

LABORATORY VALUES

* Included in the Biochemical Profile (SMA-12)

	<u>REFERENCE RANGE</u>	<u>SI REFERENCE INTERVALS</u>
BLOOD, PLASMA, SERUM		
* Alanine aminotransferase (ALT, GPT at 30EC)	8-20 U/L	8-20 U/L
Amylase, serum	25-125 U/L	25-125 U/L
* Aspartate aminotransferase (AST, GOT at 30EC)	8-20 U/L	8-20 U/L
Bilirubin, serum (adult)		
Total	0.1-1.0 mg/dL	2-17 mmol/L
Direct	0.0-0.3 mg/dL	0-5 mmol/L
* Calcium, serum (Ca ²⁺)	8.4-10.2 mg/dL	2.1-2.8 mmol/L
* Cholesterol, serum	Rec:<200 mg/dL	<5.2 mmol/L
Cortisol, serum		
0800 h	5-23 mg/dL	138-635 nmol/L
1600 h	3-15 mg/dL	82-413 nmol/L
2000 h	≤ 50% of 0800 h	Fraction of 0800 h: ≤ 0.50
Creatine kinase, serum		
Male	25-90 U/L	25-90 U/L
Female	10-70 U/L	10-70 U/L
* Creatinine, serum	0.6-1.2 mg/dL	53-106 mmol/L
Electrolytes, serum		
Sodium (Na ⁺)	136-145 mEq/L	136-145 mmol/L
Chloride (Cl ⁻)	95-105 mEq/L	95-105 mmol/L
* Potassium (K ⁺)	3.5-5.0 mEq/L	3.5-5.0 mmol/L
Bicarbonate (HCO ₃ ⁻)	22-28 mEq/L	22-28 mmol/L
Magnesium (Mg ²⁺)	1.5-2.0 mEq/L	1.5-2.0 mmol/L
Estriol, total, serum (in pregnancy)		
24-28 wks	30-170 ng/mL	104-590 nmol/L
28-32 wks	40-220 ng/mL	140-760 nmol/L
32-36 wks	60-280 ng/mL	208-970 nmol/L
36-40 wks	80-350 ng/mL	280-1210 nmol/L
Ferritin, serum		
Male	15-200 ng/mL	15-200 mg/L
Female	12-150 ng/mL	12-150 mg/L
Follicle-stimulating hormone, serum/plasma		
Male	4-25 mIU/mL	4-25 U/L
Female: premenopause	4-30 mIU/mL	4-30 U/L
Female: midcycle peak	10-90 mIU/mL	10-90 U/L
Female: postmenopause	40-250 mIU/mL	40-250 U/L
Gases, arterial blood (room air)		
pH	7.35-7.45	[H ⁺] 36-44 nmol/L
PCO ₂	33-45 mm Hg	4.4-5.9 kPa
PO ₂	75-105 mm Hg	10.0-14.0 kPa
* Glucose, serum		
Fasting:	70-110 mg/dL	3.8-6.1 mmol/L
2-h postprandial:	< 120 mg/dL	< 6.6 mmol/L
Growth hormone - arginine stimulation		

Fasting:	< 5 ng/mL	< 5 mg/L
provocative stimuli:	> 7 ng/mL	> 7 mg/L
Immunoglobulins, serum		
IgA	76-390 mg/dL	0.76-3.9 g/L
IgE	0-380 IU/mL	0-380 kIU/L
IgG	650-1500 mg/dL	6.5-15 g/L
IgM	40-345 mg/dL	0.4-3.45 g/L
Iron	50-170 mg/dL	9-30 mmol/L
Lactate dehydrogenase, serum	45-90 U/L	45-90 U/L
Luteinizing hormone, serum/plasma		
Male	6-23 mIU/mL	6-23 U/L
Female: follicular phase	5-30 mIU/mL	5-30 U/L
Female: midcycle	75-150 mIU/mL	75-150 U/L
Female: postmenopause	30-200 mIU/mL	30-200 U/L
Osmolality, serum	275-295 mOsm/kg	275-295 mOsm/kg
Parathyroid hormone, serum	10-70 pg/mL	10-70 pg/mL
* Phosphatase (alkaline), serum (p-NPP at 30EC)	20-70 U/L	20-70 U/L
* Phosphorus (inorganic), serum	3.0-4.5 mg/dL	1.0-1.5 mmol/L
Prolactin, serum (hPRL)	< 20 ng/mL	< 20 mg/L
* Proteins, serum		
Total (recumbent)	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
Thyroid-stimulating hormone, serum or plasma	0.5-5.0 mU/mL	0.5-5.0 mU/L
Thyroidal iodine (¹²³ I) uptake	8-30% of administered dose/24 h	0.08-0.30/24 h
Thyroxine (T ₄), serum	5-12 mg/dL	64-155 nmol/L
Triglycerides, serum	35-160 mg/dL	0.4-1.81 mmol/L
Triiodothyronine (T ₃), serum (RIA)	115-190 ng/dL	1.8-2.9 nmol/L
Triiodothyronine (T ₃), resin uptake	25-35%	0.25-0.35
* Urea nitrogen, serum (BUN)	7-18 mg/dL	1.2-3.0 mmol urea/L
* Uric acid, serum	3.0-8.2 mg/dL	0.18-0.48 mmol/L

CEREBROSPINAL FLUID

Cell Count	0-5 cells/mm ³	0-5 x 10 ⁶ /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 ₂ O	70-180 mm H ₂ O
Proteins, total	< 40 mg/dL	<0.40 g/L

HEMATOLOGIC

Bleeding time (template)	2-7 minutes	2-7 minutes
Erythrocyte count		
Male	4.3-5.9 million/mm ³	4.3-5.9 x 10 ¹² /L
Female	3.5-5.5 million/mm ³	3.5-5.5 x 10 ¹² /L
Erythrocyte sedimentation rate (Westergren)		
Male	0-15 mm/h	0-15 mm/h

	Female	0-20 mm/h	0-20 mm/h
Hematocrit			
	Male	41-53%	0.41-0.53
	Female	36-46%	0.36-0.46
Hemoglobin A _{1C}		≤6%	≤0.06
Hemoglobin, blood			
	Male	13.5-17.5 g/dL	2.09-2.71 mmol/L
	Female	12.0-16.0 g/dL	1.86-2.48 mmol/L
Hemoglobin, plasma		1-4 mg/dL	0.16-0.62 mmol/L
Leukocyte count and differential			
	Leukocyte count	4,500-11,000/mm ³	4.5-11.0 x 10 ⁹ /L
	Segmented neutrophils	54-62%	0.54-0.62
	Bands	3-5%	0.03-0.05
	Eosinophils	1-3%	0.01-0.03
	Basophils	0-0.75%	0-0.0075
	Lymphocytes	25-33%	0.25-0.33
	Monocytes	3-7%	0.03-0.07
Mean corpuscular hemoglobin		25.4-34.6 pg/cell	0.39-0.54 fmol/cell
Mean corpuscular hemoglobin concentration		31-36 % Hb/cell	4.81-5.58 mmol Hb/L
Mean corpuscular volume		80-100 mm ³	80-100 fL
Partial thromboplastin time (activated)		25-40 seconds	25-40 seconds
Platelet count		150,000-400,000/mm ³	150-400 x 10 ⁹ /L
Prothrombin time		11-15 seconds	11-15 seconds
Reticulocyte count		0.5-1.5% of red cells	0.005-0.015
Thrombin time		<2 seconds deviation from control	<2 seconds deviation from control
Volume			
	Plasma: Male	25-43 mL/kg	0.025-0.043 L/kg
	Plasma: Female	28-45 mL/kg	0.028-0.045 L/kg
	Red cell: Male	20-36 mL/kg	0.020-0.036 L/kg
	Red cell: Female	19-31 mL/kg	0.019-0.031 L/kg

SWEAT

Chloride	0-35 mmol/L	0-35 mmol/L
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URINE

Calcium	100-300 mg/24 h	2.5-7.5 mmol/24 h
Chloride	varies with intake	varies with intake
Creatine clearance		
	Male	97-137 mL/min
	Female	88-128 mL/min
Estriol, total (in pregnancy)		
	30 wks	6-18 mg/24 h
	35 wks	9-28 mg/24 h
	40 wks	13-42 mg/24 h
17-Hydroxycorticosteroids		
	Male	3.0-10.0 mg/24 h
	Female	2.0-8.0 mg/24 h
17-Ketosteroids, total		

	Male	8-20 mg/24 h	28-70 mmol/24 h
	Female	6-15 mg/24 h	21-52 mmol/24 h
Osmolality		50-1400 mOsmol/kg	
Oxalate		8-40 mg/mL	90-445 mmol/L
Potassium		varies with diet	varies with diet
Proteins, total		<150 mg/24 h	<0.15 g/24 h
Sodium		varies with diet	varies with diet
Uric acid		varies with diet	varies with diet