



InSight V-IA Equine Insulin Evaluation
vs. Tosoh ST AIA-PACK IRI

The InSight V-IA is an easy to use Veterinary Immunoassay Analyser providing accurate and reliable results in 3-15 minutes. The InSight V-IA uses immunofluorescence technology for accurate results. A competitive binding assay is based upon the competition of labelled and unlabelled analytes for a limited number of antibody binding sites. Unbound antibodies and immunocomplexes migrate along the nitrocellulose membrane towards the test line. The unbound antibodies are then captured by antigens immobilised on the test line. The fluorescent signal intensity reflects the amount of analytes captured and is measured by the InSight V-IA.

Equine Insulin (eINS)

Insulin dysregulation (ID) is the main characteristic of equine metabolic syndrome (EMS). It is a complex disease recognised in horses, characterised by increased local or systemic fat accumulation, abnormal insulin regulation, and susceptibility to laminitis. It mainly occurs in horses aged 5 to 16 years, without a recognised gender preference. It is most common in ponies, riding horses, Tennessee walking horses, Paso Fino horses, Morgan horses and wild horses.

The laboratory diagnosis of equine metabolic syndrome (EMS) is based on the quantitative analysis of insulin levels in the serum or EDTA plasma samples of horses, which is crucial for assessing the horse's blood sugar and insulin homeostasis disorders. An insulin concentration of >20 mIU/L indicates Insulin dysregulation (ID), and horses with EMS, in addition to their ability to handle oral carbohydrate loads, are normal in other aspects and undergo dynamic tests such as oral glucose tolerance test (OST) or oral glucose challenge test (OGT) upon oral administration of glucose.

Comparison Items

InSight V-IA:

Test Item – Equine Insulin

Sample Type – Fresh Equine Serum

Quantity of Samples – 40 Tests

Instrument – InSight V-IA Veterinary Immunoassay Analyser

Tosoh:

Test Item – ST AIA-PACK IRI

Sample Type – Fresh Equine Serum

Quantity of Samples – 40 Tests

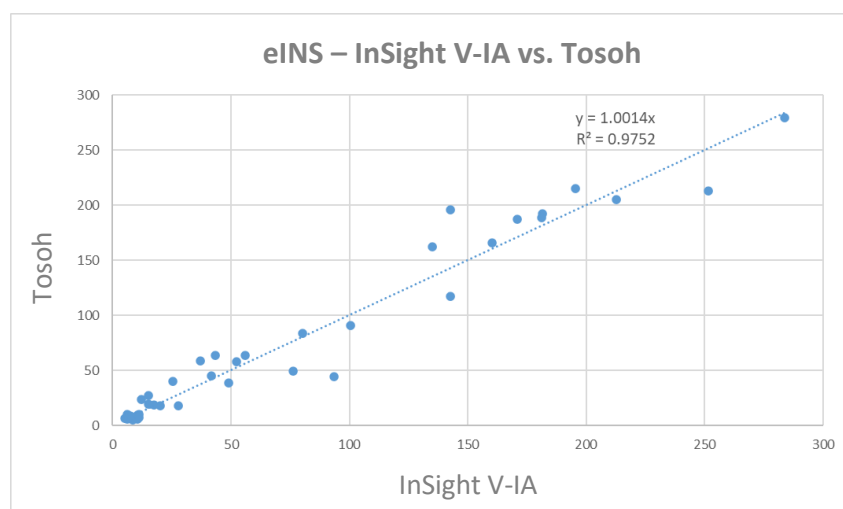
Instrument – AIA-360

Results

eINS		Tosoh		
		Positive	Negative	Total
InSight V-IA	Positive	22	1	23
	Negative	2	15	17
	Total	24	16	40

Positive Coincidence Rate	92%
Negative Coincidence Rate	94%
Total Coincidence Rate	93%

Sample Correlation



InSight V-IA Equine Insulin Reference Range in Equine Blood

Detection Range: 1-300 mIU/L

Reference Range:

Reference	Signification
<20 mIU/L	Normal
20-50 mIU/L	Suspected Insulin Dysregulation
>50 mIU/L	Insulin Dysregulation

Sample	InSight V-IA (mIU/L)	Tosoh (μU/mL)
1	5.1	6.22
2	17.53	18.69
3	11.11	7.02
4	12.22	23.43
5	19.99	17.64
6	15.28	19.02
7	6.02	9.71
8	7.34	8.37
9	6.49	9.09
10	15.25	27.33
11	8.34	7.02
12	8.58	5.32
13	7.31	7.28
14	10.42	9.47
15	27.75	18.04
16	6.04	5.58
17	11.3	10.05
18	41.73	44.74
19	10.35	5.54
20	181.67	191.98
21	212.84	205.33
22	142.62	195.52
23	80.21	83.8

24	25.3	39.86
25	56.05	63.57
26	76.38	49.45
27	160.36	166.06
28	49.11	38.58
29	37.03	58.75
30	251.43	212.91
31	43.51	63.48
32	195.62	214.92
33	93.58	44.09
34	142.63	117.44
35	134.86	162.16
36	283.88	279.44
37	181.32	188.55
38	170.92	187.09
39	52.29	57.58
40	100.38	90.42

Sample Concentration	1	2	3	4	5	6	7	8	9	10	Mean Value	CV	Bias%
10 mIU/L	9.61	10.46	11.67	11.31	9.16	10.78	9.67	8.48	9.31	8.11	9.856	11.93%	1.44%
50 mIU/L	45.65	52.10	48.77	52.87	56.33	59.09	47.91	55.94	45.88	57.01	52.15	9.37%	4.31%
250 mIU/L	244.64	259.84	249.77	230.67	233.49	264.6	255.92	252.43	249.56	234.84	247.57	4.66%	0.97%

Conclusion

Based on comparative analysis, the sample correlation between InSight V-IA Equine Insulin (eINS) Rapid Quantitative Test Kit and Tosoh ST AIA-PACK IRI is as high as 0.975, indicating that the InSight V-IA reagent is comparable to the Tosoh ST AIA-PACK IRI Test Kit.