

TEST	RESULTS	REFERENCE RANGES	UNITS	PL
------	---------	------------------	-------	----

**HEMATOLOGY**

**CBC w/ Differential, w/ Platelet**

WBC	7.7	4.0 - 11.0	k/mm3	
RBC	5.03	3.70 - 5.40	m/mm3	
Hemoglobin	15.1	11.5 - 16.0	g/dL	
Hematocrit	45.1	35.0 - 48.0	%	
MCV	89.7	78.0 - 100.0	fL	
MCH	30.0	27.0 - 34.0	pg	
MCHC	33.5	31.0 - 37.0	g/dL	
Platelet Count	275	130 - 450	k/mm3	
RDW(sd)	43.9	38.0 - 49.0	fL	
RDW(cv)	13.4	11.0 - 15.0	%	
MPV	10.0	7.5 - 14.0	fL	
Segmented Neutrophils	59.7*		%	
Lymphocytes	30.6		%	
Monocytes	6.1		%	
Eosinophils	2.2		%	
Basophils	0.9		%	
Absolute Neutrophil	4.57	1.60 - 9.30	k/uL	
Absolute Lymphocyte	2.35	0.60 - 5.50	k/uL	
Absolute Monocyte	0.47	0.10 - 1.60	k/uL	
Absolute Eosinophil	0.17	0.00 - 0.70	k/uL	
Absolute Basophil	0.07	0.00 - 0.20	k/uL	
Immature Granulocytes	0.5		%	
Absolute Immature Granulocytes	0.04	0.00 - 0.10	k/uL	
NRBC RE, Nucleated Red Blood Cell Percent	0.0	0.0 - 1.0	%	

\*Segmented Neutrophils: Automated Diff

**CHEMISTRY**

**CRP, High Sensitivity**

**6.4 H** ≤0.9 mg/L

High cardiovascular risk according to AHA/CDC guidelines.

CRP, High Sensitivity Reference Range reflects the lowest cardiovascular risk for ages >17 years:

mg/L	Risk according to AHA/CDC guidelines
≤0.9	Low cardiovascular risk
1.0-3.0	Average cardiovascular risk
3.1-10.0	High cardiovascular risk
≥10.1	Persistent elevations may represent non-cardiovascular inflammation

Significant decreases in C-reactive protein may be observed in patients treated with carboxypenicillins.

<b>TSH, High Sensitivity</b>	<b>14.60 H</b>	0.27 - 4.20	mU/L
T3 Free Non-Dialysis	3.4	2.0 - 4.8	pg/mL
T4 Free Non-Dialysis	0.9	0.8 - 1.7	ng/dL
Ferritin	98	14 - 313	ng/mL
Progesterone	0.31	See Comment	ng/mL

Progesterone Reference Ranges:

Adult Female Reference Ranges:

Non-Pregnant Female:

Follicular	0.06 - 0.89 ng/mL
Ovulation	0.12 - 12.00 ng/mL
Luteal	1.83 - 23.90 ng/mL
Post-Menopausal (50 years and older):	<0.14 ng/mL

Pregnant:

First Trimester	11.00 - 44.30 ng/mL
Second Trimester	25.40 - 83.30 ng/mL
Third Trimester	58.70 - 214.00 ng/mL

Adult Male Reference Range: <0.47 ng/mL

No reference ranges established for pediatric patients.

<b>DHEA Sulfate</b>	<b>223 H</b>	16 - 195	ug/dL
Insulin, Fasting	6	2 - 25	uIU/mL
Cortisol, AM	11.7	6.0 - 18.4	ug/dL
Microsomal TPO Antibody	55.5	≤60.0	U/mL

Assay performance has not been established for neonates.

<b>Thyroglobulin Antibodies</b>	<b>5.6 H</b>	≤3.9	IU/mL
---------------------------------	--------------	------	-------

Thyroglobulin antibodies are performed on the Beckman Coulter DxI using a paramagnetic particle chemiluminescent immunoassay method.

<b>Dihydrotestosterone, LC/MS/MS</b>	<b>30 H</b>	< OR = 20	ng/dL	NL
--------------------------------------	-------------	-----------	-------	----

This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute San Juan Capistrano. It has not been cleared or approved by FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

Estrone	56		pg/mL	NL
---------	----	--	-------	----

Adult Female Reference Ranges for Estrone:

Follicular Phase:	10-138 pg/mL
Luteal Phase:	16-173 pg/mL
Postmenopausal Phase:	< or = 65 pg/mL

Pediatric Female Reference Ranges for Estrone:

Pre-pubertal

(1-9 years):	< or = 34 pg/mL
10-11 years:	< or = 72 pg/mL
12-14 years:	< or = 75 pg/mL
15-17 years:	< or = 188 pg/mL

This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute San Juan Capistrano. It has not been cleared or approved by FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

**Comprehensive Metabolic Panel**

<b>Glucose</b>	<b>102 H *</b>	70 - 99	mg/dL
Urea Nitrogen (BUN)	12	7 - 28	mg/dL
Creatinine	0.93	0.60 - 1.40	mg/dL
eGFRcr CKD-EPI	71*	≥60	mL/min/1.73m <sup>2</sup>
BUN/Creatinine Ratio	12.9	10.0 - 28.0	
Sodium	142	135 - 145	mmol/L
Potassium	4.0	3.6 - 5.3	mmol/L
Chloride	107	98 - 108	mmol/L
Carbon Dioxide (CO <sub>2</sub> )	24	20 - 31	mmol/L
Anion Gap	11	4 - 18	
Protein, Total	6.9	6.0 - 7.7	g/dL
Albumin	4.5	3.8 - 5.1	g/dL
Globulin	2.4	1.9 - 3.7	g/dL
Albumin/Globulin Ratio	1.9	1.0 - 2.5	
Calcium	9.0	8.7 - 10.4	mg/dL
Alkaline Phosphatase	71	42 - 146	IU/L
Alanine Aminotransferase	19	5 - 46	IU/L
Aspartate Aminotransferase	16	11 - 40	IU/L
Bilirubin, Total	0.5	≤1.3	mg/dL

\*Glucose: Glucose reference range reflects fasting state.

\*eGFRcr CKD-EPI: eGFRcr calculated using the CKD-EPI 2021 equation

**Lipid Panel**

<b>Cholesterol</b>	<b>290 H</b>	≤199	mg/dL
<b>Triglyceride</b>	<b>231 H</b>	≤149	mg/dL
<b>Cholesterol/HDL Ratio</b>	<b>4.9 H</b>	≤4.4	
HDL Cholesterol	59	≥50	mg/dL
<b>Non-HDL Cholesterol</b>	<b>231 H</b>	≤129	mg/dL
<b>LDL Cholesterol, Calculated</b>	<b>194 H *</b>	≤99	mg/dL
<b>VLDL Cholesterol</b>	<b>37 H</b>	≤29	mg/dL

\*LDL Cholesterol, Calculated: LDL-C is calculated by using the Martin-Hopkins equation. (JAMA. 2013;310(19):2061-2068)

For moderately high risk and high risk cardiac patients, reference levels of <100 mg/dL and <70 mg/dL, respectively, should be considered. Circulation 2004; 110:227-239.

**Hemoglobin A1c With eAG\***

<b>Hemoglobin A1c</b>	<b>5.7 H *</b>	<b>≤5.6</b>	<b>%</b>
Estimated Average Glucose (eAG)	117	Not Established	

\*Hemoglobin A1c: The American Diabetes Association (ADA) guidelines for interpreting Hemoglobin A1c are as follows:  
 Non-Diabetic patient: <=5.6%  
 Increased risk for future Diabetes: 5.7-6.4%  
 ADA diagnostic criteria for Diabetes: >=6.5%

Values for patients with Diabetes:  
 Meets ADA's recommended goal for therapy: <7.0%  
 Exceeds ADA's recommended goal: 7.0-8.0%  
 ADA recommends reevaluation of therapy: >8.0%

\*Hemoglobin A1c With eAG: If the presence of a hemoglobin variant is suspected, do not use % HbA1c results for diagnosis of diabetes mellitus.

In uncontrolled diabetics, high levels of Hemoglobin F (Hb F) may be present. Presence of Hb F greater than 7% of total may result in lower than expected % HbA1c.

Any cause that shortens erythrocyte survival or decreases mean erythrocyte age may reduce expected % HbA1c values even in the presence of elevated average blood glucose. Causes may include hemolytic disease, homozygous sickle cell trait, pregnancy, and recent significant/chronic blood loss. In addition, recent blood transfusions can alter expected % HbA1c values.

**IGF-1, LC/MS**

IGF-1, LC/MS	80	50-317	ng/mL	NL
Z-Score (Female)	-1.1*	-2.0 - +2.0	SD	NL

\*Z-Score (Female): This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics Nichols Institute San Juan Capistrano. It has not been cleared or approved by FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

**Vitamin D, 25-Hydroxy D2/D3, LC/MS/MS**

Vitamin D, 25-OH, D2	<4*	Not established	ng/mL
Vitamin D, 25-OH, D3	31*	Not established	ng/mL
Vitamin D, 25-OH, Total	31*	≥20	ng/mL

\*All Tests: This test was developed and its performance characteristics determined by Sonora Quest Laboratories. It has not been cleared or approved by the FDA. The laboratory is regulated under CLIA as qualified to perform high-complexity testing. This test is used for clinical purposes. It should not be regarded as investigational or for research.

\*Vitamin D, 25-OH, Total: Vitamin D, 25-OH, Total:  
 <10 ng/mL Severe Deficiency  
 10 - 19 ng/mL Mild/Moderate Deficiency  
 20 - 50 ng/mL Optimum  
 51 - 150 ng/mL Increased Risk of Hypercalciuria  
 >150 ng/mL Possible Toxicity

Reference intervals apply to males and females, all ages.

Clinical decision values based on 2011 report by the Institute of Medicine (US).

## CARDIOVASCULAR TESTING

### Cardio IQ NMR LipoProfile w/ Lipids

<b>LDL-P</b>	<b>2402 H *</b>	<935	nmol/L	<b>High</b>	CN
<b>Small LDL-P</b>	<b>730 H *</b>	<467	nmol/L	<b>Moderate</b>	CN
LDL Size	21.3*	>20.5	nm	Optimal	CN
HDL-P	39.3*	>32.8	umol/L	Optimal	CN
<b>Large HDL-P</b>	<b>6.0 L *</b>	>7.2	umol/L	<b>Moderate</b>	CN
<b>HDL Size</b>	<b>8.7 L *</b>	>9.0	nm	<b>Moderate</b>	CN
<b>Large VLDL-P</b>	<b>10.3 H *</b>	<3.7	nmol/L	<b>High</b>	CN
<b>VLDL Size</b>	<b>49.8 H *</b>	<47.1	nm	<b>High</b>	CN
<b>LDL Cholesterol, Calculated</b>	<b>186 H *</b>	<100	mg/dL (calc)	<b>High</b>	CN
HDL Cholesterol	58	>49	mg/dL	Optimal	CN
<b>Triglycerides</b>	<b>223 H *</b>	<150	mg/dL	<b>High</b>	CN
<b>Cholesterol, Total</b>	<b>285 H</b>	<200	mg/dL	<b>High</b>	CN
<b>Non-HDL Cholesterol</b>	<b>227 H *</b>	<130	mg/dL (calc)	<b>High</b>	CN
<b>Cholesterol/HDL ratio</b>	<b>4.9 H</b>	<3.6	calc	<b>Moderate</b>	CN
<b>TG/HDL-C</b>	<b>3.8 H</b>	<2.0	calc	<b>High</b>	CN

\*LDL-P: Relative risk: Optimal <935; Moderate 935-1816; High >1816 nmol/L. Reference range is 592-2404 nmol/L. This test is performed by a Nuclear Magnetic Resonance method. This test was developed and its performance characteristics determined by The Cleveland HeartLab, Inc. It has not been cleared or approved by the U.S. FDA. The Cleveland HeartLab is regulated under Clinical Laboratory Improvement Amendments (CLIA) as qualified to perform high-complexity testing. This test is used for clinical purposes. It should not be regarded as investigational or for research.

\*Small LDL-P: Relative risk: Optimal <467; Moderate 467-820; High >820 nmol/L. Reference range is <1408 nmol/L.

\*LDL Size: Relative risk: Optimal >20.5; High <20.6 nm. Reference range is 20.0-22.3 nm.

\*HDL-P: Relative risk: Optimal >32.8; Moderate 29.2-32.8; High <29.2 umol/L. Reference range is 21.1-43.4 umol/L.

\*Large HDL-P: Relative risk: Optimal >7.2; Moderate 5.3-7.2; High <5.3 umol/L. Reference range is >3.5 umol/L.

\*HDL Size: Relative risk: Optimal >9.0; Moderate 8.7-9.0; High <8.7 nm. Reference range is 8.3-10.5 nm.

\*Large VLDL-P: Relative risk: Optimal <3.7; Moderate 3.7-6.1; High >6.1 nmol/L. Reference range is <16.0 nmol/L.

\*VLDL Size: Relative risk: Optimal <47.1; Moderate 47.1-49.0; High >49.0 nm. Reference range is 41.1-61.7 nm.

Desirable range <100 mg/dL for primary prevention; <70 mg/dL for patients with CHD or diabetic patients with  $\geq 2$  CHD risk factors.

LDL-C is now calculated using the Martin-Hopkins calculation, which is a validated novel method providing better accuracy than the Friedewald equation in the estimation of LDL-C. Martin SS et al. JAMA. 2013;310(19): 2061-2068 (<http://education.QuestDiagnostics.com/faq/FAQ164>)

\*Triglycerides: If a non fasting specimen was collected, consider repeat triglyceride testing on a fasting specimen if clinically indicated. Jacobson et al. J of Clin. Lipidol. 215; 9:129-169.

\*Non-HDL Cholesterol: Non-HDL level  $\geq 220$  is very high and may indicate genetic familial hypercholesterolemia (FH). Clinical assessment and measurement of blood lipid levels should be considered for all first-degree relatives of patients with an FH diagnosis.

Tests Ordered: Comprehensive Metabolic Panel; Lipid Panel; CBC w/ Differential, w/ Platelet; CRP, High Sensitivity; Hemoglobin A1c With eAG; T3 Free Non-Dialysis; T4 Free Non-Dialysis; TSH, High Sensitivity; Vitamin D, 25-Hydroxy D2/D3, LC/MS/MS; Cortisol, AM; DHEA Sulfate; Dihydrotestosterone, LC/MS/MS; Estrone; Ferritin; IGF-1, LC/MS; Microsomal TPO Antibody; Progesterone; Thyroglobulin Antibodies; Insulin, Fasting; Cardio IQ NMR LipoProfile w/ Lipids

Values Outside of Reference Range				
TEST	RESULTS	REFERENCE RANGES	UNITS	
CRP, High Sensitivity	6.4 H	≤0.9	mg/L	
TSH, High Sensitivity	14.60 H	0.27 - 4.20	mU/L	
DHEA Sulfate	223 H	16 - 195	ug/dL	
Thyroglobulin Antibodies	5.6 H	≤3.9	IU/mL	
Dihydrotestosterone, LC/MS/MS	30 H	< OR = 20	ng/dL	
Glucose	102 H	70 - 99	mg/dL	
Cholesterol	290 H	≤199	mg/dL	
Triglyceride	231 H	≤149	mg/dL	
Cholesterol/HDL Ratio	4.9 H	≤4.4		
Non-HDL Cholesterol	231 H	≤129	mg/dL	
LDL Cholesterol, Calculated	194 H	≤99	mg/dL	
VLDL Cholesterol	37 H	≤29	mg/dL	
Hemoglobin A1c	5.7 H	≤5.6	%	
LDL-P	2402 H	<935	nmol/L	High
Small LDL-P	730 H	<467	nmol/L	Moderate
Large HDL-P	6.0 L	>7.2	umol/L	Moderate
HDL Size	8.7 L	>9.0	nm	Moderate
Large VLDL-P	10.3 H	<3.7	nmol/L	High
VLDL Size	49.8 H	<47.1	nm	High
LDL Cholesterol, Calculated	186 H	<100	mg/dL (calc)	High
Triglycerides	223 H	<150	mg/dL	High
Cholesterol, Total	285 H	<200	mg/dL	High
Non-HDL Cholesterol	227 H	<130	mg/dL (calc)	High
Cholesterol/HDL ratio	4.9 H	<3.6	calc	Moderate
TG/HDL-C	3.8 H	<2.0	calc	High

Values listed above may not include all results considered abnormal for this patient (e.g., text-only results, such as those for some pathology/cytology specimens, and results for analytes without established reference ranges will not appear). Always review the entire patient report and correlate all results with the patient's clinical condition.

Unless otherwise noted, testing performed by: Sonora Quest Laboratories, 424 S 56th St, Phoenix, AZ 85034 800.766.6721

Testing noted as NL performed by: Quest Diagnostics Nichols Institute (SJC), 33608 Ortega Hwy, San Juan Capistrano, CA 92690 800.642.4657

Testing noted as CN performed by: Cleveland HeartLab, Inc, 6701 Carnegie Avenue, Cleveland, OH 44103 866.358.9828

**End of Report**