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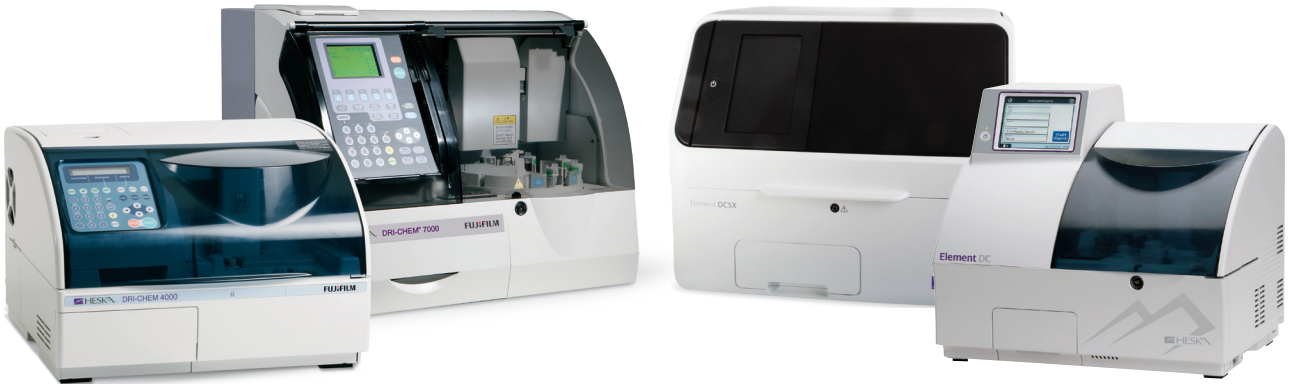
performance summary

Heska Veterinary Chemistry Analyzers



HESKA

Heska Veterinary Chemistry Analyzers: Summary of Performance

Reproducibility—Simply Unsurpassed

Solid reproducibility is the essential foundation required for analytical reliability. If a system has demonstrated reproducibility, is calibrated to a standard, and calibration is monitored by a quality control program, then the user can be assured of analytical reliability. This eliminates or reduces the need for individual facilities to replicate accuracy studies. Perspectives on reproducibility and use of quality control programs in veterinary in-hospital laboratories have recently been summarized.[1, 2]

Reproducibility is easily tested by repeated analysis of the same sample. Below are tables of representative reproducibility of 20 sequential replicate analyses of serum with a number of abnormal values for the tests in the comprehensive profile plus electrolytes. The Minimum and Maximum values are the best gauge for interpretation of reproducibility. Concentration measurements typically have the best reproducibility. Enzyme activity measurements are inherently subject to greater variation in reproducibility.

Kidney

	BUN	Creatinine	Phosphorus
Mean	48.0	5.1	7.3
Min	46.8	4.9	7.1
Max	48.8	5.3	7.5

Liver

	ALT	ALP	GGT	T Bilirubin
Mean	81	834	205	4.0
Min	76	728	198	3.9
Max	87	901	210	4.0

Metabolism/Electrolytes

	T Protein	Albumin	Glucose	Cholesterol	Calcium	Na^+	K^+	Cl^-
Mean	3.4	4.0	239	89	12.2	146	4.4	109
Min	3.3	3.8	233	85	11.9	144	4.4	107
Max	3.5	4.3	244	93	12.5	147	4.5	111

Summary Points

- Excellent reproducibility. Note that concentration measurements are expected to be more precise than enzyme activity measurements.
- Good reproducibility is expected to be tighter than the tolerance limits of a QC program.
- Without excellent reproducibility, it is inherently impossible to achieve accuracy!

References: Reproducibility and quality control information

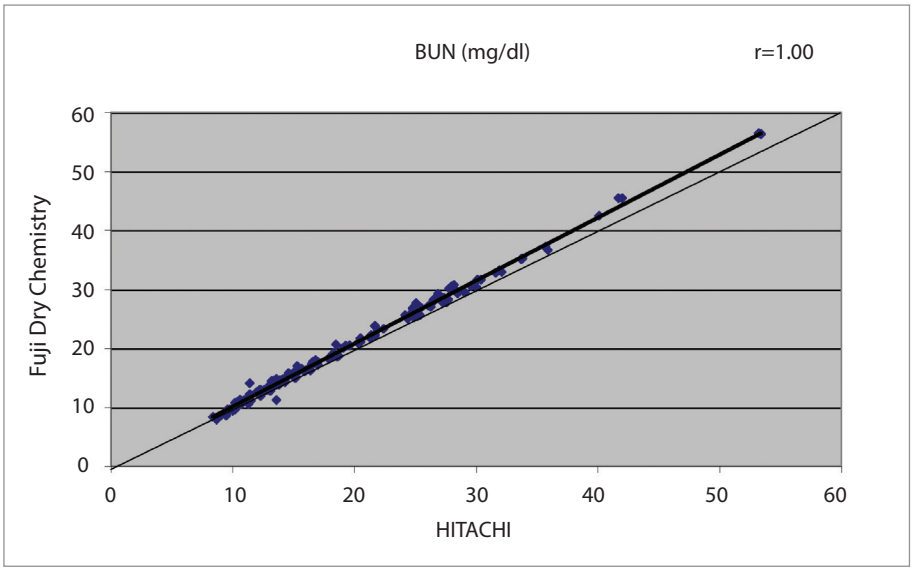
1 Weiser, MG, Vap, LM, Thrall, MA: Perspectives and Advances in In-Clinic Laboratory Diagnostic Capabilities: Hematology & Clinical Chemistry. In Veterinary Clinics of North America: Small Animal Practice. Issue title: Clinical Pathology and Diagnostic Techniques. Vol 37, (March 2007), pp. 221–236.

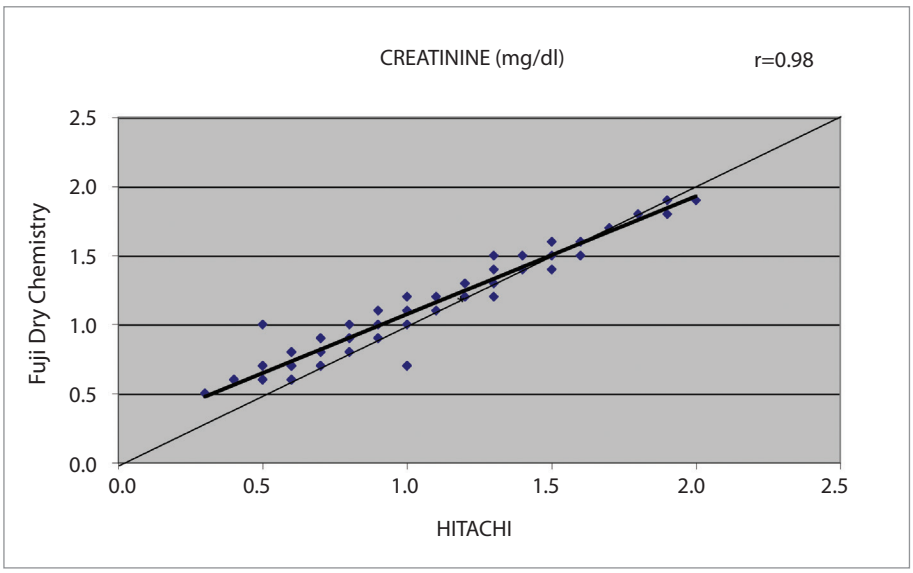
2 Weiser, MG, Thrall, MA: Quality Control Recommendations and Procedures for In-Clinic Laboratories. In Veterinary Clinics of North America: Small Animal Practice. Issue title: Clinical Pathology and Diagnostic Techniques. Vol 37, (March 2007), pp. 237–244.

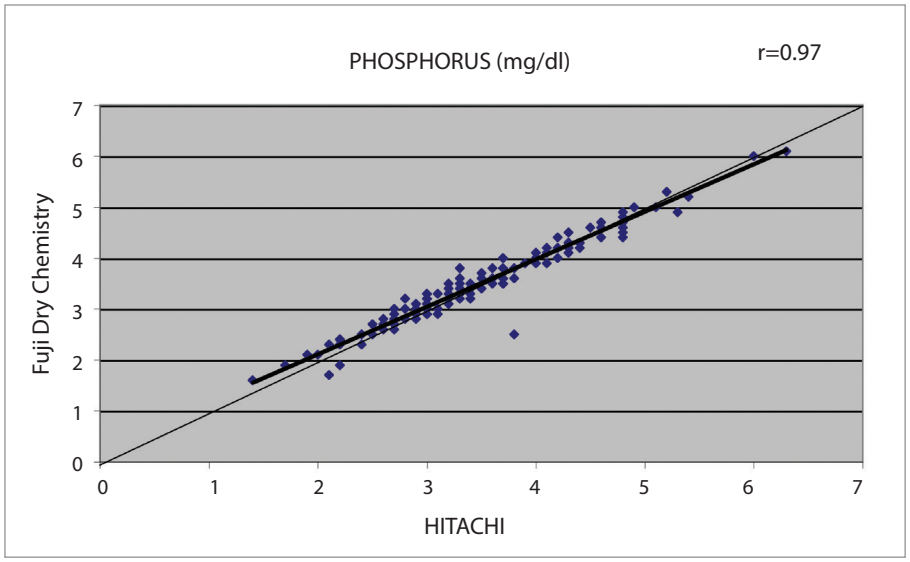
Correlation Study Results

Heska's chemistry analyzer technology has been tested in comparison with the most commonly established chemical procedures on an automated Hitachi system. This system and procedures are used by most professional veterinary laboratories and teaching hospitals. For purposes of this study, the DRI-CHEM® 4000 was utilized but the results can be applied to the DRI-CHEM 4000, DRI-CHEM 7000, Element DC® and Element DC5X™ Analyzers because all of the systems use the same reagents and processing methods.

Data presented here includes combined analysis of plasma and serum from dogs and cats for analytes having a range of available abnormal samples for testing. These show excellent correlation for a population of animals measured on two different technologies.



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Fuji Dry Chemistry
HITACHI
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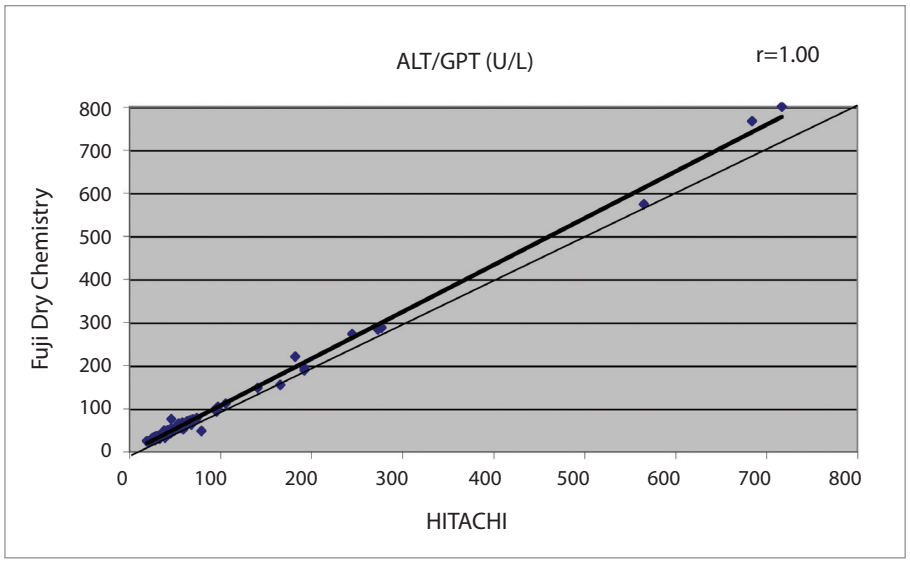
1
2
3
4
5
6
7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200
300
400
500
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700
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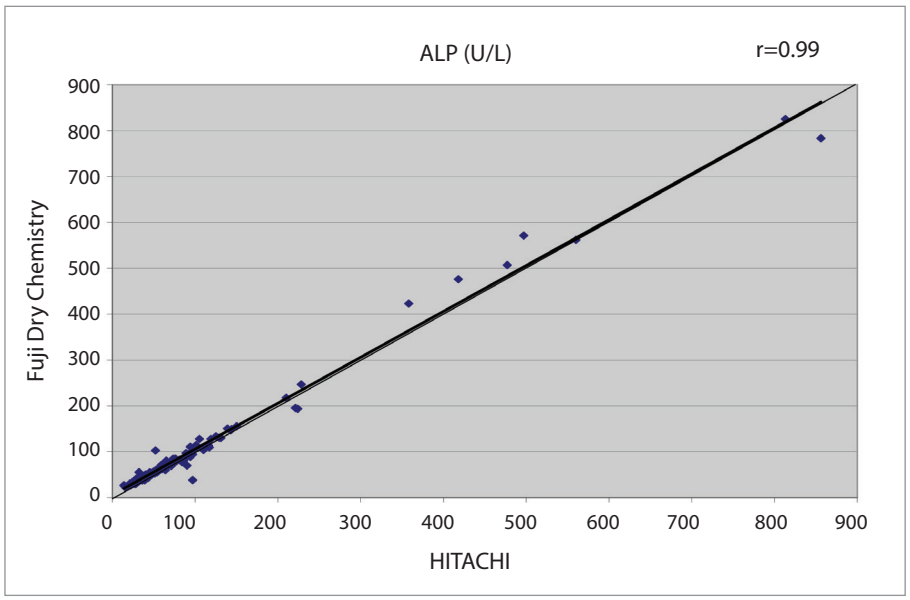
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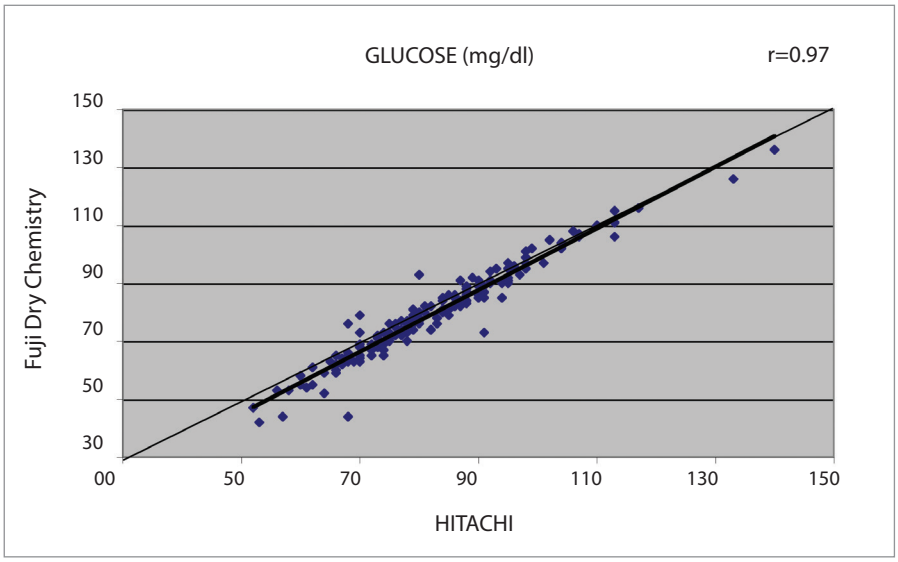
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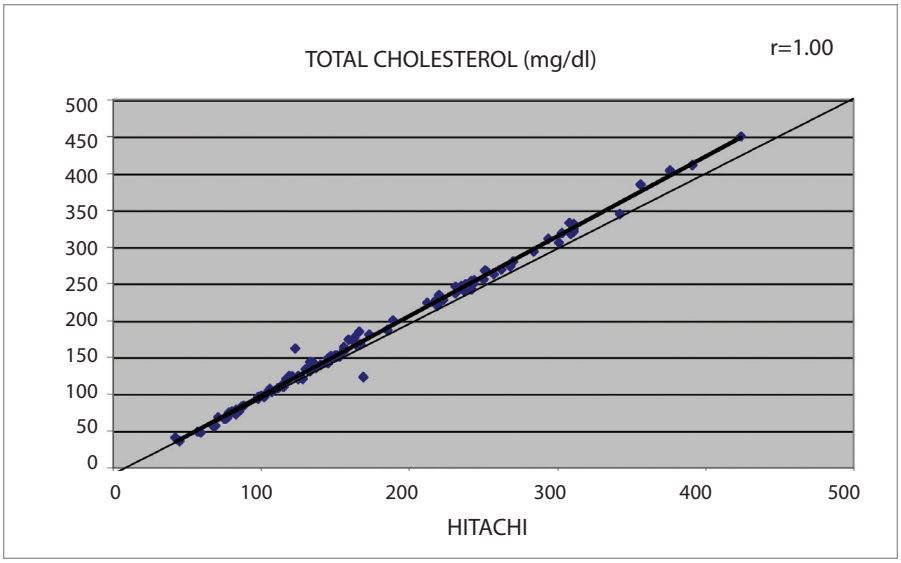
70
90
110
130
150
HITACHI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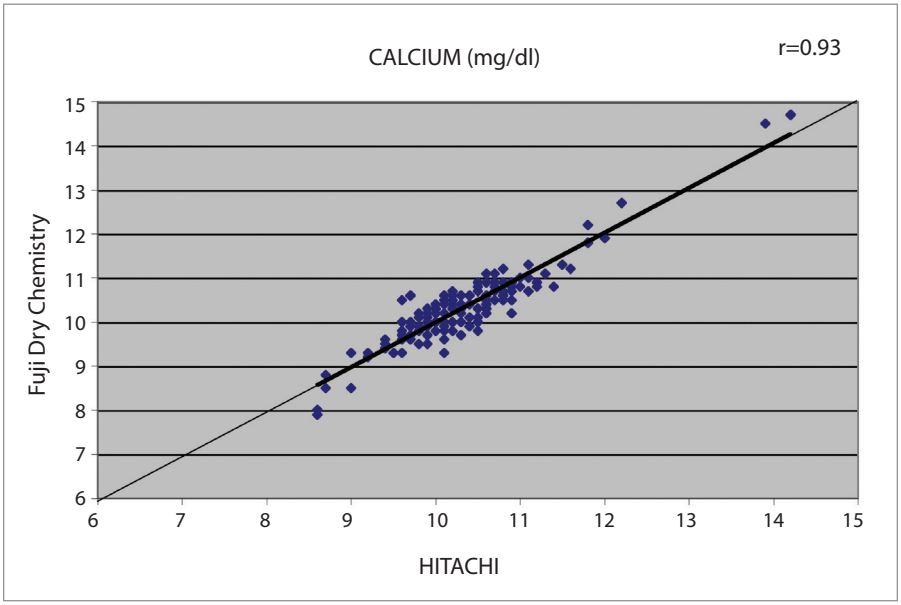
400
500
HITACHI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Fuji Dry Chemistry
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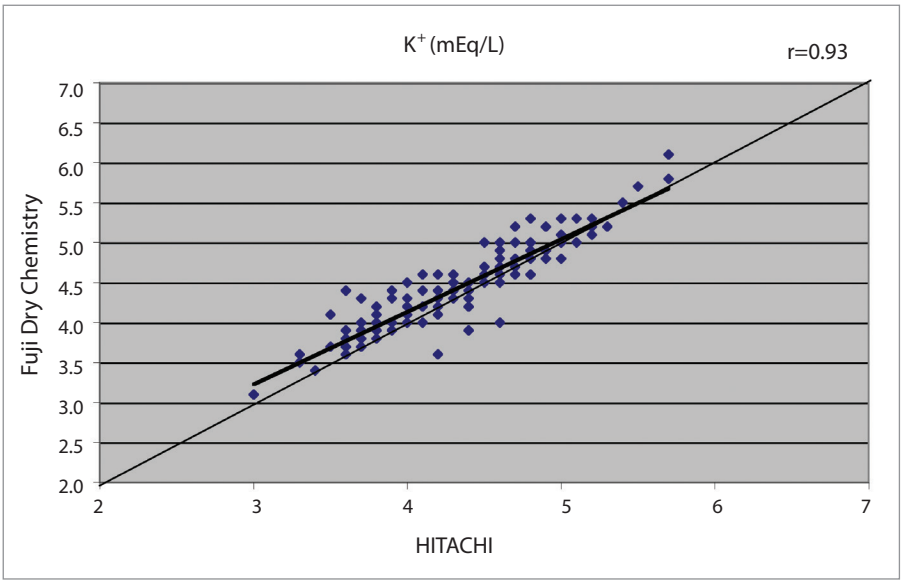
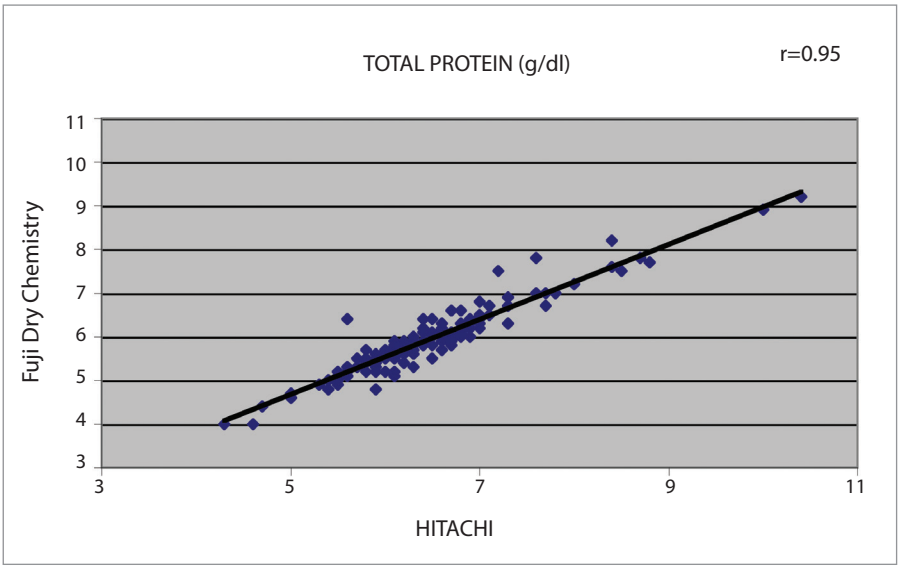
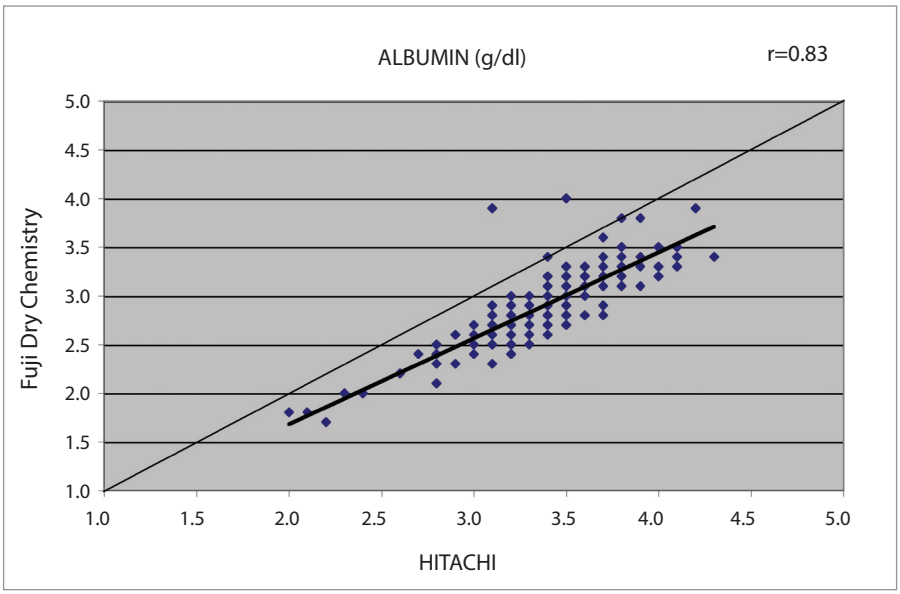
15
HITACHI







Summary Points

- This is excellent correlation for a population of animals measured on two different technologies.
- There is a bias between the two methods for Albumin. Liquid chemistry methods overestimate animal Albumin concentrations. Dry chemistry Albumin methods yield results more consistent with serum protein electrophoresis.

For further assistance, please call Heska's Technical Support Services at 800.464.3752, option 3.

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