



## Laboratory Values

	Reference Range	SI Reference Intervals
<b>SERUM</b>		
<b>General Chemistry:</b>		
Electrolytes		
Sodium (Na <sup>+</sup> )	136-146 mEq/L	136-146 mmol/L
Potassium (K <sup>+</sup> )	3.5-5.0 mEq/L	3.5-5.0 mmol/L
Chloride (Cl <sup>-</sup> )	95-105 mEq/L	95-105 mmol/L
Bicarbonate (HCO <sub>3</sub> <sup>-</sup> )	22-28 mEq/L	22-28 mmol/L
Urea nitrogen	7-18 mg/dL	2.5-6.4 mmol/L
Creatinine	0.6-1.2 mg/dL	53-106 µmol/L
Glucose	Fasting: 70-100 mg/dL Random, non-fasting: <140 mg/dL	3.8-5.6 mmol/L <7.77 mmol/L
Calcium	8.4-10.2 mg/dL	2.1-2.6 mmol/L
Magnesium (Mg <sup>2+</sup> )	1.5-2.0 mg/dL	0.75-1.0 mmol/L
Phosphorus (inorganic)	3.0-4.5 mg/dL	1.0-1.5 mmol/L
<b>Hepatic:</b>		
Alanine aminotransferase (ALT)	10-40 U/L	10-40 U/L
Aspartate aminotransferase (AST)	12-38 U/L	12-38 U/L
Alkaline phosphatase	25-100 U/L	25-100 U/L
Bilirubin, total // direct	0.1-1.0 mg/dL // 0.0-0.3 mg/dL	2-17 µmol/L // 0-5 µmol/L
Proteins, total	6.0-7.8 g/dL	60-78 g/L
Albumin	3.5-5.5 g/dL	35-55 g/L
Globulin	2.3-3.5 g/dL	23-35 g/L
<b>Other, serum:</b>		
Amylase	25-125 U/L	25-125 U/L
Lipase	13-60 U/L	13-60 U/L
Creatinine clearance	Male: 97-137 mL/min Female: 88-128 mL/min	97-137 mL/min 88-128 mL/min
Creatine kinase	Male: 25-90 U/L Female: 10-70 U/L	25-90 U/L 10-70 U/L
Lactate dehydrogenase	45-200 U/L	45-200 U/L
Osmolality	275-295 mOsmol/kg H <sub>2</sub> O	275-295 mOsmol/kg H <sub>2</sub> O
Troponin I	≤0.04 ng/mL	≤0.04 µg/L
Uric acid	3.0-8.2 mg/dL	0.18-0.48 mmol/L

## Laboratory Values (continued)

	Reference Range	SI Reference Intervals
<b>Lipids:</b>		
Cholesterol		
Total	Normal: <200 mg/dL High: >240 mg/dL	<5.2 mmol/L >6.2 mmol/L
HDL	40–60 mg/dL	1.0–1.6 mmol/L
LDL	<160 mg/dL	<4.2 mmol/L
Triglycerides	Normal: <150 mg/dL Borderline: 151–199 mg/dL	<1.70 mmol/L 1.71–2.25 mmol/L
<b>Iron Studies:</b>		
Ferritin	Male: 20–250 ng/mL Female: 10–120 ng/mL	20–250 µg/L 10–120 µg/L
Iron	Male: 65–175 µg/dL Female: 50–170 µg/dL	11.6–31.3 µmol/L 9.0–30.4 µmol/L
Total iron-binding capacity	250–400 µg/dL	44.8–71.6 µmol/L
Transferrin	200–360 mg/dL	2.0–3.6 g/L
<b>Endocrine:</b>		
Follicle-stimulating hormone	Male: 4–25 mIU/mL Female: premenopause 4–30 mIU/mL midcycle peak 10–90 mIU/mL postmenopause 40–250 mIU/mL	4–25 IU/L 4–30 IU/L 10–90 IU/L 40–250 IU/L
Luteinizing hormone	Male: 6–23 mIU/mL Female: follicular phase 5–30 mIU/mL midcycle 75–150 mIU/mL postmenopause 30–200 mIU/mL	6–23 IU/L 5–30 IU/L 75–150 IU/L 30–200 IU/L
Growth hormone - arginine stimulation	Fasting: <5 ng/mL Provocative stimuli: >7 ng/mL	<5 µg/L >7 µg/L
Prolactin (hPRL)	Male: <17 ng/mL Female: <25 ng/mL	<17 µg/L <25 µg/L
Cortisol	0800 h: 5–23 µg/dL 1600 h: 3–15 µg/dL 2000 h: <50% of 0800 h	138–635 nmol/L 82–413 nmol/L Fraction of 0800 h: <0.50
TSH	0.4–4.0 µU/mL	0.4–4.0 mIU/L
Triiodothyronine (T <sub>3</sub> ) (RIA)	100–200 ng/dL	1.5–3.1 nmol/L
Triiodothyronine (T <sub>3</sub> ) resin uptake	25%–35%	0.25–0.35
Thyroxine (T <sub>4</sub> )	5–12 µg/dL	64–155 nmol/L
Free T <sub>4</sub>	0.9–1.7 ng/dL	12.0–21.9 pmol/L
Thyroidal iodine ( <sup>123</sup> I) uptake	8%–30% of administered dose/24 h	0.08–0.30/24 h
Intact PTH	10–60 pg/mL	10–60 ng/L
17-Hydroxycorticosteroids	Male: 3.0–10.0 mg/24 h Female: 2.0–8.0 mg/24 h	8.2–27.6 µmol/24 h 5.5–22.0 µmol/24 h
17-Ketosteroids, total	Male: 8–20 mg/24 h Female: 6–15 mg/24 h	28–70 µmol/24 h 21–52 µmol/24 h

## Laboratory Values (continued)

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<b>Immunoglobulins:</b>		
IgA	76-390 mg/dL	0.76-3.90 g/L
IgE	0-380 IU/mL	0-380 kIU/L
IgG	650-1500 mg/dL	6.5-15.0 g/L
IgM	50-300 mg/dL	0.5-3.0 g/L
<b>GASES, ARTERIAL BLOOD (ROOM AIR)</b>		
Po <sub>2</sub>	75-105 mm Hg	10.0-14.0 kPa
Pco <sub>2</sub>	33-45 mm Hg	4.4-5.9 kPa
pH	7.35-7.45	[H <sup>+</sup> ] 36-44 nmol/L
<b>CEREBROSPINAL FLUID</b>		
Cell count	0-5/mm <sup>3</sup>	0-5 × 10 <sup>6</sup> /L
Chloride	118-132 mEq/L	118-132 mmol/L
Gamma globulin	3%-12% total proteins	0.03-0.12
Glucose	40-70 mg/dL	2.2-3.9 mmol/L
Pressure	70-180 mm H <sub>2</sub> O	70-180 mm H <sub>2</sub> O
Proteins, total	<40 mg/dL	<0.40 g/L
<b>HEMATOLOGIC</b>		
<b>Complete Blood Count:</b>		
Hematocrit	Male: 41%-53%	0.41-0.53
	Female: 36%-46%	0.36-0.46
Hemoglobin, blood	Male: 13.5-17.5 g/dL	135-175 g/L
	Female: 12.0-16.0 g/dL	120-160 g/L
Mean corpuscular hemoglobin (MCH)	25-35 pg/cell	0.39-0.54 fmol/cell
Mean corpuscular hemoglobin conc. (MCHC)	31%-36% Hb/cell	4.8-5.6 mmol Hb/L
Mean corpuscular volume (MCV)	80-100 µm <sup>3</sup>	80-100 fL
<b>Volume</b>		
Plasma	Male: 25-43 mL/kg	0.025-0.043 L/kg
	Female: 28-45 mL/kg	0.028-0.045 L/kg
Red cell	Male: 20-36 mL/kg	0.020-0.036 L/kg
	Female: 19-31 mL/kg	0.019-0.031 L/kg
Leukocyte count (WBC)	4500-11,000/mm <sup>3</sup>	4.5-11.0 × 10 <sup>9</sup> /L
Neutrophils, segmented	54%-62%	0.54-0.62
Neutrophils, bands	3%-5%	0.03-0.05
Lymphocytes	25%-33%	0.25-0.33
Monocytes	3%-7%	0.03-0.07
Eosinophils	1%-3%	0.01-0.03
Basophils	0%-0.75%	0.00-0.0075
Platelet count	150,000-400,000/mm <sup>3</sup>	150-400 × 10 <sup>9</sup> /L

## Laboratory Values (continued)

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<b>Coagulation:</b>		
Partial thromboplastin time (PTT/aPTT) (activated)	25–40 seconds	25–40 seconds
Prothrombin time (PT)	11–15 seconds	11–15 seconds
D-dimer	≤250 ng/mL	≤1.4 nmol/L
<b>Other, Hematologic:</b>		
Reticulocyte count	0.5%–1.5%	0.005–0.015
Erythrocyte count (RBC)	Male: 4.3–5.9 million/mm <sup>3</sup> Female: 3.5–5.5 million/mm <sup>3</sup>	4.3–5.9 × 10 <sup>12</sup> /L 3.5–5.5 × 10 <sup>12</sup> /L
Erythrocyte sedimentation rate (Westergren)	Male: 0–15 mm/h Female: 0–20 mm/h	0–15 mm/h 0–20 mm/h
CD4+ T-lymphocyte count	≥500/mm <sup>3</sup>	≥0.5 × 10 <sup>9</sup> /L
<b>Endocrine:</b>		
Hemoglobin A <sub>1c</sub>	≤6%	≤42 mmol/mol
<b>URINE</b>		
Calcium	100–300 mg/24 h	2.5–7.5 mmol/24 h
Osmolality	50–1200 mOsmol/kg H <sub>2</sub> O	50–1200 mOsmol/kg H <sub>2</sub> O
Oxalate	8–40 µg/mL	90–445 µmol/L
Proteins, total	<150 mg/24 h	<0.15 g/24 h
<b>BODY MASS INDEX (BMI)</b>	Adult: 19–25 kg/m <sup>2</sup>	