

### K R M L T A - LAB TEST REFERENCE VALUES

1	1,25-Dihydroxyvitamin D (1,25-dihydroxycholecalciferol),	See Vitamin D metabolites
2	17-Hydroxyprogesterone, serum	
3	17-Hydroxyprogesterone Female, follicular	<80 ng/dL
4	17-Hydroxyprogesterone Female, luteal	<285 ng/dL
5	17-Hydroxyprogesterone Female, postmenopausal	<51 ng/dL
6	17-Hydroxyprogesterone Male (adult)	<220 ng/dL
7	25-Hydroxyvitamin D (25-Hydroxycholecalciferol), serum	See Vitamin D metabolites
8	5-Hydroxyindoleacetic acid, urine	2–9 mg/24 hr
9	6-Thioguanine, whole blood	230–400 pmol/8x10 <sup>8</sup> RBCs
10	Absolute neutrophil count (ANC)	2000–8250/ $\mu$ L
11	Acid phosphatase, serum	
12	Acid phosphatase Total	0.5–2.0 (Bodansky) units/mL
13	Acid phosphatase Prostatic fraction	0.1–0.4 unit/mL
14	ACTH, plasma	10–60 pg/mL
15	Activated partial thromboplastin time	25–35 seconds
16	ADAMTS13 activity	>60%
17	Adrenocorticotrophic hormone (ACTH), plasma	10–60 pg/mL
18	Albumin, serum	3.5–5.5 g/dL
19	Albumin, urine	<25 mg/24 hr
20	Albumin-to-creatinine ratio, urine	<30 mg/g
21	Aldolase, serum	0.8–3.0 IU/mL
22	Aldosterone, plasma	
23	Supine or seated	$\leq$ 10 ng/dL
24	Standing	<21 ng/dL
25	Low-sodium diet (supine)	$\leq$ 30 ng/dL
26	Aldosterone, urine	5–19 $\mu$ g/24 hr
27	Alkaline phosphatase, serum	30–120 U/L
28	Alkaline phosphatase, bone specific	5.6–18.0 $\mu$ g/L for premenopausal women
29	Alpha <sub>1</sub> -antitrypsin (AAT), serum	150–350 mg/dL
30	Alpha <sub>2</sub> -antiplasmin activity, plasma	75%–115%
31	Alpha-amino nitrogen, urine	100–290 mg/24 hr
32	Alpha-fetoprotein, serum	<10 ng/mL
33	Amino acids, urine	200–400 mg/24 hr
34	Aminotransferase, serum alanine (ALT, SGPT)	10–40 U/L
35	Aminotransferase, serum aspartate (AST, SGOT)	10–40 U/L
36	Ammonia, blood	40–70 $\mu$ g/dL
37	Amylase, serum	25–125 U/L (80–180 [Somogyi] units/dL)
38	Amylase, urine	1–17 U/hr
39	Androstenedione, serum	Female: 30–200 ng/dL; male: 40–150 ng/dL
40	Angiotensin-converting enzyme, serum	8–53 U/L
41	Anion gap, serum	7–13 mEq/L
42	Antibodies to double-stranded DNA	0–7 IU/mL
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77	Aminotransferase, serum aspartate (AST, SGOT)	10–40 U/L
78	Ammonia, blood	40–70 $\mu$ g/dL
79	Amylase, serum	25–125 U/L (80–180 [Somogyi] units/dL)
80	Amylase, urine	1–17 U/hr
81	Androstenedione, serum	Female: 30–200 ng/dL; male: 40–150 ng/dL
82	Angiotensin-converting enzyme, serum	8–53 U/L
83	Anion gap, serum	7–13 mEq/L
84	Antibodies to double-stranded DNA	0–7 IU/mL
85	Anticardiolipin antibodies	
86	Anticardiolipin IgG	<20 GPL
87	Anticardiolipin IgM	<20 MPL
88	Anti-cyclic citrullinated peptide (ACCP), antibodies to	<20 units
89	Antideoxyribonuclease B	<280 units
90	Anti-F-actin antibodies, serum	$\leq$ 1:80
91	Antihistone antibodies	<1:16
92	Anti-liver-kidney microsomal antibodies (anti-LKM)	<1:20

93	Antimitochondrial antibodies	≤1:5
94	Anti-myelin associated glycoprotein antibody	<1:1600
95	Antimyeloperoxidase antibodies	<1.0 U
96	Antinuclear antibodies	≤1:40
97	Anti-smooth muscle antibodies	≤1:80
98	Antistreptolysin O titer	<200 Todd units
99	Antithrombin activity	80%–120%
100	Antithyroglobulin antibodies	<20 U/mL
101	Antithyroid peroxidase antibodies	<2.0 U/mL
102	Anti-tissue transglutaminase antibodies	See Tissue transglutaminase antibody
103	Arterial blood gas studies (patient breathing room air):	
104	pH	7.38–7.44
105	PaCO <sub>2</sub>	38–42 mm Hg
106	PaO <sub>2</sub>	75–100 mm Hg
107	Bicarbonate	23–26 mEq/L
108	Oxygen saturation	≥95%
109	Methemoglobin	0.5%–3.0%
110	Ascorbic acid (vitamin C), blood	0.4–1.5 mg/dL
111	Ascorbic acid, leukocyte	16.5 ± 5.1 mg/dL of leukocytes
112	(1,3)-Beta-D-glucan, serum	<60 pg/mL
113	Beta-human chorionic gonadotropin (beta-hCG), serum	Female, premenopausal nonpregnant:
114	Beta-human chorionic gonadotropin (beta-hCG), urine	<2 mIU/24 hr
115	Beta <sub>2</sub> -glycoprotein I antibodies:	
116	Beta <sub>2</sub> -glycoprotein I IgG	<21 SGU
117	Beta <sub>2</sub> -glycoprotein I IgM	<21 SMU
118	Beta-hydroxybutyrate, serum	<0.4 mmol/L
119	Beta <sub>2</sub> -microglobulin, serum	0.54–2.75 mg/L
120	Bicarbonate, serum	23–28 mEq/L
121	Bilirubin, serum	
122	Total	0.3–1.0 mg/dL
123	Direct	0.1–0.3 mg/dL
124	Indirect	0.2–0.7 mg/dL
125	Bleeding time (template)	<8 minutes
126	Blood urea nitrogen (BUN), serum or plasma	8–20 mg/dL
127	B-type natriuretic peptide, plasma	<100 pg/mL
128	C peptide, serum	0.8–3.1 ng/mL
129	Calcitonin, serum	Female: ≤5 pg/mL; male: ≤10 pg/mL
130	Calcium, ionized, serum	1.12–1.23 mmol/L
131	Calcium, serum	8.6–10.2 mg/dL
132	Calcium, urine	Female: <250 mg/24 hr; male: <300 mg/24
133	Carbohydrate antigens, serum	
134	CA 19-9	0–37 U/mL
135	CA 27-29	<38.0 U/mL
136	CA 125	<35 U/mL
137	Carbon dioxide content, serum	23–30 mEq/L
138	Carboxyhemoglobin, blood	<5%
139	Carcinoembryonic antigen, plasma	<2.5 ng/mL

140	Carotene, serum	75–300 µg/dL
141	Catecholamines, plasma	
142	Dopamine	<30 pg/mL
143	Epinephrine	
144	Supine	<50 pg/mL
145	Standing	<95 pg/mL
146	Norepinephrine	
147	Supine	112–658 pg/mL
148	Standing	217–1109 pg/mL
149	Catecholamines, urine	
150	Dopamine	65–400 µg/24 hr
151	Epinephrine	2–24 µg/24 hr
152	Norepinephrine	15–100 µg/24 hr
153	Total	26–121 µg/24 hr
154	CD4 T-lymphocyte count	530–1570/µL
155	Cell count, CSF:	
156	Leukocytes (WBCs)	0–5 cells/µL
157	Erythrocytes (RBCs)	0/µL
158	Ceruloplasmin, serum (plasma)	25–43 mg/dL
159	Chloride, CSF	120–130 mEq/L
160	Chloride, serum	98–106 mEq/L
161	Chloride, urine	
162	Spot	mEq/L; varies
163	24-hour measurement	mEq/24 hr; varies with intake
164	Cholesterol, serum	
165	Cholesterol Total	
166	Cholesterol Desirable	<200 mg/dL
167	Borderline-high	200–239 mg/dL
168	Cholesterol High	>239 mg/dL
169	High-density lipoprotein (HDL)	
170	HDL Low	Female: <50 mg/dL; male: <40 mg/dL
171	Low-density lipoprotein (LDL)	
172	LDL Optimal	<100 mg/dL
173	LDL Near-optimal	100–129 mg/dL
174	LDL Borderline-high	130–159 mg/dL
175	LDL High	160–189 mg/dL
176	LDL Very high	>189 mg/dL
177	Cholinesterase, serum (pseudocholinesterase)	≥0.5 pH units/hr
178	Packed cells	≥0.7 pH units/hr
179	Chorionic gonadotropin, beta-human (beta-hCG), serum	See Beta-human chorionic gonadotropin
180	Chorionic gonadotropin, beta-human (beta-hCG), urine	See Beta-human chorionic gonadotropin
181	Chromogranin A, serum	<93 ng/mL
182	Citrate, urine	250–1000 mg/24 hr
183	Clotting time (Lee-White)	5–15 minutes
184	Coagulation factors, plasma	
185	Factor I (fibrinogen)	200–400 mg/dL
186	Factor II (prothrombin)	60%–130%

187	Factor V (accelerator globulin)	60%–130%
188	Factor VII (proconvertin)	60%–130%
189	Factor VIII (antihemophilic globulin)	50%–150%
190	Factor IX (plasma thromboplastin component)	60%–130%
191	Factor X (Stuart factor)	60%–130%
192	Factor XI (plasma thromboplastin antecedent)	60%–130%
193	Factor XII (Hageman factor)	60%–130%
194	Factor XIII	57%–192%
195	Cold agglutinin titer	>1:64 positive
196	Complement components, serum	
197	C3	100–233 mg/dL
198	C4	14–48 mg/dL
199	CH50	110–190 units/mL
200	Copper, serum	100–200 µg/dL
201	Copper, urine	0–100 µg/24 hr
202	Coproporphyrin, urine	50–250 µg/24 hr
203	Cortisol, free, urine	4–50 µg/24 hr
204	Cortisol, plasma	
205	8:00 AM	5–25 µg/dL
206	4:00 PM	<10 µg/dL
207	1 hour after cosyntropin	≥18 µg/dL
208	Overnight suppression test (1-mg)	<1.8 µg/dL
209	Overnight suppression test (8-mg)	>50% reduction in cortisol
210	Cortisol, saliva, 11 PM – midnight	<0.09 µg/dL
211	C-reactive protein, serum	≤0.8 mg/dL
212	C-reactive protein (high sensitivity), serum	Low risk = <1.0 mg/L; Average risk =
213	Creatine kinase, serum	
214	Total	Female: 30–135 U/L; male: 55–170 U/L
215	MB isoenzymes	<5% of total
216	Creatine, urine	Female: 0–100 mg/24 hr; male: 0–40 mg/24
217	Creatinine clearance, urine	90–140 mL/min/1.73 m <sup>2</sup>
218	Creatinine, serum	Female: 0.50–1.10 mg/dL; male: 0.70–1.30
219	Creatinine, urine	
220	Spot	mg/dL; varies
221	24-hour measurement	15–25 mg/kg body weight/24 hr
222	Cyclosporine, whole blood (trough)	
223	Therapeutic	100–200 ng/mL
224	0–3 months post transplantation	150–250 ng/mL
225	More than 3 months post transplantation	75–125 ng/mL
226	D-dimer, plasma	<0.5 µg/mL
227	Dehydroepiandrosterone sulfate (DHEA-S), serum	Female: 44–332 µg/dL; male: 89–457 µg/dL
228	Delta-aminolevulinic acid, serum	<20 µg/dL
229	Digoxin, serum	Therapeutic: 1.0–2.0 ng/mL (<1.2 ng/mL
230	Dihydrotestosterone, serum	Adult male: 25–80 ng/dL
231	Dopamine, plasma	<30 pg/mL
232	Dopamine, urine	65–400 µg/24 hr
233	D-Xylose absorption (after ingestion of 25 g of D-xylose)	

234	Serum	25–40 mg/dL
235	Urinary excretion	4.5–7.5 g during a 5-hr period
236	Electrolytes, serum	
237	Sodium	136–145 mEq/L
238	Potassium	3.5–5.0 mEq/L
239	Chloride	98–106 mEq/L
240	Bicarbonate	23–28 mEq/L
241	Epinephrine, plasma	
242	Supine	<110 pg/mL
243	Standing	<140 pg/mL
244	Epinephrine, urine	<20 µg/24 hr
245	Erythrocyte count	4.2–5.9 million/µL
246	Erythrocyte sedimentation rate (Westergren)	Female: 0–20 mm/hr; male: 0–15 mm/hr
247	Erythrocyte survival rate ( <sup>51</sup> Cr)	T <sub>1/2</sub> = 28 days
248	Erythropoietin, serum	4–26 mU/mL
249	Estradiol, serum	
250	Estradiol Female, follicular	10–180 pg/mL
251	Estradiol Mid-cycle peak	100–300 pg/mL
252	Estradiol Luteal	40–200 pg/mL
253	Estradiol Postmenopausal	<10 pg/mL
254	Estradiol Male	20–50 pg/mL
255	Estriol, urine	>12 mg/24 hr
256	Estrogen receptor protein	Negative: <10 fmol/mg protein
257	Estrone, serum	10–60 pg/mL
258	Ethanol, blood	<0.005% (<5 mg/dL)
259	Coma level	>0.5% (>500 mg/dL)
260	Intoxication	≥0.08%–0.1% (≥80–100 mg/dL)
261	Euglobulin clot lysis time	2–4 hours at 37.0 C
262	Everolimus, whole blood (trough)	Therapeutic: 3.0–8.0 ng/mL
263	Factor XIII, B subunit, plasma	60–130 U/dL
264	Fecal (Stool) fat	<7 g/24 hr
265	Fecal (Stool) nitrogen	<2 g/24 hr
266	Fecal (Stool) pH	7.0–7.5
267	Fecal (Stool) potassium	<10 mEq/L
268	Fecal (Stool) sodium	<10 mEq/L
269	Fecal (Stool) urobilinogen	40–280 mg/24 hr
270	Fecal (Stool) weight	<250 g/24 hr
271	Ferritin, serum	Female: 11–307 ng/mL; male: 24–336
272	Fibrin(ogen) degradation products	<10 µg/mL
273	Fibrinogen, plasma	200–400 mg/dL
274	Fibroblast growth factor-23, serum	30–80 RU/mL
275	Flecainide, serum	Therapeutic: 0.2–1.0 µg/mL
276	Folate, red cell	150–450 ng/mL of packed cells
277	Folate, serum	1.8–9.0 ng/mL
278	Follicle-stimulating hormone, serum	
279	Female, follicular/luteal	2–9 mIU/mL (2–9 U/L)
280	Female, mid-cycle peak	4–22 mIU/mL (4–22 U/L)

281	Female, postmenopausal	>30 mIU/mL (>30 U/L)
282	Male (adult)	1–7 mIU/mL (1–7 U/L)
283	Children, Tanner stages 1, 2	0.5–8.0 mIU/mL (0.5–8.0 U/L)
284	Children, Tanner stages 3, 4, 5	1–12 mIU/mL (1–12 U/L)
285	Free kappa light chain, serum	3.3–19.4 mg/L
286	Free kappa-to-free lambda light chain ratio, serum	0.26–1.65
287	Free lambda light chain, serum	5.7–26.3 mg/L
288	Fructosamine, serum	175–280 mmol/L
289	Gamma globulin, CSF	6.1–8.3 mg/dL
290	Gamma-glutamyl transpeptidase, serum	Female: 8–40 U/L; male: 9–50 U/L
291	Gastric secretion	
292	Basal acid analysis	10–30 units of free acid
293	Basal acid output	Female: 2.0 ± 1.8 mEq of HCl/hr; male: 3.0
294	Maximal output after pentagastrin stimulation	23 ± 5 mEq of HCl/hr
295	Gastrin, serum	<100 pg/mL
296	Gentamicin, serum	Therapeutic: peak 5.0–10.0 µg/mL; trough:
297	Glucose, CSF	50–75 mg/dL
298	Glucose, plasma (fasting)	70–99 mg/dL
299	Glucose-6-phosphate dehydrogenase, blood	5–15 units/g of hemoglobin
300	Glycoprotein α-subunit, serum	<1 ng/mL
301	Growth hormone, serum	
302	At rest	<5 ng/mL
303	Response to provocative stimuli	>7 ng/mL
304	Haptoglobin, serum	83–267 mg/dL
305	Hematocrit, blood	Female: 37%–47%; male: 42%–50%
306	Hemoglobin A1C	4.0%–5.6%
307	Hemoglobin, blood	Female: 12–16 g/dL; male: 14–18 g/dL
308	Hemoglobin fractionation	
309	Hb A	96%–98%
310	Hb A2	1.5%–3.5%
311	Hb F	<1%
312	Hemoglobin, plasma	<5.0 mg/dL
313	Heparin–anti-factor Xa assay, plasma	0.3–0.7 IU/mL [therapeutic range for
314	Heparin–platelet factor 4 antibody, serum	Positive: >0.4 optical density units
315	Hepatic copper	25–40 µg/g dry weight
316	Hepatic iron index	<1.0
317	Histamine excretion, urine	20–50 µg/24 hr
318	Homocysteine, plasma	5–15 µmol/L
319	β-Human chorionic gonadotropin (β-hCG), serum	Female, premenopausal nonpregnant:
320	β-Human chorionic gonadotropin (β-hCG), urine	<2 mIU/24 hr
321	Hydroxyproline, urine	10–30 mg/sq meter of body surface/24 hr
322	Immature platelet fraction	1%–5% of platelet count
323	Immune complexes, serum	0–50 µg/dL
324	Immunoglobulins, serum	
325	IgA	90–325 mg/dL
326	IgE	<380 IU/mL
327	IgG	800–1500 mg/dL

328	IgM	45–150 mg/dL
329	Immunoglobulin free light chains, serum	
330	Kappa	3.3–19.4 mg/L
331	Lambda	5.7–26.3 mg/L
332	Kappa-to-lambda ratio	0.26–1.65
333	Insulin, serum (fasting)	<20 µU/mL
334	Insulin-like growth factor 1 (IGF-1) (somatomedin-C), serum	
335	Ages 16–24	182–780 ng/mL
336	Ages 25–39	114–492 ng/mL
337	Ages 40–54	90–360 ng/mL
338	Ages 55 and older	71–290 ng/mL
339	Iodine, urine	
340	Spot	µg/L; varies
341	Iron, serum	50–150 µg/dL
342	Iron-binding capacity, serum (total)	250–310 µg/dL
343	Lactate dehydrogenase, serum	80–225 U/L
344	Lactate, arterial blood	<1.3 mmol/L (<1.3 mEq/L)
345	Lactate, serum or plasma	0.7–2.1 mmol/L
346	Lactate, venous blood	0.7–1.8 mEq/L; 6–16 mg/dL
347	Lactic acid, serum	6–19 mg/dL (0.7–2.1 mmol/L)
348	Lactose tolerance test, GI	Increase in plasma glucose: >15 mg/dL
349	Lead, blood	15–40 µg/dL
350	Lead, urine	<80 µg/24 hr
351	Leukocyte count	4000–11,000/µL
352	Segmented neutrophils	50%–70%
353	Band forms	0%–5%
354	Lymphocytes	30%–45%
355	Monocytes	0%–6%
356	Basophils	0%–1%
357	Eosinophils	0%–3%
358	Lipase, serum	10–140 U/L
359	Lipoprotein(a), serum	Desirable: <30 mg/dL
360	Lithium, plasma	
361	Lithium Therapeutic	0.6–1.2 mEq/L
362	Lithium Toxic level	>2 mEq/L
363	Luteinizing hormone (LH), serum	
364	Luteinizing hormone (LH) Female, follicular/luteal	1–12 mIU/mL (1–12 U/L)
365	Luteinizing hormone (LH) Female, mid-cycle peak	9–80 mIU/mL (9–80 U/L)
366	Luteinizing hormone (LH) Female, postmenopausal	>30 mIU/mL (>30 U/L)
367	Luteinizing hormone (LH) Male (adult)	2–9 mIU/mL (2–9 U/L)
368	Children, Tanner stages 1, 2, 3	<9.0 mIU/mL (<9.0 U/L)
369	Children, Tanner stages 4, 5	1–15 mIU/mL (1–15 U/L)
370	lymphocyte subsets	
371	CD3	900–3245/µL
372	CD4	530–1570/µL
373	CD8	430–1060/µL
374	CD19 CD56	208–590/µL 40–500/µL



375	Magnesium, serum	1.6–2.6 mEq/L
376	Magnesium, urine	14–290 mg/24 hr
377	Mean corpuscular hemoglobin	28–32 pg
378	Mean corpuscular hemoglobin concentration	33–36 g/dL
379	Mean corpuscular volume	80–98 fL
380	Mean platelet volume	7–9 fL
381	Metanephrines, fractionated, plasma	
382	Metanephrine	<0.5 nmol/L
383	Normetanephrine	<0.9 nmol/L
384	Metanephrines, fractionated, 24-hour urine	
385	Metanephrine	<400 µg/24 hr
386	Normetanephrine	<900 µg/24 hr
387	Myoglobin, serum	<100 µg/L
388	Norepinephrine, plasma	
389	Supine	70–750 pg/mL
390	Standing	200–1700 pg/mL
391	Norepinephrine, urine	0–100 µg/24 hr
392	Normetanephrine, fractionated, plasma	<0.9 nmol/L
393	Normetanephrine, fractionated, 24-hour urine	<900 µg/24 hr
394	<i>N-telopeptide, urine</i>	Female: 11–48 nmol BCE/mmol creatinine;
395	<i>N-terminal-pro-B-type natriuretic peptide (NT-pro-BNP),</i>	If eGFR >60 mL/min/1.73 m <sup>2</sup> 18–49 years
396	Osmolality, serum	275–295 mOsm/kg H <sub>2</sub> O
397	Osmolality, urine	38–1400 mOsm/kg H <sub>2</sub> O
398	Osmotic fragility of erythrocytes	Increased if hemolysis occurs in over
399	Osteocalcin, serum	Female: 7.2–27.9 ng/mL; male: 11.3–35.4
400	Oxalate, urine	<40 mg/24 hr
401	Oxygen consumption	225–275 mL/min
402	Oxygen saturation, arterial blood	≥95%
403	Parathyroid hormone, serum	
404	<i>C-terminal</i>	150–350 pg/mL
405	Intact	10–65 pg/mL
406	Intact (dialysis patients only)	Target: 130–585 pg/mL
407	Parathyroid hormone-related protein, serum	<1.5 pmol/L
408	Partial thromboplastin time (activated) APTT	25–35 seconds
409	pH, urine	4.5–8.0
410	Phenolsulfonphthalein, urine	At least 25% excreted by 15 minutes; 40%
411	Phenytoin, serum	Therapeutic: 10–20 µg/mL
412	Phosphatase (acid), serum	
413	Phosphatase (acid), serum Total	0.5–2.0 (Bodansky) units/mL
414	Prostatic fraction	0.1–0.4 unit/mL
415	Phosphatase (alkaline), serum	30–120 U/L
416	Phospholipids, serum (total)	200–300 mg/dL
417	Phosphorus, serum	3.0–4.5 mg/dL
418	Phosphorus, urine	500–1200 mg/24 hr
419	Platelet count	150,000–450,000/µL
420	Platelet function analysis (PFA-100):	
421	Collagen–epinephrine closure time	60–143 seconds

422	Collagen-ADP closure time	58-123 seconds
423	Platelet survival rate ( <sup>51</sup> Cr)	10 days
424	Potassium, serum	3.5-5.0 mEq/L
425	Potassium, urine	
426	Spot	mEq/L; varies
427	24-hour measurement	mEq/24 hr; varies with intake
428	Prealbumin, serum	16-30 mg/dL
429	Pregnanetriol, urine	0.2-3.5 mg/24 hr
430	Pressure (opening) [initial], CSF	70-180 mm CSF (70-180 mm H <sub>2</sub> O)
431	Procalcitonin, serum	≤0.10 ng/mL
432	Progesterone, serum	
433	Progesterone Female, follicular	0.02-0.9 ng/mL
434	Progesterone Female, luteal	2-30 ng/mL
435	Progesterone Male (adult)	0.12-0.3 ng/mL
436	Proinsulin, serum	3-20 pmol/L
437	Prolactin, serum	<20 ng/mL
438	Prostate-specific antigen, serum	ng/mL; no specific normal or abnormal
439	Protein C activity, plasma	65%-150%
440	Protein C antigen, plasma	70%-140%
441	Protein catabolic rate, urine	goal: 1.0-1.2 g/kg/24 hr
442	Protein S activity, plasma	57%-131%
443	Protein S antigen, plasma	
444	Total	60%-140%
445	Free	60%-130%
446	Protein, urine	
447	Spot	mg/dL; varies
448	24-hour measurement	<100 mg/24 hr
449	Proteins, CSF total	15-45 mg/dL
450	Proteins, serum	
451	Proteins Total	5.5-9.0 g/dL
452	Albumin	3.5-5.5 g/dL
453	Proteins, serum (continued)	
454	Globulin	2.0-3.5 g/dL
455	Alpha1	0.2-0.4 g/dL
456	Alpha2	0.5-0.9 g/dL
457	Beta	0.6-1.1 g/dL
458	Gamma	0.7-1.7 g/dL
459	Protein-to-creatinine ratio, urine	<0.2 mg/mg
460	Prothrombin time, plasma	11-13 seconds
461	Pyruvic acid, blood	0.08-0.16 mmol/L
462	Quinidine, serum	Therapeutic: 2-5 µg/mL
463	Red cell distribution width (RDW)	9.0-14.5
464	Red cell mass	Female: 22.7-27.9 mL/kg; male: 24.9-32.5
465	Renin activity (angiotensin-I radioimmunoassay)	
466	Peripheral plasma	
467	Normal diet	
468	Supine	0.3-2.5 ng/mL/hr

469	Upright	0.2–3.6 ng/mL/hr
470	Low sodium diet	
471	Supine	0.9–4.5 ng/mL/hr
472	Upright	4.1–9.1 ng/mL/hr
473	Diuretics + low sodium diet	6.3–13.7 ng/mL/hr
474	Renal vein concentration	Normal ratio (high:low): <1.5
475	Reptilase time	10–12 seconds
476	Reticulocyte count	0.5%–1.5% of red cells
477	Reticulocyte count, absolute	25,000–100,000/ $\mu$ L
478	Rheumatoid factor (nephelometry)	<24 IU/mL
479	Rheumatoid factor, latex test for	$\leq$ 1:80
480	Ristocetin cofactor activity of plasma	50%–150%
481	Russell viper venom time, dilute	33–44 seconds
482	Salicylate, plasma	Therapeutic: 20–30 mg/dL
483	Sex hormone-binding globulin	Female, nonpregnant: 18–144
484	Sodium, serum	136–145 mEq/L
485	Sodium, urine	
486	Spot	mEq/L; varies
487	24-hour measurement	mEq/24 hr; varies with intake
488	Specific gravity, urine	1.002–1.030
489	Sperm density	10–150 million/mL
490	Sweat test for sodium and chloride	<60 mEq/L
491	T3 resin uptake	25%–35%
492	T-lymphocyte count, CD4	530–1570/ $\mu$ L
493	Tacrolimus, whole blood (trough)	Therapeutic: 5–15 ng/mL {For transplant
494	Testosterone, serum	Female: 18–54 ng/dL; male: 291–1100
495	Testosterone, bioavailable, serum	Female, age 18–69 yrs: 0.5–8.5 ng/dL
496	Testosterone, free, serum	Male: 70–300 pg/mL
497	Theophylline, serum	Therapeutic: 8–20 $\mu$ g/mL
498	Thrombin time	17–23 seconds
499	Thyroid function studies	
500	T3 resin uptake	25%–35%
501	Thyroglobulin, serum	<20 ng/mL
502	Thyroidal iodine ( <sup>123</sup> I) uptake	5%–30% of administered dose at 24 hours
503	Thyroid-stimulating hormone (TSH), serum	0.5–4.0 $\mu$ U/mL (0.5–4.0 mU/L)
504	Thyroid-stimulating immunoglobulin (TSI)	<130%
505	Thyroxine-binding globulin, serum	12–27 $\mu$ g/mL
506	Thyroxine index, free (estimate)	5–12
507	Thyroxine (T <sub>4</sub> ), serum	
508	Thyroxine (T <sub>4</sub> ) Total	5–12 $\mu$ g/dL
509	Thyroxine (T <sub>4</sub> ) Free FT <sub>4</sub>	0.8–1.8 ng/dL
510	Triiodothyronine (T <sub>3</sub> ), serum	
511	Triiodothyronine (T <sub>3</sub> ) Total	80–180 ng/dL
512	Triiodothyronine (T <sub>3</sub> ) Reverse	20–40 ng/dL
513	Triiodothyronine (T <sub>3</sub> ) Free FT <sub>3</sub>	2.3–4.2 pg/mL
514	Tissue transglutaminase antibody, IgA[by	<20 AU
515	Tissue transglutaminase antibody, IgG[by	<20 AU

516	Tissue transglutaminase antibody, IgA[by ELISA]	<4.0 U/mL
517	Tissue transglutaminase antibody, IgG[by ELISA]	<6.0 U/mL
518	Total proteins, CSF	15–45 mg/dL
519	Transaminase, serum glutamic oxaloacetic (SGOT)	<i>See</i> Aminotransferase, serum aspartate
520	Transaminase, serum glutamic pyruvic (SGPT)	<i>See</i> Aminotransferase, serum alanine
521	Transferrin saturation	20%–50%
522	Transferrin, serum	200–400 mg/dL
523	Triglycerides, serum (fasting)	
524	Triglycerides Optimal	<100 mg/dL
525	Triglycerides Normal	<150 mg/dL
526	Triglycerides Borderline-high	150–199 mg/dL
527	Triglycerides High	200–499 mg/dL
528	Triglycerides Very high	>499 mg/dL
529	Troponin I, cardiac, serum	≤0.04 ng/mL
530	Troponin T, cardiac, serum	≤0.01 ng/mL
531	Tryptase, serum	<11.5 ng/mL
532	Urea clearance, urine	
533	Urea clearance Standard	40–60 mL/min
534	Urea clearance Maximal	60–100 mL/min
535	Urea nitrogen, blood	8–20 mg/dL
536	Urea nitrogen, urine	12–20 g/24 hr
537	Uric acid, serum	3.0–7.0 mg/dL
538	Uric acid, urine	250–750 mg/24 hr
539	Uroporphyrin, urine	10–30 µg/24 hr
540	Vanillylmandelic acid, urine	<9 mg/24 hr
541	Venous oxygen content, mixed	14–16 mL/dL
542	Zinc	70 - 150 mg/dl