CHARACTERIZING CIRCULATING NUCLEOSOMES IN THE PLASMA OF DOGS WITH LYMPHOMA

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INTRODUCTION

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

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Circulating nucleosomes as epigenetic biomarkers in pancreatic cancer

Monika Bauden¹, Dorian Parnarí, Daniel Antari¹, Marielle Herzog², Mark Eccleston³, Jake Micallef³, Bodil Andersson¹ and Roland Andersson¹*
INTRODUCTION

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

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

Michihito Tagawa,1, Genya Shimbo, Hisashi Inokuma,2, Kazuro Miyahara

Evaluation of nucleosome concentrations in healthy dogs and dogs with cancer

Heather Wilson-Robles1, Tasha Miller1, Jill Jarvis1, Jason Terrell2, Nathan Dewsbury2, Terry Kelly3, Marielle Herzog3, Thomas Bygott3, Nathalie Hardat3, Gaetan Michel3
MATERIALS & METHODS

Blood sample

Healthy

Lymphoma

134

127
MATERIALS & METHODS

Nu.Q™ Assay

HRP Reporter
Detection Antibody
Nucleosome
Capture Antibody
Elevated Nucleosome Levels in Lymphoma (LSA)

Variability in Nucleosome Levels Across Normal Samples

Variability in Nucleosome Levels Across Lymphoma Samples
RESULTS

Mean Nucleosome Concentrations:
Lymphoma Stage

Mean Nucleosome Concentration:
Lymphoma by Immunophenotype
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

Clinical Response:
2/3/20- PD
2/24/20- SD
4/7/20- PR
4/28/20- PR
6/1/20- CR
8/31/20- CR
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!

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QUESTIONS?