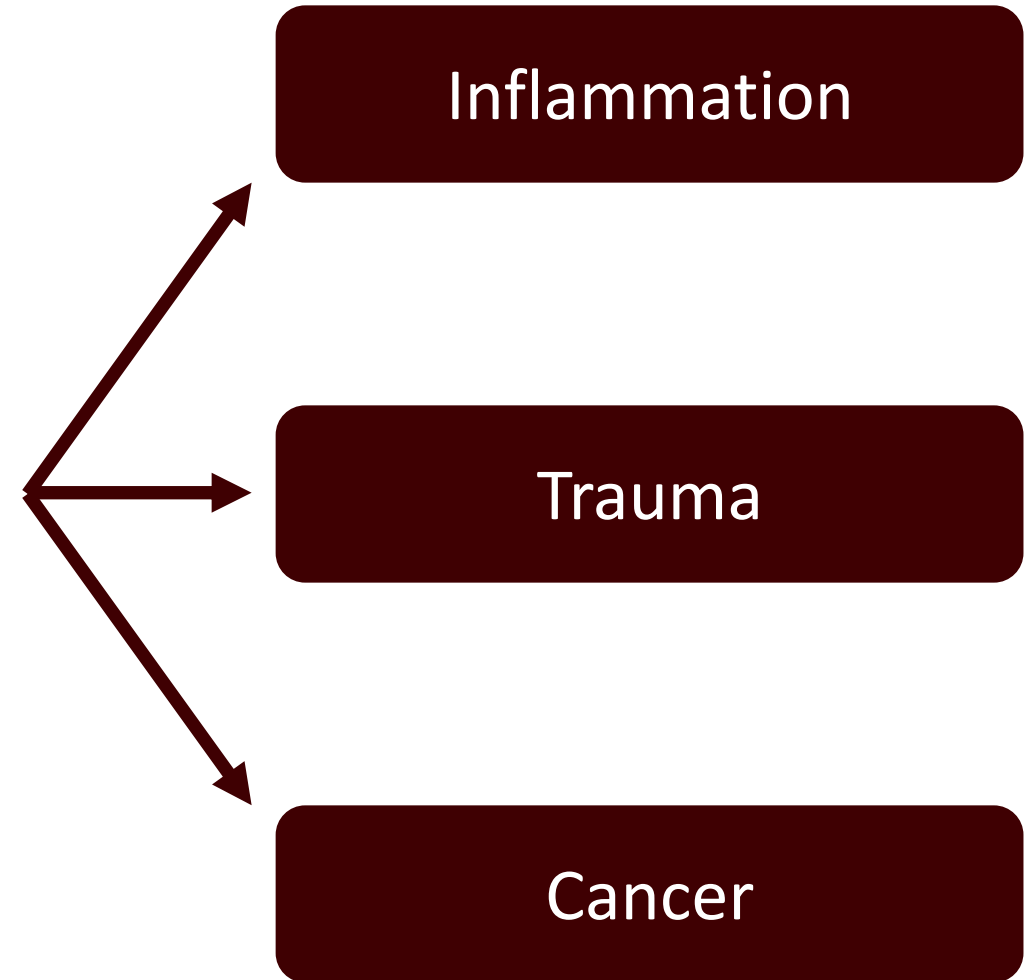
INTRODUCTION



INTRODUCTION



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INTRODUCTION

www.impactjournals.com/oncotarget/

Oncotarget, 2018, Vol. 9, (No. 12), pp: 10247-10258

Research Paper

Circulating cell-free nucleosomes as biomarkers for early detection of colorectal cancer

Louise Rasmussen¹, Ib Jarle Christensen¹, Marielle Herzog², Jake Micallef², Hans Jørgen Nielsen^{1,3} and For the Danish Collaborative Group on Early Detection of Colorectal Cancer⁴

Bauden et al. *Clinical Epigenetics* (2015) 7:106
DOI 10.1186/s13148-015-0139-4



RESEARCH

Open Access

Circulating nucleosomes as epigenetic biomarkers in pancreatic cancer




Monika Bauden¹, Dorian Pamart², Daniel Ansari¹, Marielle Herzog², Mark Eccleston², Jake Micallef², Bodil Andersson¹ and Roland Andersson^{1*}

Original Study

Journal of Veterinary Emergency and Critical Care 28(6) 2018, pp 503–511
doi: 10.1111/vec.12773

Determining prognosis in canine sepsis by bedside measurement of cell-free DNA and nucleosomes



Jo-Annie Letendre, DVM, DACVECC and Robert Goggs, BVSc, DACVECC, DECVECC, PhD 

Full Scientific Report



Quantification of plasma cell-free DNA levels in dogs with various tumors

Journal of Veterinary Diagnostic Investigation
2019, Vol. 31(6) 836–843
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DOI: 10.1177/1040638719880245
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Michihito Tagawa,¹  Genya Shimbo, Hisashi Inokuma,  Kazuro Miyahara

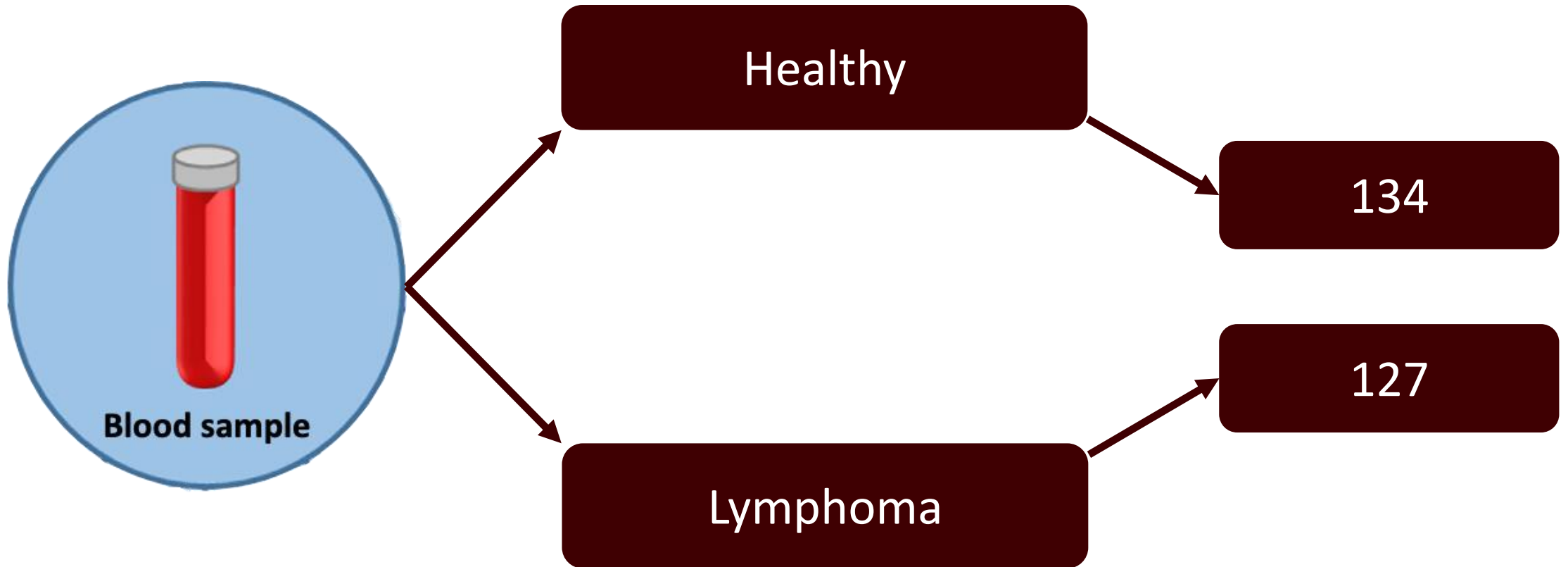
RESEARCH ARTICLE

Evaluation of nucleosome concentrations in healthy dogs and dogs with cancer

Heather Wilson-Robles¹*, Tasha Miller¹, Jill Jarvis¹, Jason Terrell², Nathan Dewsbury², Terry Kelly², Marielle Herzog³, Thomas Bygott³, Nathalie Hardat³, Gaetan Michel³

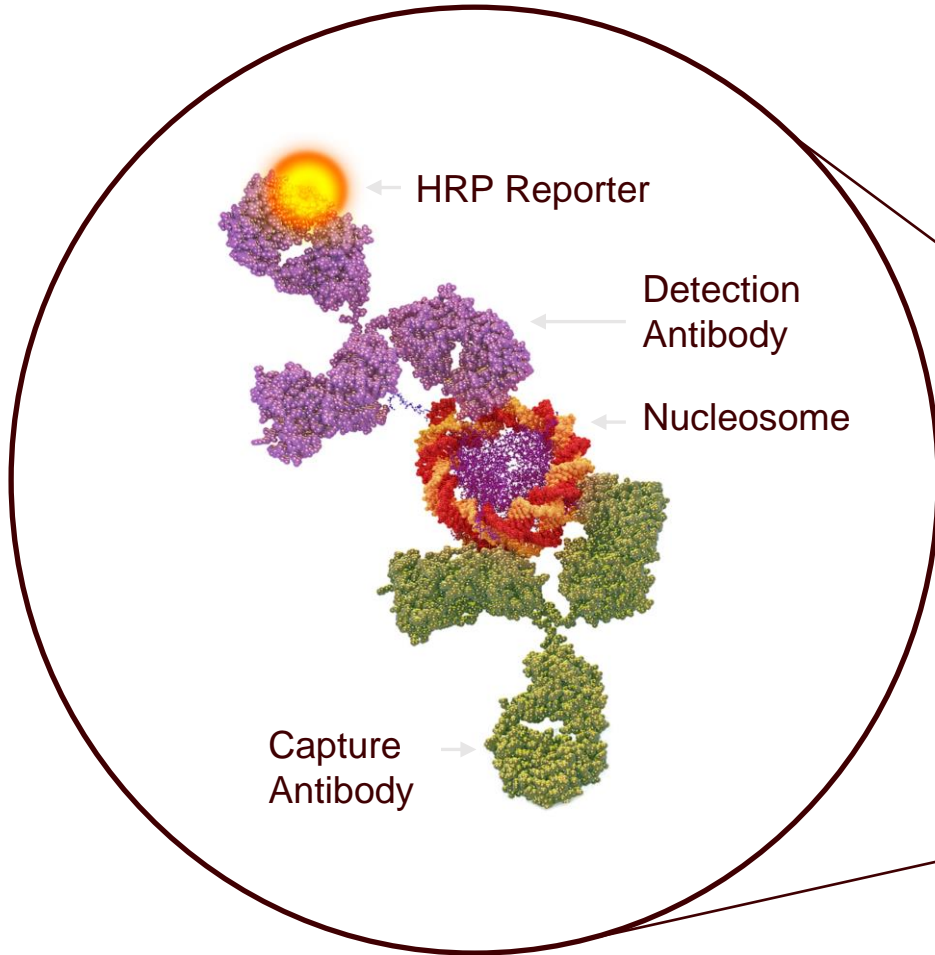


MATERIALS & METHODS



MATERIALS & METHODS

Nu.Q™ Assay

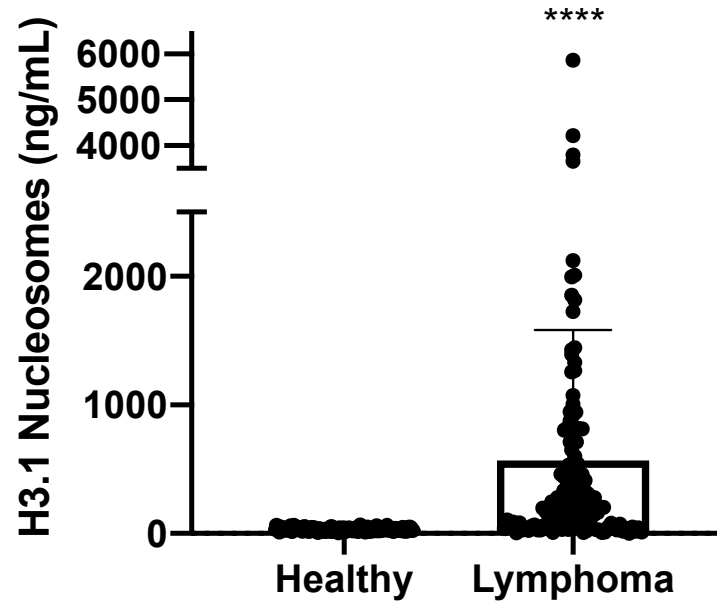


RESULTS

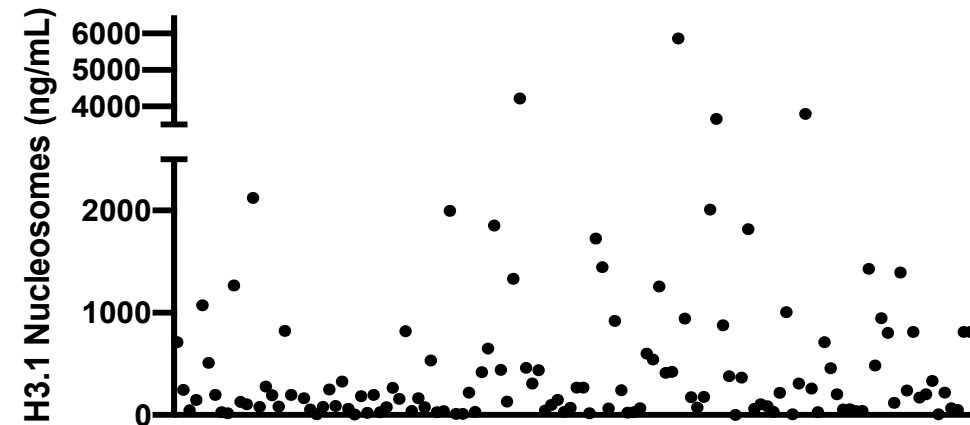
Variability in Nucleosome Levels Across Normal Samples



Elevated Nucleosome Levels in Lymphoma (LSA)



Variability in Nucleosome Levels Across Lymphoma Samples

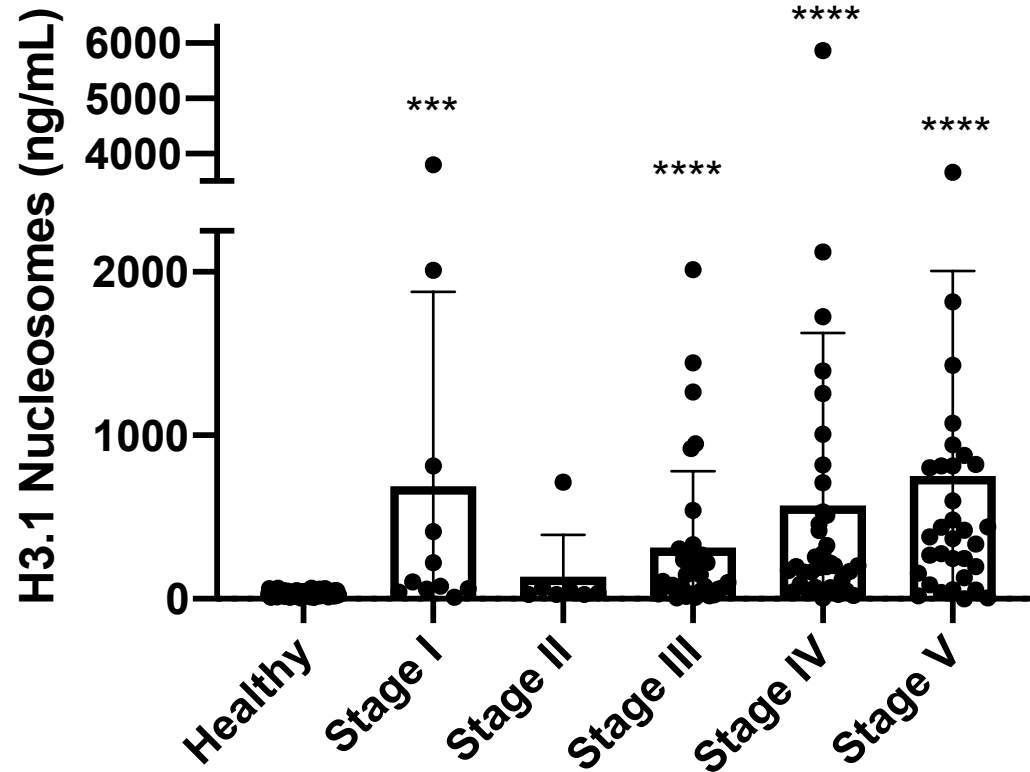


LSA Samples

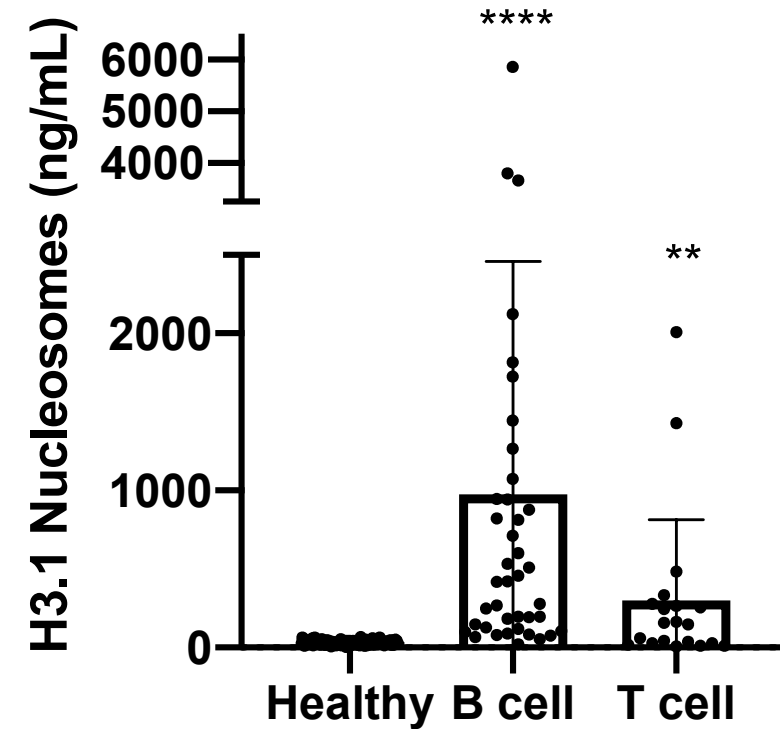


RESULTS

Mean Nucleosome Concentrations: Lymphoma Stage

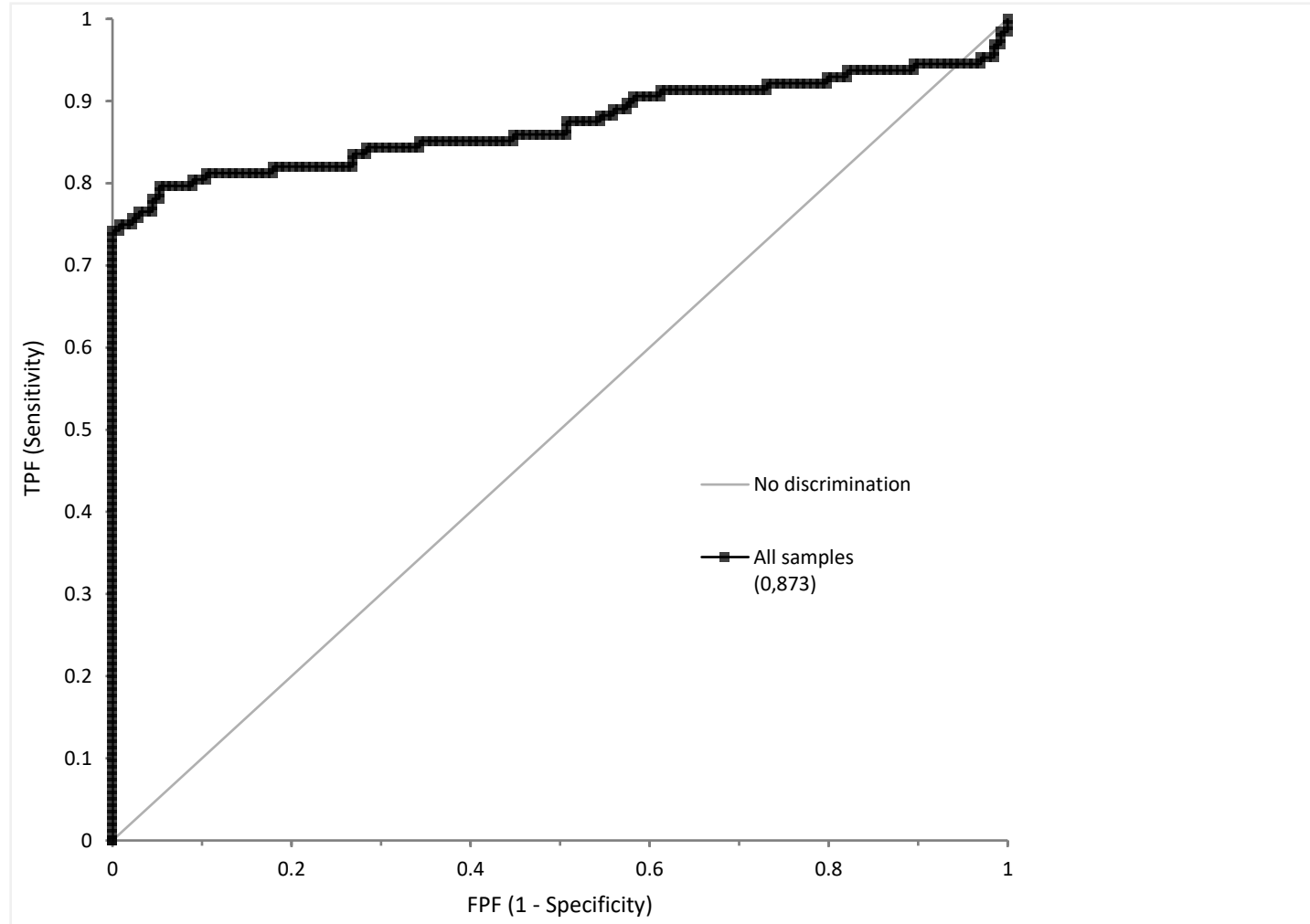


Mean Nucleosome Concentration: Lymphoma by Immunphenotype



RESULTS

RECEIVER OPERATING CHARACTERISTIC (ROC)



AUC:
0.873

Threshold:
67.4 ng/mL

Sensitivity:
74%

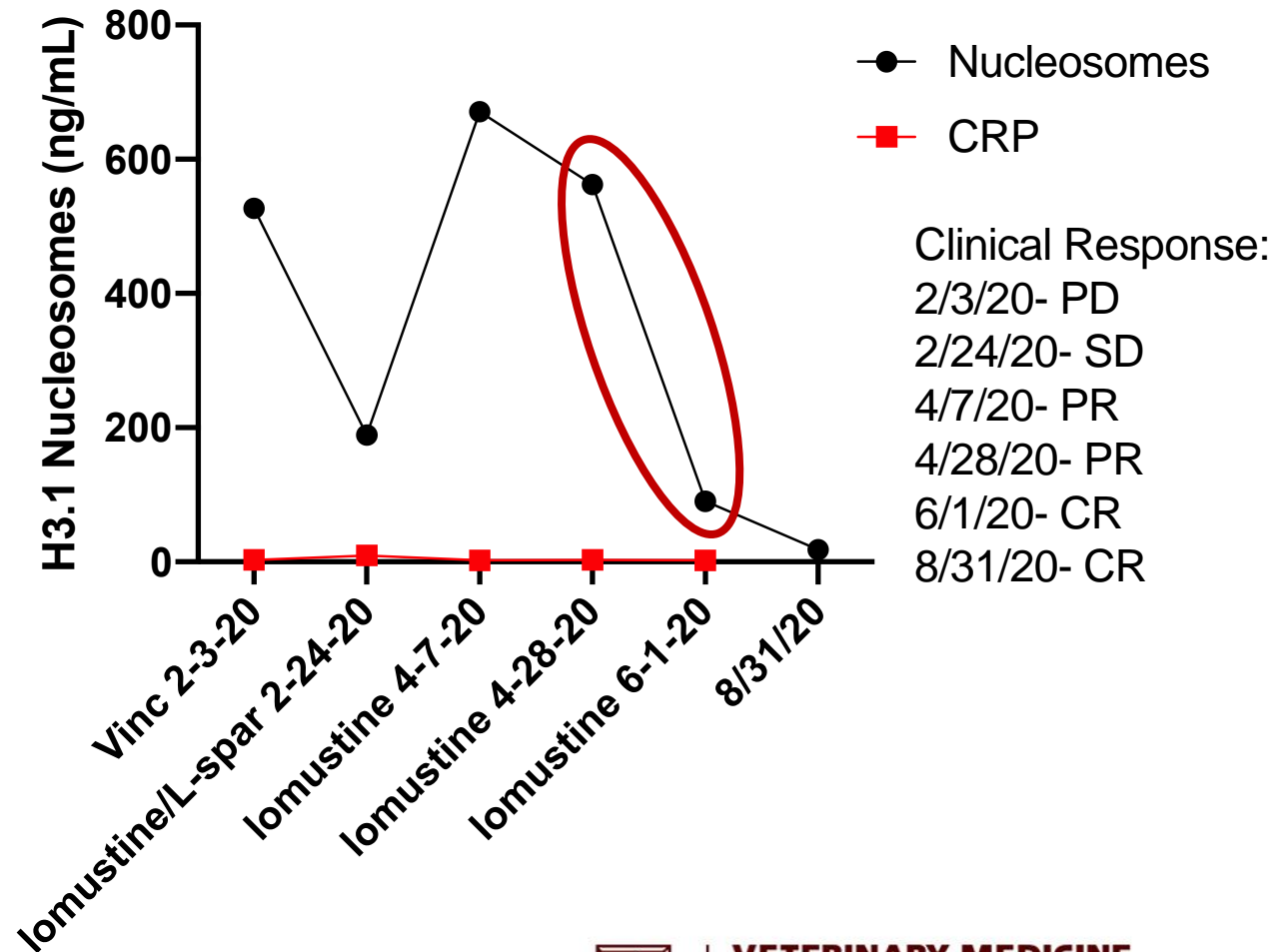
Specificity:
100%

Diagnosis by stage

- Overall detected 96 of 127 cases of lymphoma (76.3%)
- Stage I: 7 of 11 cases detected (63.6%)
- Stage II: 1 of 8 cases detected (12.5%)
- Stage III: 25 of 34 cases detected (73.5%)
- Stage IV: 29 of 35 cases detected (82.9%)
- Stage V: 27 of 33 cases detected (81.8%)

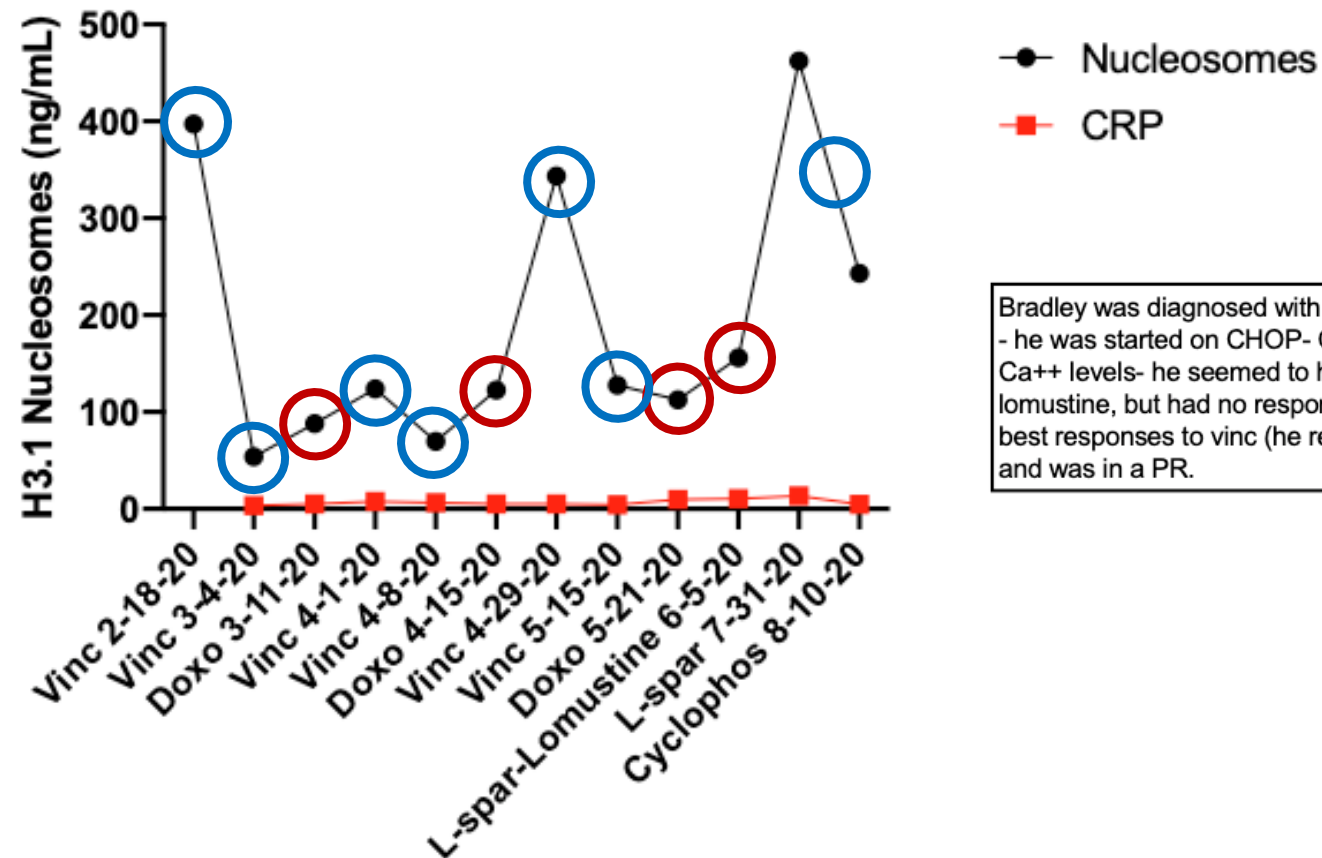
- B cell lymphoma: 40/42 cases detected (95.2%)
- T cell lymphoma: 12/21 cases detected (57.1%)

Cujo: Trends in Nucleosome Concentrations During Treatment for LSA



RESULTS

Bradley: Trends in Nucleosome Concentrations During Treatment for LSA



Bradley was diagnosed with Stage Vb intra-abdominal hypercalcemic LSA 2/18/20 - he was started on CHOP- COVID his - so he got some things out of order. Based on his Ca⁺⁺ levels- he seemed to have no response to Doxo so he was switched to L-spar and lomustine, but had no response to that either so he was put on COP- since he had his best responses to vinc (he received vinc on 8/3 but we missed a blood sample that day) and was in a PR.

CONCLUSIONS

Healthy vs Lymphoma

Remission Status



THE FUTURE

Longitudinal Monitoring

Additional Disease Types



We'd Love Your Help

- If you would like to collaborate or contribute samples, please contact us!
- crdolan@cvm.tamu.edu or hwilson@cvm.tamu.edu



QUESTIONS?



**VETERINARY MEDICINE
& BIOMEDICAL SCIENCES**
TEXAS A&M UNIVERSITY