SAMPLE REPORT

Reference: DR.DR PROMISO HEALTH

Sample Collected At:
Promiso Health Private Limited
Ground Floor, Spl No 10,kssidc Industrial Area,mahadevapura,bengaluru 560048
Processing Location:- Metropolis Healthcare Ltd. #76/10,15th cross,Malleshwaram,Bangalore.

CBC Haemogram

Investigation	Observed Value	Unit	Biological Reference Interval
Erythrocytes			
Haemoglobin (Hb) (Photometric Measurement - Automated)	12.9	gm%	11.5-16.5
Erythrocyte (RBC) Count (Coulter principle/ Electrical Impedance - Automated)	4.57	mlln/cu.mm	3.5-5.5
PCV (Packed Cell Volume) (Calculated)	40.0	%	37-47
MCV (Mean Corpuscular Volume) (Derived from RBC Histogram)	87.5	fL	76-96
MCH (Mean Corpuscular Hb) (Calculated)	28.3	pg	27-32
MCHC (Mean Corpuscular Hb Concn.) (Calculated)	32.3	%	30-35
RDW (Red Cell Distribution Width) (Derived from RBC Histogram)	14.8	%	< 15
Leucocytes			
Total Leucocytes (WBC) count (Coulter principle/ Electrical Impedance - Automated)	9,900	cells/cu.mm	4000-11500
Absolute Neutrophils Count (Calculated)	6296.4	cells/mm3	Upto 8625
Absolute Lymphocyte Count (Calculated)	2851.2	cells/cu.mm	Upto 4600
Absolute Monocyte Count (Calculated)	455.4	cells/mm3	Upto 1380
Absolute Eosinophil Count (Calculated)	267.3	cells/mm3	Upto 444
Absolute Basophil Count (Calculated)	29.7	cells/mm3	Upto 110
Neutrophils (Coulter VCSn Tech - Automated)	63.6	%	40-75
Lymphocytes (Coulter VCSn Tech - Automated)	28.8	%	20-40
Monocytes (Coulter VCSn Tech - Automated)	4.6	%	2-12
Eosinophils (Coulter VCSn Tech - Automated)	**2.7**	%	3-8
Basophils	0.3	%	0-2

Dr. Varsha B
MBBS,MD PATHOLOGY, KMC NO:117036

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(Coulter VCSn Tech - Automated)

Platelets

Platelet count (Coulter principle/ Electrical Impedance - Automated / Light Microscopy)	371000	cells/cu.mm	150000-450000
MPV (Mean Platelet Volume)	9.2	fL	

Note:- Kindly note change in reference ranges.
EDTA Whole Blood-Tests done on Automated Five Part Cell Counter. (RBC and Platelet count by impedance/Hydrodynamic focusing,WBC and differential by VCS technology/Impedance/Flow cytometry.Rest are calculated parameters).All Abnormal Haemograms are reviewed confirmed microscopically.Differential count is based on approximately 10,000 cells.

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MBBS,MD PATHOLOGY,KMC NO:117036

Investigation	Observed Value	Unit	Biological Reference Interval
TOTAL HEALTH COMPREHENSIVE			
Glucose fasting (Plasma-F,Hexokinase)	88.5	mg/dL	Normal: 70-99 Impaired Fasting Glucose(IFG): 100-125 Diabetes mellitus: >= 126 (on more than one occasion) (American diabetes association guidelines 2022)

Note: An individual may show higher fasting glucose level in comparison to post prandial glucose level due to following reasons : The glycaemic index and response to food consumed, Changes in body composition, Increased insulin response and sensitivity, Alimentary hypoglycemia, Renal glycosuria, Effect of oral hypoglycaemics & Insulin treatment.

Associated Tests: HbA1c (H0018), Diabetes Profile – Maxi (D0021),HOMA Index (H0275), Insulin (I0275).

Please see Recent Change in Reference Range.

Lipid Profile-2			
Cholesterol-Total (Serum,Enzymatic)	191.9	mg/dL	Desirable: < 200 Borderline: 200-240 High: > 240
HDL Cholesterol (Serum,Enzymatic)	46.5	mg/dL	Low: < 40 High: >= 60 Normal: 40-60
Non HDL Cholesterol (Serum,Calculated)	**145.4**	mg/dL	Optimal: < 130 Desirable: 130-159 Borderline high: 160-189 High: 190-220 Very High: >= 220

Note: Non-HDL cholesterol is a strong predictive risk factor of atherosclerotic cardiovascular disease. NCEP ATP-III identifies non-HDL cholesterol as a secondary target of therapy in those with triglycerides >200 mg/dl. The reference range for non-HDL cholesterol has been incorporated, including Friedewald equation for VLDL calculation, as per NCEP ATP-III guidelines.

LDL Cholesterol (Serum,Direct)	**121.4**	mg/dL	Optimal: < 100 Near Optimal: 100-129 Borderline high: 130-159 High: 160-189 Very High: >= 190
VLDL Cholesterol (Serum,Calculated)	18.8	mg/dL	Upto 40
Triglycerides (Serum,Enzymatic)	94.1	mg/dL	Normal: < 150 Borderline High: 150-199 High: 200-499

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Very High : >= 500

NOTE : NCEP recommends TWO or THREE serial fasting samples for Triglycerides, since physiological variations are high in this parameter.

CHOL/HDL RATIO (Serum)	4.1	3.5-5
LDL/HDL RATIO (Serum,Calculated)	2.6	2.5-3.5

Note : Lipid profile interpretation is as per NCEP - ATP III guidelines. NCEP Panel recommends TWO serial fasting samples obtained, at least 1 week apart, for Total Cholesterol, TWO or THREE serial fasting samples recommended for HDL & LDL, since physiological variations are high in these parameters. Therefore we recommend NCEP guidelines for interpretation and treatment of Hyperlipidemia.

Calcium (Serum,BAPTA)	9.26	mg/dL	8.7-10.7

Calcium is a very sensitive test and any haemolysis in the sample may give rise to false high values.False low values are seen if any anticoagulated sample is used.We recommend to repeat the test with fresh sample in case the values are abnormal.

Phosphorous (Serum,Phospomolybdate)	4.5	mg/dL	2.5-4.5
Electrolytes (Serum,ISE)			
Sodium	141	mEq/L	135-150
Potassium	5.4	mEq/L	3.5-5.4

False low/high values are found if the sample is not collected properly, eg: haemolysed sample, Anticoagulated sample etc.

Chlorides	103	mEq/L	95-107
Uric Acid (Serum,Enzymatic)	4.1	mg/dL	2.4-5.7

Note : Since Uric Acid is elevated in number disease process where there is increased metabolic turnover,correlation with clinical data is requested,for interpretation of the results.

Alkaline Phosphatase (Serum,kinetic)	**111**	U/L	35-104
SGOT (AST) (Serum,UV Kinetic)	17.9	U/L	< 32
SGPT (ALT) (Serum,UV Kinetic)	14.7	U/L	< 33

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BilirubinTotal, Direct, IndirectSerum

Bilirubin-Total (Serum,Diazo)	0.26	mg/dL	0.1-1.2

In certain normal individuals Total Bilirubin upto 2.0 mg/dL is considered as normal.
Ref: Tietz 5th edition.

Bilirubin-Direct (Serum,Diazo)	0.15	mg/dL	0-0.50
Bilirubin- Indirect (Serum,Calculated)	0.11	mg/dL	0-0.8
Gamma GT (GGTP) (Serum,kinetic)	17	U/L	< 40

Proteins

Total Protein (Serum,Capillary Electrophoresis)	7.2	g/dL	6.4-8.3
Albumin (Serum,Bromocresol green)	4.2	g/dL	3.5-5.2
Globulin (Serum,Calculated)	3.0	g/dL	2.3-3.5
A/G Ratio (Serum,Calculated)	1.4		1.1-1.8
HsCRP-High Sensitivity CRP (Serum,Turbidimetric Immunoassay)	**4.18**	mg/L	<= 3

Interpretation:

1. High sensitivity C reactive protein (hs CRP) measurements may be used as an independent risk marker for the identification of individuals at risk for future cardiovascular disease.
2. hs CRP when used in conjunction with traditional risk factors may be useful as an independent marker for prognosis of recurrent events in patients with stable coronary disease or acute coronary syndromes.
3. Patients with evidence of active infection, systemic inflammatory processes or trauma should not be tested for cardiovascular risk assessment until these conditions are abated.

CRP - C Reactive Protein (Serum,Immuno Turbidimetry)	3.86	mg/L	< 5.0

CRP is increased in many Inflammatory conditions and in tissue injury.Highest level is found in Bacterial infections >100 mg/L, than in Viral Infections.

Please note recent change in Reference Range.

CPK-Creatinine Phospho Kinase (Serum,kinetic)	57	U/L at 37°C	20-180

Interpretation :

- Creatinine Kinase (CK) is also called as creatinine phosphokinase (CPK) or phosphocreatine kinase.

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- CPK levels are useful for diagnosing and monitoring of Heart & Muscle related issues such as myocardial infraction (MI) and myopathies.
- Creatine kinase activity begins to rise within 12 hours of Acute Myocardial infarction symptoms, peaks at 24 to 36 hours, and normalizes after 48 to 72 hours

Clinical Utility:
The CPK test used primarily

- To help diagnose a heart attack/chest pain
- To assess the extent of damage to heart or muscle tissue
- To determine muscular dystrophy.
- It also helps in diagnosis of
- Myositis
- Malignant hyperthermia
- Other conditions related to muscle breakdown.

Caution:

- Exercise, muscle trauma, recent surgery, cardiac catheterization, some vaccines can elevate CPK values.
- Presence of Macro CK may elevate CPK levels.
- Medications that interfere with CPK test are steroids, anesthetics, Amphotericin B, alcohol, Cocaine.

Associated Tests: CPK Isoenzymes Serum (C0164).

Reference:

- Package insert
- Wallach's interpretation of diagnostic tests, Ed11, 2020
- Tietz fundamentals of clinical chemistry 6th edition. Burtis CA, Ashwood ER, Bruns DE, 2008.
- Aujla RS, Patel R. Creatine Phosphokinase. [Updated 2022 Apr 14]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK546624/

BUN-Creatine Ratio

Creatinine (Serum,Kinetic Alkaline picrate)	0.88	mg/dL	0.5-1.11

Creatinine is a by product of muscle energy metaboism is produced at a constant rate according to the muscle mass of the individual. Creatinine is a fairly reliable indicator of kidney function. Creatinine levels should be correlated with clinical data and used in conjunction with other renal function tests for complete assessment.

BUN-Blood Urea Nitrogen (Serum,Calculated)	9.7	mg/dL	6-20
Urea Serum (Serum,Urease)	20.8	mg/dL	New born: 9-26 Children: 10-43 Adult: 10-50
Magnesium (Serum,Colorimetry end point (Xylidyl blue))	2.18	mg/dL	1.6-2.6

Interpretation:

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High levels of magnesium may result from taking too many supplements/antacids/laxatives that contain magnesium, kidney disease, Addison disease, dehydration and diabetic ketoacidosis. · Low levels of magnesium may be seen in chronic diarrhea, hemodialysis, gastrointestinal disorders, cirrhosis, hyperaldosteronism, hypoparathyroidism, severe burns, pancreatitis, preeclampsia, ulcerative colitis and uncontrolled diabetes.

Clinical Utility:

1.Magnesium is a mineral that is important for immunity, muscle contraction, nerve function, strong bones and regulating blood pressure as well as blood sugar.
2.Helps in monitoring patients with preeclampsia who are on magnesium sulfate supplements.

Note:
1.Heavy periods and excessive sweating may affect the test results.
2.Magnesium blood levels tend to be decreased in the second and third trimesters of pregnancy.
3.It is suggested to stop taking magnesium supplements for a few days before the test

Caution:
1.Drugs that can increase magnesium levels include lithium, aspirin, thyroid medication, few antibiotics and products that contain magnesium.
2.Drugs that can decrease magnesium levels include digoxin, cyclosporine, diuretics, insulin, few antibiotics and phenytoin.
Associated Tests: Sodium (S0032), Calcium (C0017), Potassium (P0078), Chloride (C0101), Parathyroid hormone (P0114)

References:

1.Kit Insert.
2.Tietz Textbook of Clinical Chemistry. Chapter49: Fourth edition.
3.Henry's Clinical Diagnosis and Management by Laboratory Methods. 22nd ed. St Louis, MO: Elsevier; 2017.

Iron Studies, Serum

Iron (Serum,Ferronzine)	116.9	µg/dL	New Born: 100-250 Childern: 50-120 Adults: 33-193
TIBC (Serum,Calculated)	318.6	µg/dL	250-450
UIBC (Serum,Ferronzine)	201.7	µg/dL	135-392
Transferrin (Serum,Calculated)	223.0	µg/dL	175-320
Saturation (Serum,Calculated)	37	%	Female: 15-50

Interpretation :

- Measurements of serum iron, UIBC-Unsaturated Iron binding Capacity and the percentage of iron saturation of transferrin are useful screening tests for iron deficiency anemia.

Tests	Iron Deficiency anemia	Anemia of Chronic disease	Iron overload	Hemoglobinopathy (Especially Trait)

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Serum Iron	Decreased	Decreased	Increased	Normal
Serum Total Iron Binding Capacity	Increased	Decreased or Normal	Increased or Normal	Normal
% Transferrin Saturation	Decreased	Decreased or Normal	Increased or Normal	Normal
Serum UIBC	Increased	Decreased or Normal	Decreased	Normal
Serum Ferritin	Decreased	Increased	Increased or Normal	Normal
Serum Soluble Transferrin receptor	Increased	Normal	Decreased	Normal
Serum Hepcidin	Normal	Increased	Normal	Normal

- The sum of the serum iron and UIBC represents total iron-binding capacity (TIBC) and is a measurement for the maximum iron concentration that the iron complex can bind.

Clinical Utility:

- Iron measurements are used in the diagnosis of iron deficiency anemia, hemochromatosis, microcytic anemia, macrocytic anemia, chronic renal disease, erythropoietin deficiency, hemolytic anemia and hemoglobinopathy. The test is also undertaken in patients of chronic renal disease, hemolytic anemia and hemoglobinopathy.

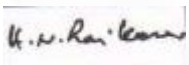
Caution:

- Serum iron exhibits significant diurnal variation and may transiently rise or reach reference values after dietary or iron supplements & post blood transfusion.
- Patients treated with Deferoxamine containing drugs may give low values with the UIBC assay.

Associated Tests: Soluble Transferrin Receptor Serum (S0036), Serum Hepcidin (H0077).Serum Ferritin (F0018)

Reference:

- Package insert
- Wallach's interpretation of diagnostic tests, Ed11, 2020
- Henry's Clinical Diagnosis and Management by Laboratory Methods. 23rd ed; 2017.
- Tietz fundamentals of clinical chemistry 6th edition. Burtis CA, Ashwood ER, Bruns DE, 2008.



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Investigation	Observed Value	Unit	Biological Reference Interval
25 Hydroxy (OH) Vit D (Serum,Chemiluminescence)	**16.1**	ng/mL	Deficiency: < 10 Insufficiency: 10-30 Sufficiency: 30-100 Toxicity: > 100

Interpretation:
- Vitamin D is a fat soluble vitamin and exists in two main forms as D3 & D2. Both are converted to 25(OH) vitamin D in liver.
- For diagnosis of vitamin D deficiency, it is recommended to have clinical correlation with serum 25(OH)vitamin D, serum calcium, serum iPTH & serum alkaline phosphatase
- During monitoring of oral vitamin D therapy- suggested testing of serum 25(OH) vitamin D is after 12 weeks or 3 months of treatment.

Caution:
- Patients on Biotin supplement may have interference in some immunoassays. With individuals taking high dose Biotin (more than 5 mg per day) supplements, at least 8-hour wait time before blood draw is recommended.

Disclaimer:
- The required dosage of vitamin D supplements & time to achieve sufficient vitamin D levels show significant seasonal (especially winter) & individual variability depending on age, body fat, sun exposure, physical activity, genetic factors (especially variable vitamin D receptor responses), associated liver or renal diseases, malabsorption syndromes and calcium or magnesium deficiency.
- Vitamin D toxicity is known but very rare. Kindly correlate clinically, repeat with fresh sample if indicated.

Associated Tests:
- iPTH-Intact Molecule Parathyroid hormone Serum/Plasma (P0114), Calcium(C0017), Vitamin D plus profile(V0016)

Reference:
1. Package insert
2. Arch Pathol Lab Med—Vol 141, November 2017

Vitamin B12 level (Serum,Chemiluminescence)	342	pg/mL	197-771

Interpretation :
1. Vit B12 levels are decreased in megaloblastic anemia, partial/total gastrectomy, pernicious anemia, peripheral neuropathies, chronic alcoholism, senile dementia, and treated epilepsy.
2. An associated increase in homocysteine levels is an independent risk marker for cardiovascular disease and deep vein thrombosis.
3. Holo Transcobalamin II levels are a more accurate marker of active VitB12 component.

Caution:
- Patients on Biotin supplement may have interference in some immunoassays. With individuals taking high dose Biotin (more than 5 mg per day) supplements, at least 8-hour wait time before blood draw is recommended.

Disclaimer:
- High levels of Vitamin B12 may be due to exogenous supplementation. Kindly correlate clinically.

Associated Tests
- Active Vitamin B12 (V0012), Homocysteine reflex Vitamin B12-folate serum (H0310), Homocysteine Serum (H0254),RBC Folate R0007.

Reference:
1. Package insert
2. Arch Pathol Lab Med—Vol 141, November 2017

Folic Acid (Serum,Chemiluminescence)	9.90	ng/mL	4.4-31.0

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Interpretation :

1. Decreased levels of folic acid are seen in megaloblastic anemia, malnutrition, alcoholism, and inadequate dietary intake are associated with a higher risk of fetal malformations during pregnancy.
2. In patients taking methotrexate therapy, antibodies formed may interfere with the assay.

Note: please note change in reference range.

Testosterone (Total) 0.07 ng/mL 0.06-0.82
(Serum,Chemiluminescence)

Interpretation:

- Testosterone is the principal androgen in men and made by the testicles and adrenal glands.
- In women, it is found in small amounts and made by the ovaries and adrenal glands.
- Testosterone aids in the development of secondary sexual characteristics like enlargement of the genitals, body hair growth, development of muscle and deepening of the voice.

	High Levels seen in	Low Levels seen in
Male	Testicular tumors, Adrenal tumor	Testicular failure (primary hypogonadism) or inadequate stimulation by pituitary gonadotropins (secondary hypogonadism), Infertility, Erectile Dysfunction, Delayed puberty, Early puberty and cancer treatment.
Female	Polycystic ovarian syndrome (PCOS), Adrenal tumor, Congenital Adrenal hyperplasia (CAH) and idiopathic hirsutism.	Primary & secondary hypogonadism, Testicular feminization.

Clinical Utility:

- To evaluate androgen excess or deficiency related to gonadal function, adrenal function, or tumor activity.
- Helpful in children to investigate delayed or precocious puberty and with ambiguous genitalia.
- Helps in monitoring testosterone replacement therapy and antiandrogen therapy.

Note:

- Testosterone is subject to significant circadian variations and early morning samples are recommended. Testosterone levels are lowest in the evening.
- Levels of testosterone increase with exercise and decrease with age.

Caution:

- Drugs such as androgens and steroids can lead to decrease in testosterone levels.
- Anticonvulsants, barbiturates, clomiphene and estrogen may cause increase in testosterone levels.
- Patients on Biotin supplement may have interference in some immunoassays. For sample collection, at least 8-hours wait time is recommended for individuals taking high dose of Biotin (more than 5 mg per day) supplements.

Associated tests:

- Testosterone Profile (Test code T0043), LH/FSH Ratio Serum (L8015)

References:

- Wallach's Interpretation of Diagnostic Tests, 10th Edition.
- Arch Pathol Lab Med—Vol 141, November 2017.

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E2 Estradiol Serum
(Serum,Chemiluminescence)

E2 - Estradiol level	146	pg/mL	Men: 11.3-43.2 Women: Follicular Phase: 30.9-90.4 Luteal Phase: 60.4 - 232 Post menopausal : < 5.0 - 138 Ovulation Phase : 60.4 - 533
Cortisol, Serum (8AM) (Serum 8AM,Chemiluminescence)	5.29	ug/dl	Cord Blood : 5-17 Infants(1-7 Days) : 2-11 Children(1-16 Years) : 3-21 Adults : 4.82-19.5

Interpretation :

1.Cortisol, is the main glucocorticoid, produced by adrenal cortex; plays a central role in glucose metabolism and in the body's response to stress.
2.Cortisol levels are regulated by adrenocorticotropic hormone (ACTH), which is synthesized by the pituitary in response to corticotrophin-releasing hormone (CRH). CRH is released in a cyclic fashion by the hypothalamus, resulting in diurnal peaks (6 a.m.-8 a.m.) and nadirs (11 p.m.) in plasma ACTH and cortisol levels.
3.Cortisol levels show a biological variation - 20.00hrs (pm) values less than 50% of 08.00hr (am) values.
4.Increased levels of cortisol are associated with Cushing syndrome, adrenal and Pituitary adenoma/carcinoma, ectopic ACTH production, glucocorticoid therapy, stress, depression, hypoglycemia and hyperthyroidism.
5.Decreased levels of cortisol are associated with Addison disease -primary adrenal insufficiency, secondary adrenal insufficiency - pituitary insufficiency, hypothalamic insufficiency and congenital adrenal hyperplasia.
6.In Newborns, a transient rise in cortisol occurs immediately after delivery and become stable by about 1 week of age.

Reference: Tietz Fundamentals of Clinical Chemistry & Molecular Diagnostics; 8th edition; 2019.

Homocysteine (Serum,Chemiluminescence)	**14.55**	µmol/L	4.44-13.56

1) Increased levels are seen in deranged Vit B12 metabolism and form an independent marker for risk of thromboembolic episodes in coronary artery disease.
2) Levels are also increased in homocysteinuria, various neoplastic diseases like cancers of ovary and breast and Acute Lymphoblastic Leukemia, chronic liver or renal failure post menopausal state, drug usage and cigeratte smoking.

Patients taking methotrexate, nicotinic acid, theophylline, nitrous oxide or L-dopa can have falsely elevated serum or plasma homocysteine levels.

Insulin (Fasting) (Serum,Chemiluminescence)	9.4	mcU/mL	2.6-24.9

Interpretation :

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Increased insulin levels are seen in acromegaly, Cushing syndrome, drugs usage (such as corticosteroids, levodopa, oral contraceptives), fructose or galactose intolerance, insulinomas, obesity, insulin resistance, acanthosis nigricans and metabolic syndrome.
Decreased insulin levels are seen in diabetes, hypopituitarism and pancreatic diseases such as chronic pancreatitis (including cystic fibrosis) and pancreatic cancer.

Fasting insulin level	Fasting glucose level	Disorder
Normal	Normal	None
High	Normal or slightly high	Insulin Resistance
Low	High	Insufficient insulin production, e.g., diabetes
Normal or high	Low	Hypoglycemia due to over secretion of insulin

Clinical Utility:

1. Monitoring insulin levels gives a better prognosis in patients with longstanding diabetes mellitus treated with insulin as antibodies to insulin form in such patients.
2. Insulin/ C-peptide ratio is used for differentiating between factitious hypoglycemia and insulinomas where a ratio< 1.0 indicates insulinoma; but results may vary in renal failure.

Disclaimer: Test results may vary depending on your age, gender, health history, the method used for the test . You may have a false-low result if you have a health problem that's damaging red blood cells
Caution: Patients on Biotin supplement may have interference in some immunoassays. For sample collection, at least 8-hours wait time is recommended for individuals taking high dose of Biotin (more than 5 mg per day) supplements

Associated tests: HbA1c (H0018), Fructosamine (F0056), Diabetes Profile – Maxi (D0021), HOMA Index (H0253).
NOTE: Kindly ensure that the sample is collected in absolute fasting status. In case of higher readings, test has to be repeated with absolute fasting.

References:

1. Package Insert
2. Tietz fundamentals of clinical chemistry 6th edition. Burtis CA, Ashwood ER, Bruns DE, 2008.

Ferritin (Serum,Chemiluminescence)	69.4	ng/mL	New born: 25-200 1 Month: 200-600 2-5 months: 50-200 6 months - 15yrs: 7-140 Adults: Male: 30-400 Adults: Female: 13-150

Interpretation :
1. Increased ferritin is seen in iron overload as in multiple blood transfusions, hemochromatosis and anemia of chronic Disorders. It is also seen in liver diseases, alcoholism, inflammatory conditions, leukemia, Hodgkins disease and some malignancies. It is also observed to be increased during COVID 19

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2. Decreased ferritin levels are seen in iron deficiency anemia, early stage before iron deficiency manifests as anemia.

Clinical Utility: Levels of ferritin are used for monitoring of iron levels during pregnancy, dialysis and during iron therapy.

Caution: Patients on Biotin supplement may have interference in some immunoassays. With individuals taking high dose Biotin (more than 5 mg per day) supplements, at least 8-hour wait time before blood draw is recommended.

Associated Tests: Iron studies (I0286)

Reference:

1. Package insert
2. Arch Pathol Lab Med—Vol 141, November 2017

Free T3 (Serum,Chemiluminescence)	3.67	pmol/L	3.07-6.75 First Trimester 3.77-5.36 Second Trimester 3.21-5.45 Third Trimester 3.08-5.02

Note : Please note recent change in Reference range

Free T4 (Serum,Chemiluminescence)	12.90	pmol/L	11.97-21.88 First Trimester 9.01-25.74 Second Trimester 6.43-20.59 Third Trimester 6.43-20.59

Note : Please note recent change in Reference range

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Ground Floor, Spl No 10,kssidc Industrial Area,mahadevapura,bengaluru 560048
Processing Location:- Metropolis Healthcare Ltd. #76/10,15th cross,Malleshwaram,Bangalore.

HbA1c- Glycated Haemoglobin, blood by HPLC method

(EDTA Whole Blood)

Investigation	Observed Value	Unit	Biological Reference Interval
HbA1C- Glycated Haemoglobin (HPLC)	5.5	%	Normal: 4.8-5.6 Pre - Diabetes: 5.7-6.4 Diabetes: >= 6.4 Recent ADA guidelines 2018 (Please see the recent change of reference range as per guidelines)
Estimated Average Glucose (eAG)	111.2	mg/dL	

In known diabetic patients, following values can be considered as a tool for monitoring the glycemic control.

Excellent Control - 6 to 7 %,
Fair to Good Control - 7 to 8 %,
Unsatisfactory Control - 8 to 10 %
and Poor Control - More than 10 % .

NOTE : Any condition altering red cell life will alter the GHB values. Low Hb% values may not correlate with GHB. GHB value should not be taken as a sole criteria for diagnosis. GHB gives average Blood Glucose level for the period of 10 - 12 wks & it need not correlate with blood sugar levels.
For Geriatric group, HbA1c reference range depends upon Co-morbid conditions.

METHOD : HPLC .

MC-5857

Tests marked with NABL symbol are accredited by NABL vide Certificate no MC-5857

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MBBS, MD
KMC:1219 KTK

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Processing Location:- Metropolis Healthcare Ltd. #76/10,15th cross,Malleshwaram,Bangalore.

Investigation	Observed Value	Unit	Biological Reference Interval
TOTAL HEALTH COMPREHENSIVE			
Thyroid panel-1 (T3/T4/TSH) (Serum,Chemiluminescence)			
T3 (Total)	1.34	ng/mL	0.84-2.01 First Trimester : 1.04-2.29 Second Trimester : 1.28-2.63 Third Trimester : 1.35-2.61
T4 (Total)	8.31	µg/dL	5.1-14.1 First Trimester 7.33-14.8 Second Trimester 7.93-16.1 Third Trimester 6.95-15.7
TSH(Ultrasensitive)	2.030	µIU/mL	0.54-5.30 First Trimester : 0.33-4.59 Second Trimester : 0.35-4.10 Third Trimester : 0.21-3.15

INTERPRETATION

TSH	T3 / FT3	T4 / FT4	Suggested Interpretation for the Thyroid Function Tests Pattern
Within Range	Decreased	Within Range	• Isolated Low T3-often seen in elderly & associated Non-Thyroidal illness. In elderly the drop in T3 level can be upto 25%.
Raised	Within Range	Within Range	•Isolated High TSHespecially in the range of 4.7 to 15 mIU/ml is commonly associated with Physiological & Biological TSH Variability. •Subclinical Autoimmune Hypothyroidism •Intermittent T4 therapy for hypothyroidism •Recovery phase after Non-Thyroidal illness"
Raised	Decreased	Decreased	•Chronic Autoimmune Thyroiditis •Post thyroidectomy,Post radioiodine •Hypothyroid phase of transient thyroiditis"
Raised or within Range	Raised	Raised or within Range	•Interfering antibodies to thyroid hormones (anti-TPO antibodies) •Intermittent T4 therapy or T4 overdose •Drug interference- Amiodarone, Heparin,Beta blockers,steroids, anti-epileptics"
Decreased	Raised or within Range	Raised or within Range	•Isolated Low TSH -especially in the range of 0.1 to 0.4 often seen in elderly & associated with Non-Thyroidal illness •Subclinical Hyperthyroidism •Thyroxine ingestion"
Decreased	Decreased	Decreased	•Central Hypothyroidism •Non-Thyroidal illness •Recent treatment for Hyperthyroidism (TSH remains suppressed)"
Decreased	Raised	Raised	•Primary Hyperthyroidism (Graves' disease),Multinodular goitre, Toxic nodule •Transient thyroiditis:Postpartum, Silent (lymphocytic), Postviral (granulomatous,subacute, DeQuervain's),Gestational thyrotoxicosis with hyperemesis gravidarum"
Decreased or within Range	Raised	Within Range	•T3 toxicosis •Non-Thyroidal illness

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SAMPLE REPORT

Reference: DR.DR PROMISO HEALTH

Sample Collected At:
Promiso Health Private Limited
Ground Floor, Spl No 10,kssidc Industrial Area,mahadevapura,bengaluru 560048
Processing Location:- Metropolis Healthcare Ltd. #76/10,15th cross,Malleshwaram,Bangalore.

References: 1. Interpretation of thyroid function tests. Dayan et al. THE LANCET • Vol 357 • February 24, 2001
2. Laboratory Evaluation of Thyroid Function, Indian Thyroid Guidelines, JAPI, January 2011,vol. 59

-- End of Report --

MC-5857

Tests marked with NABL symbol are accredited by NABL vide Certificate no MC-5857

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