

REFERENCE RANGES AND REPORTABLE RANGES (SI UNITS)

PARAMETERS	RECOMMENDED REFERENCE RANGES			REPORTABLE RANGE
	DOG	CAT	HORSE	
Albumin (g/L)	25–40	23–35	28–39	10–60
ALP (U/L)	0–140	0–90	70–290	20–990
ALT (GPT) (U/L)	0–120	0–100	NA	10–1000
Ammonia (umol/L)	7–57	7–96	11–79	7–357
Amylase (U/L)	100–1500	100–1500	NA	100–2500
AST (GOT) (U/L)	0–60	0–50	100–360	10–1000
BUN (mmol/L)	3.2–10.4	5.4–11.4	3.6–8.9	1.8–50.0
Calcium (mmol/L)	2.25–3.10	2.20–3.00	2.75–3.55	1.00–3.82
Total Cholesterol (mmol/L)	3.10–8.02	1.81–5.17	1.68–2.46	1.29–11.64
CK (U/L)	50–165	50–310	50–400	10–2000
Creatinine (umol/L)	35–124	71–159	62–159	18–2122
GGT (U/L)	0–14	0–10	10–37	10–1200
Glucose (mmol/L)	4.2–6.9	3.9–7.2	4.4–6.7	0.6–33.3
LDH (U/L)	0–220*	0–225*	0–400	50–900
Lipase (U/L)	0–225	0–60	NA	10–1000
Magnesium (mmol/L)	0.62–1.00	0.74–1.11	NA	0.08–2.88
Phosphorus (mmol/L)	0.61–1.61	0.84–1.94	0.48–1.45	0.16–4.84
TCO ₂ ** (mmol/L)	18–30	20–29	25–35	5–40
Total Bilirubin (umol/L)	0–9	0–9	0–43	3–513
Total Protein–Serum (g/L)	50–72	57–78	52–75	20–110
Total Protein–Plasma (g/L)	55–76	60–80	55–80	20–110
Triglycerides (mmol/L)	0.3–1.5	0.2–1.2	NA	0.11–5.65
Uric Acid (umol/L)	< 42	< 30	NA	30–1071
Sodium (mmol/L)	141–152	147–156	103–142	75–250
Potassium (mmol/L)	3.8–5.3	3.4–5.3	2.4–4.6	1.0–14.0
Chloride (mmol/L)	102–120	107–125	95–108	50–175

Reference range is for adult animals. For guidelines in interpretation of juvenile patient, see other side.

*Plasma ranges; Serum may give higher results.

**TCO₂ not for use with the DRI-CHEM 4000 analyzer.

REFERENCE RANGE ADJUSTMENT FOR JUVENILE ANIMALS

Due to normal physiologic differences, juvenile patients may have concentrations of some analytes that are outside the adult reference range. Concentrations of these analytes progressively change as the animal matures, until they finally merge with adult reference ranges at about one year of age. The following are guidelines for interpreting age-related differences in Total Protein, Alkaline Phosphatase, and Inorganic Phosphorus.

Total Protein

Newborn animals are physiologically hypogammaglobulinemic and have serum Total Protein concentrations that are 60–80% of adult levels. Total Protein concentrations are low at birth, increase after colostral absorption, decline over 1–5 weeks due to colostrum utilization, then gradually increase to adult levels. In general, dogs and cats less than one year of age may have Total Protein concentrations approximately 5 g/L less than adults.

Alkaline Phosphatase

Alkaline Phosphatase is commonly increased in neonates due to the presence of the bone isoenzyme. The increase is usually less than 3 times the adult level.

Inorganic Phosphorus

Phosphorus levels in dogs less than 12 months of age and cats less than 6 months of age may exceed the adult reference range. This is especially noted in large and giant breeds of dogs. Dog values are typically 1.29–2.91 mmol/L; cats 1.29–2.58 mmol/L.

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PARAMETERS	RECOMMENDED REFERENCE RANGES				REPORTABLE RANGE
	MOUSE	RABBIT	FERRET	COW	
Albumin (g/L)	30–40	30–34	26–38	25–37	10–60
ALP (U/L)	0–260	0–120	10–120	0–80	20–990
ALT (GPT) (U/L)	10–190	10–100	10–180	NA	10–1000
Amylase (U/L)	NE	NE	NE	NE	100–2500
AST (GOT) (U/L)	10–380	10–100	10–150	10–160	10–1000
BUN (mmol/L)	7.1–9.3	5–8.2	3.6–16.1	3.6–8.9	1.8–50.0
Calcium (mmol/L)	1.98–2.63	3.25–3.75	2.00–2.95	2.08–2.60	1.00–3.82
Total Cholesterol (mmol/L)	NE	0.57–1.81	2.07–5.43	1.81–7.24	1.29–11.64
CK (U/L)	NE	50–275	NE	50–265	10–2000
Creatinine (umol/L)	44–141	71–256	26–80	35–88	18–2122
GGT (U/L)	NE	NE	NE	10.0–39.0	10–1200
Glucose (mmol/L)	10.6–15.6	4.7–8.1	3.6–8.9	2.2–4.2	0.6–33.3
Magnesium (mmol/L)	0.70–1.23	0.82–1.23	NE	0.70–0.91	0.08–2.88
Phosphorus (mmol/L)	1.80–2.97	1.80–2.97	1.29–2.81	1.36–2.49	0.16–4.84
Total Bilirubin (umol/L)	3–14	3–12	3–9	3–5	3–513
Total Protein–Serum (g/L)	50–70	50–85	53–72	58–85	20–110

Reference ranges are guidelines for interpretation compiled from various published sources. Because of population and strain differences, it is recommended that users adopt or generate reference ranges if a more specific guideline is required. NA=Not applicable. NE=Not established.



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