

## REFERENCE VALUES

Laboratory Parameter	SI	Conversion Factor(CF)	Conventional(C)
	$CF \times C = SI$		
<b>Acetoacetate</b> , plasma	< 100µmol/L	97.95	< 1 mg/dL
<b>Adrenal Steroids</b> , plasma			
<b>Aldosterone</b> , supine,saline suppression	< 240pmol/L	27.74	< 8.5 ng/dL
<b>Aldosterone</b> , upright,normal diet	140-560 pmol/L	27.74	5-20 ng/dL
<b>Cortisol</b>			
8 AM	140-690nmol/L	27.59	5-25 µg/dL
4 PM	80-330nmol/L	27.59	3-12 µg/dL
Overnight dexamethasone suppression	< 140 nmol/L	27.59	< 5 µg/dl
<b>Dehydroepiandrosterone(DHEA)</b>	7-31 nmol/L	3.467	2-9 µg/dL
<b>Dehydroepiandrosterone Sulfate (DHEAS)</b>			
	1.3-6.8 µg/dL	0.002714	500-2500ng/ml
<b>11-Deoxycortisol</b>	< 30 nmol/L	28.86	< 1 µg/dL
<b>17-Hydroxyprogesterone</b>			
Women,follicular phase	0.6-3 nmol/L	3.026	0.2-1µg/L
Women,;luteal phase	1.5-10.6 nmol/L	3.026	0.5-3.5µg/L
Men	1.8-9 nmol/L	3.026	0.6-3µg/L
<b>Adrenal Steroids</b> , urine			
<b>Aldosterone</b>	14-53nmol/d	2.774	5-19µg / d
<b>Cortisol</b> , free	55-276nmol/d	2.759	20-100µg / d
<b>17-Hydroxycorticosteroids</b>	5.4-27.6µmol/d	2.759	2-10mg/d
<b>17-Ketosteroids</b>			
Men	25-88µmol / d	3.467	7-25mg/d
Women	14-53µmol / d	3.467	4-16mg/d
<b>Ammonia</b> , asNH <sub>3</sub> , plasma	6-47µmol / L	0.5872	10-80µg / dL
<b>Angiotensia II</b> , plasma	10-60ng/L	---	10-60pg/mL
<b>Calciferols(as Cholecalciferol, Vitamin D3)plasma</b>			
<b>1,25-Dihydroxycholecalciferol[1,25(OH)<sub>2</sub>D]</b>	36-144pmol/L	2.400	15-60pg/mL
<b>25-Hydroxycholecalciferol(25-OH-D)</b>	20-100nmol/L	2.496	8-40ng/mL
<b>Calcitonin</b> , plasma			
Normal	<19ng/L	---	<19pg/mL
Medullary cancer	>100ng/L	---	>100pg/mL
<b>Calcium</b>			
Ionized serum	1-1.4mmol/L	0.2495	4-5.6mg/dL
Total serum	2.2-2.6mmol/L	0.2495	9-10.5mg/dL

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<b>Catecholamines,urine</b>			
<b>Free Catecholamines</b>	<590 nmol/d	5.911	<100µg/d
<b>Epinephrine</b>	<275 nmol/d	5.458	<50µg/d
<b>Metanephrines</b>	<7µmol/d	5.485	<1.3ng/d
<b>Norepinephrine</b>	89-473 nmol/d	5.910	15-89µg/d
<b>Vanillylmandelic Acid(VMA)</b>	<40µmol/d	5.046	<8 mg/d
<b>Chloride,serum</b>	98-106µmol/d	---	98-106 mEq/L
<b>Cholesterol,total plasma</b>			
Desirable	<5.20 mmol/L	0.02586	<200 mg/dL
Borderline	5.20-6.18mmol/L	0.02586	200-239 mg/dL
Undesirable	≥6.21mmol/L	0.02586	≥240
mg/dL			
<b>Cholesterol,high-Density Lipoprotein(HDL Cholesterol),plasma</b>			
Desirable	>1.55 mmol/L	0.02586	>69 mg/dL
Borderline	0.9-1.55mmol/L	0.02586	35-60 mg/dL
Undesirable	<0.9mmol/L	0.02586	<35 mg/dL
<b>Cholesterol,Low-Density Lipoprotein(HDL Cholesterol),plasma</b>			
Desirable	<3.36 mmol/L	0.02586	<130 mg/dL
Borderline	3.36-4.11mmol/L	0.02586	130-159 mg/dL
Undesirable	≥4.14mmol/L	0.02586	≥160
mg/dL			
<b>Corticotropin(ACTH)plasma,8 AM</b>	2-11pmol/L	0.2202	9-52 pg/ml
<b>Fatty Acid,free(nonesterfied)(FFA),plasma</b>	0.4-0.7nmol/L	0.03780	10.6-18
mg/dL			
<b>Gastrin,plasma</b>	<120g1/L	---	
<120pg/mL			
<b>Glucagon,plasma</b>	50-100ng/L	---	50-100 ng/m
L			
<b>Glucose,plasma</b>			
Overnight fast,normal	4.2-4.6mmol/L	0.05551	75-115mg/dl
Overnight fast,diabetes mellitus			
National Diabetes Data Group	>7.8mmol/L	0.05551	>140mg/dL
American Diabetes Association	>7.0mmol/L	0.05551	>126mg/dl
72-h fast normal men	>2.8mmol/L	0.05551	>50mg/dL
72-h fast normal women	>2.2mmol/L	0.05551	>40mg/dl

**Glucose Tolerance Test, 2-h postprandial plasma glucose**

Normal	<7.8mmol/L	0.05551	<140mg/dL
Impaired glucose tolerance	7.8-11.1mmol/L	0.05551	140-200mg/dL
Diabetes mellitus	>11.1mmol/L	0.05551	>200mg/dL

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**Gonadal Steroids, plasma****Androstenedione**

Women	3.5-7.0nmol/L	3.492	1-2ng/mL
Men	3.0-5.0nmol/L	3.492	0.8-1.3ng/mL

**Dihydrotestosterone**

Women	0.17-1nmol/L	3.467	0.05-3ng/mL
Men	0.87-2.6nmol/L	3.467	0.25-0.75ng/mL

**Estradiol**

Women, basal	70-220 pmol/L	3.671	20-60pg/mL
Women, ovulatory surge	>740 pmol/L	3.671	>200pg/mL
Men	<180 pmol/L	3.671	<50pg/mL

**Progesterone**

Women, luteal phase	6-64nmol/L	3.180	2-20ng/mL
Women, follicular phase	<6nmol/L	3.180	<2ng/mL
Men	<6nmol/L	3.180	<2ng/mL

**Testosterone**

Women	<3.5nmol/L	3.467	<1ng/mL
Men	10-35nmol/L	3.467	3-10ng/mL

**Gonadotropins, plasma****Follicle-Stimulating Hormone(FSH)**

Women basal	1.4-9.6 IU/L	---	1.4-9.6 mIU/mL
Women ovulatory	2.3-21 IU/L	---	2.3-21 mIU/mL
Women, postmenopausal	34-96 IU/L	---	34-96 mIU/mL
Men	0.9-15 IU/L	---	0.9-15 mIU/mL

**Luteinizing Hormone(LH)**

Women basal	0.8-26 IU/L	---	0.8-26 mIU/mL
Women ovulatory	25-57 IU/L	---	25-57 mIU/mL
Women, postmenopausal	40-104 IU/L	---	40-104 mIU/mL
Men	1.3-13 IU/L	---	1.3-13 mIU/mL

**Growth Hormone(GH), plasma**

After 100g glucose orally	<2µg/L	---	<2ng/mL
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After insulin-induced hypoglycemia	>9µg/L	---	>9ng/mL
<b>Human Chorionic Gonadotropin β Subunit (β-hCG),plasma</b>			
Men and nonpregnant women	<3 IU/L	---	<3mIU/mL
<b>β-Hydroxybutyrate,plasma</b>	<300µmol/L	96.05	<3mg/dL

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<b>Insulin,plasma</b>			
Fasting	35-145 pmol/L	7.175	5-20uU/mL
During hypoglycemia (plasma glucose<2.8nmol/L,<50mg/mL)	<35 pmol/L	7.175	<5uU/mL
<b>Insulin C Peptide,plasma</b>	0.5-2µg/L	---	0.5-2pg/mL
<b>Insulin-Like Growth Factor I(IGF-I,Somatomedin-C)</b>			
Women	0.45-2.2kU/L	---	0.45-2.2kU/mL
Men	0.34-1.9kU/L	---	0.34-1.9kU/mL
<b>Lactate,plasma</b>	0.56-2.2 mmol/L	0.111	5-20mg/dL
<b>Magnesium,serum</b>	0.8-1.30 mmol/L	0.4114	1.8-3.0mg/dL
<b>Osmolality,plasma</b>	285-295 mmol/kg	---	285-295mOsmol/L
<b>Oxytocin,plasma</b>			
Random	1-4 pmol/L	0.80	1.25-5ng/L
Women,ovulatory surge	4-8 pmol/L	0.80	5-10ng/L
<b>Parathyroid Hormone,serum</b>			
(Intact PTH using IRMA assay)	10-65ng/L	---	10-65pg/mL
<b>Phosphorus,inorganic,serum</b>	1-1.5 mmol/L	0.3229	3.0-4.5mg/dL
<b>Prolactin,serum</b>			
Nonpregnant women and men	2-15µg/L	---	2-15mg/mL
<b>Pyruvate,plasma</b>	39-102µmol/l	0.01129	0.3-0.9mg/dL
<b>Renin Activity,plasma,normol-sodium intake</b>			
Supine	3.2±1µg/L/h	---	3.2±1ng/mL/h
Standing	9.3±4.3µg/L/h	---	9.3±4.3ng/mL/h
<b>Sodium,serum</b>	136-145 mmol/L	---	136-145 mEq/L
<b>Thyroid Function Test</b>			
Free thyroxine estimate	9-26 pmol/L	12.87	0.7-2.0ng/dL
Radioactive iodine uptake,24h	0.05-0.30	---	5-30%
Resin T <sub>3</sub> uptake,serum	0.25-0.35	---	25-35%
Reverse triiodothyronine(rT <sub>3</sub> ),serum	0.15-0.61nmol/l	0.01536	10-40ng/dL
Thyroid hormone-binding ratio(THBR)	0.85-1.10	---	85-110%

Thyrotropin(TSH),serum	0.5-5mU/L	---	0.5-5 $\mu$ U/mL
Thyroxine(T <sub>4</sub> ),serum	64-154nmol/L	12.87	5-12 $\mu$ g/dL
Triiodothyronine(T <sub>3</sub> ),serum	1.1-2.9nmol/L	0.01536	70-190ng/dL
<b>Triglycerides</b> ,plasma	<1.80 mmol/L	0.01129	<160mg/dl
<b>Vitamin D</b> ,see <b>Calciferols</b>			