



# Orange Health Labs



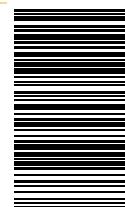
Blood reports in **6 hours**

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Name	Md Hamdan H	Age / Sex	29 Y / Male	Collected On	19/09/2024 07:22 AM
Ref. Doctor -		Patient ID	OHP1OTXR722282	Received On	19/09/2024 10:42 AM
Partner		Visit ID	BL102788401	Reported On	19/09/2024 12:26 PM



BL102788401

Test	Results	Units	Biological Reference
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**BIOCHEMISTRY**

**Glucose, Fasting**  
Fluoride Plasma,Glucose Oxidase-Peroxidase (GOD-POD)

**101**

mg/dL

70 - 99

**Glycated Hemoglobin (HbA1C)**

Whole Blood

**Glycated Hemoglobin (HbA1C)**

High-Performance Liquid Chromatography (HPLC)

**7.5**

%

Normal: < 5.7  
Pre-Diabetes: 5.7-6.4  
Diabetes: => 6.5

**Comments** Kindly correlate clinically with diet and therapeutic history and advise follow up.

**Mean Blood Glucose**

Calculated

**169**

mg/dL

&lt; 117

HbA1C is used to monitor fluctuations in blood glucose concentration in the past 8 to 12 week's period.

The reference interval defined as per American Diabetes Association guidelines 2016:

- a. Less than 5.7%: Non Diabetic
- b. 5.7 to 6.4%: at increased risk of developing diabetes in the future
- c. More than 6.5%: Diabetic
- d. Therapeutic glycemic target
  - i. Adults: less than 7%
  - ii. Children with Type 1 diabetes: less than 7%
- e. Pregnant diabetic patients: less than 6.5%

**Note:**

Targets may be individualized based on: Age/life expectancy, Comorbid conditions, Diabetes duration, Hypoglycemia status, Individual patient considerations

Reference: American Diabetes Association. Standards of medical care in diabetes - 2021.

Mean Blood Glucose is average Blood glucose which directly correlates with A1C, reported in the same units as blood sugar levels (mg/dl). Thus it reflects the average glucose concentration in the past 8 to 12 weeks period. This should not be compared with Fasting or Post prandial or random blood sugar which measures glucose concentration at that point of time of testing.

**Lipid Profile**

Serum

**Cholesterol, Total**

Cholesterol Esterase/Cholesterol Oxidase/Peroxidase

**157**

mg/dL

&lt; 200

**Triglycerides**

Cholesterol Oxidase

**233**

mg/dL

&lt; 150

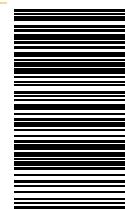


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Test	Results	Units	Biological Reference
High-Density Lipoprotein (HDL) Cholesterol Cholesterol Esterase/Cholesterol Oxidase/Peroxidase	<b>29</b>	mg/dL	> 50
Non-High Density Lipoprotein (Non-HDL) Cholesterol Calculated	128		< 130
Low-Density Lipoprotein (LDL) Cholesterol Calculated	82	mg/dL	< 100
Very Low-Density Lipoprotein (VLDL) Cholesterol Calculated	<b>47</b>	mg/dL	< 30
Cholesterol/High Density Lipoprotein (HDL) Ratio Calculated	<b>5.5</b>		3.3 - 4.4
Low-Density Lipoprotein/High-Density Lipoprotein (LDL/HDL) Ratio Calculated	2.8		0.5 - 3
High-Density Lipoprotein/Low-Density Lipoprotein (HDL/LDL) Ratio Calculated	<b>0.4</b>		> 0.4

REMARKS	TOTAL CHOLESTEROL(mg/dL)	TRIGLYCERIDE(mg/dL)	LDL CHOLESTEROL(mg/dL)
Optimal	<200	<150	<100
Above Optimal	-	-	100-129
Borderline	200-239	150-199	130-159
High	≥ 240	200-499	160-189
Very High	-	≥ 500	≥ 190

Lipid profile is a group test consisting of various lipids. Lipid profiles are generally collected with overnight fasting. However, recent guidelines have recommended non fasting samples for lipid profile for assessment of cardiovascular risk. The details for the study can be checked at <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2733560>

In certain instances measurements in the same patient can show physiological and analytical variations. In such cases three serial samples at an interval of 1 week each are recommended for Total cholesterol, TG, HDL and LDL.

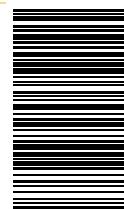
**Cholesterol levels** are increased in primary hypercholesterolemia; secondary hyperlipoproteinemia, including nephrotic syndrome; primary biliary cirrhosis; hypothyroidism; and in some cases, diabetes mellitus. Low cholesterol levels may be found in malnutrition, malabsorption, advanced malignancy, and hyperthyroidism.

**Triglyceride levels** are used in the diagnosis and treatment of patients with diabetes mellitus, nephrosis, liver obstruction, other diseases involving lipid metabolism, or various endocrine disorders.

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Test	Results	Units	Biological Reference
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**High Density Lipoprotein (HDL) cholesterol levels** is used to evaluate the risk of developing coronary heart disease (CHD). The risk of CHD increases with lower HDL cholesterol concentrations.

**LDL (low-density lipoprotein) cholesterol level**, sometimes called "bad" cholesterol, makes up most of our body's cholesterol. High levels of LDL cholesterol raise your risk for heart disease and stroke.

**Very-low-density lipoprotein (VLDL) cholesterol** is produced in the liver and released into the bloodstream to supply body tissues with triglycerides. High levels of VLDL cholesterol have been associated with the development of plaque deposits on artery walls, which narrow the passage and restrict blood flow.

### Liver Function Test (LFT)

Serum



**Bilirubin, Total**  
Diazo Method

0.64 mg/dL

0.2 - 1.3



**Bilirubin, Direct**  
Calculated

**0.32** mg/dL

0 - 0.3



**Bilirubin, Indirect**  
Reflectance Spectrophotometry

0.32 mg/dL

0.1 - 1.1



**Aspartate Aminotransferase (AST)**  
Multipoint-Rate/UV with Pyridoxal-5-Phosphate (P-5-P)

46 U/L

17 - 49



**Alanine Transaminase (ALT)**  
LDH, UV Kinetic

**75** U/L

&lt;50

**Aspartate Aminotransferase/Alanine Transaminase (AST/ALT) Ratio**  
Calculated

**0.6**

0.7 - 1.4



**Alkaline Phosphatase (ALP)**  
Multipoint-Rate/UV with Pyridoxal-5-Phosphate (P-5-P)

**137** U/L

38 - 126



**Gamma-Glutamyl Transpeptidase (GGT)**  
SZAZ Carboxylated Substrate

45 U/L

15 - 73



**Protein**  
Biuret

7.7 g/dL

6 - 8.3



**Albumin**  
Bromo-Cresol Green

4.2 g/dL

3.5 - 5



**Globulin**  
Calculated

3.5 g/dL

2.3 - 3.5



**Albumin/Globulin (A/G) Ratio**  
Calculated

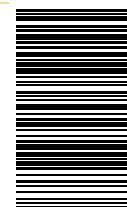
1.2

0.8 - 2

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In certain individuals, **total bilirubin** up to 2.0 mg/dl is considered normal. High bilirubin values can be due to jaundice.

**Total bilirubin** is invariably increased in jaundice. Causes of jaundice are prehepatic, resulting from various hemolytic diseases; hepatic, resulting from hepatocellular injury or obstruction; and posthepatic, resulting from obstruction of the hepatic or common bile ducts.

Increased **direct bilirubin** levels can occur in hepatobiliary disorders, including intrahepatic and extrahepatic biliary tree obstruction, liver cell damage, Dubin-Johnson syndrome, and Rotor syndrome.

High **indirect bilirubin** levels can occur in hemolytic disorders, Gilbert's syndrome, Crigler-Najjar syndrome, neonatal jaundice, and ineffective erythropoiesis.

High **Aspartate Aminotransferase** values can occur in Myocardial infarction, pulmonary emboli, skeletal muscle trauma, alcoholic cirrhosis, viral hepatitis, or drug-induced hepatitis.

Elevated **Alanine Aminotransferase** levels are seen in liver cell necrosis, hepatitis, hepatic cirrhosis, liver tumours, obstructive jaundice, Reye's syndrome, extensive trauma to skeletal muscle, myositis, myocarditis, or myocardial infarction.

High **alkaline phosphatase** levels can be due to primary and secondary hyperparathyroidism, Paget's disease of bone, carcinoma metastatic to the bone, osteogenic sarcoma, Hodgkin's disease, Hepatobiliary diseases involving cholestasis, inflammation, or cirrhosis.

**ALP** levels can also be elevated in fever and increased bone metabolism(e.g., in adolescents and during the healing of a fracture), in renal infarction and failure and in pregnancy complications.

Low **ALP** levels may occasionally be seen in hypothyroidism.

**Gamma-glutamyl transferase (GGT)** is a sensitive indicator of hepatobiliary disease. It is useful in the diagnosis of obstructive jaundice and chronic alcoholic liver disease, in the follow-up of chronic alcoholics undergoing treatment, and in the detection of hepatotoxicity. GGT is more responsive to biliary obstruction than AST, ALT, or ALP.

Total **protein** levels can be used to evaluate nutritional status.

High **protein** concentrations can be due to dehydration, Waldenström's macroglobulinemia, multiple myeloma, hyperglobulinemia, granulomatous, and some tropical diseases.

Low **protein** concentrations can be due to pregnancy, excessive intravenous fluid administration, cirrhosis or other liver diseases, chronic alcoholism, heart failure, nephrotic syndrome, glomerulonephritis, neoplasia, protein-losing enteropathies, malabsorption, and severe malnutrition.

Increased **albumin** levels may indicate dehydration or hyperinfusion with albumin.

Decreased **albumin** levels are found in rapid or over-hydration, severe malnutrition and malabsorption, severe diffuse liver necrosis, chronic active hepatitis, and neoplasia.

**Albumin** is commonly reduced in chronic alcoholism, pregnancy, renal protein loss, thyroid dysfunction, peptic ulcer disease, and chronic inflammatory diseases.

**Globulin** includes carrier proteins, enzymes, complement, and immunoglobulins. Most of these are synthesised in the liver, although immunoglobulins are synthesised by plasma cells.

Increased **globulin** level usually results from an increase in immunoglobulins.

Malnutrition and congenital immune deficiency can decrease **globulin** levels due to decreased synthesis. Nephrotic syndrome can cause decreased globulin levels due to protein loss through the kidney.

**AST/ALT Ratio > 2:1** (AST is two times higher than ALT) is indicative of alcoholic liver disease.

**AST/ALT Ratio < 1:1** (ALT is higher than AST) indicates non-alcoholic fatty liver disease.

## Kidney Function Test with Electrolytes (KFT / RFT)

Serum



Urea  
Urease

44

mg/dL

19 - 43

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Orchard Healthcare Pvt. Ltd.

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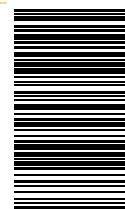


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Test	Results	Units	Biological Reference
Creatinine Twopoint-Rate-Creatinine Aminohydrolase	<u>0.5</u>	mg/dL	0.66 - 1.25
Blood Urea Nitrogen (BUN) Calculated	<u>20.5</u>	mg/dL	6 - 20
Blood Urea Nitrogen (BUN)/Creatinine Ratio Calculated	<u>41.00</u>	Ratio	10 - 20
Uric Acid Uricase	5.8	mg/dL	3.5 - 8.5
Calcium Arsenazo Method	8.7	mg/dL	8.4 - 10.2
Phosphorus Phosphomolybdate Formation	<u>5.0</u>	mg/dL	2.5 - 4.5
Estimated Glomerular Filtration Rate (eGFR) Twopoint-Rate-Creatinine Aminohydrolase/Calculation	141	ml/min/1.73m <sup>2</sup>	Normal: > 90 Mild decrease: 60-89 Mild moderate decrease: 45-59 Severe decrease: 15-29 End stage kidney disease: < 15

Electrolytes

Sodium Direct ISE	137	mmol/L	137 - 145
Potassium Direct ISE	3.9	mmol/L	3.5 - 5.5
Chloride Direct ISE	104	mmol/L	98 - 107

High **sodium** levels can be caused by dehydration, disorder of the adrenal glands, diarrhoea, diuretics, kidney disease, and diabetes insipidus.

Low **sodium** levels are caused by diarrhoea, vomiting, kidney disease, liver failure, Addison's disease, and malnutrition.

High **potassium** levels may be due to low aldosterone, kidney failure, metabolic or respiratory acidosis.

Low **potassium** levels may be due to diarrhoea, vomiting, diuretics, and high aldosterone.

**Chloride** is used to help diagnose conditions related to an imbalance of acids or fluids in the body. Certain medicines, such as antacids, can also cause abnormal results.

High **chloride** levels may be due to Addison's disease, metabolic acidosis, respiratory alkalosis, and renal tubular acidosis.

Low **chloride** levels may be due to burns, CHF, metabolic alkalosis, vomiting, dehydration, and respiratory acidosis(compensated).

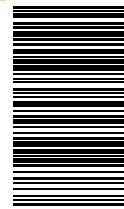
High **urea** and **BUN** levels are suggestive of poor kidney function due to acute or chronic kidney diseases, decreased blood flow to the kidneys as in congestive heart failure, shock, stress, recent heart attack or severe burns, bleeding from the gastrointestinal tract, conditions that obstruct urine flow or dehydration.

Low **urea** and **BUN** levels are uncommon and are not usually a cause for concern. They can be seen in severe liver disease or malnutrition but are not used to diagnose or monitor these conditions. Low urea levels are also seen in normal pregnancy.

**Creatinine** is elevated in kidney disease, damage, infection, urinary tract obstruction, reduced blood flow to the kidneys in case of shock, congestive heart failure, complications of diabetes.



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High levels of **uric acid** are seen in kidney disease, pre-eclampsia, purine-rich food, alcoholism, and side effects of cancer treatment.

Low **calcium** levels may be due to hypoparathyroidism, kidney failure, pancreatitis, malnutrition, or a disorder in calcium absorption.

High **calcium** levels may be due to hyperparathyroidism, hyperthyroidism, sarcoidosis, drugs like diuretics, and excessive calcium supplementation.

High **phosphorus** levels can be due to dehydration, hypoparathyroidism, hypervitaminosis D, metastases to bone, sarcoidosis, pulmonary embolism, renal failure, or diabetes mellitus with ketosis.

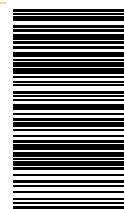
Low **phosphorus** levels can be caused by hyperparathyroidism, high calcium levels, sepsis, vitamin D deficiency, renal tubular disorders, chronic hemodialysis, vomiting, or occasionally decreased dietary phosphate intake.

Chronic Kidney Disease often has no symptoms until the later stages. So, reliable estimates of GFR are important for identifying the disease as early as possible.

Factors that can affect eGFR include pregnancy, being over the age of 70, unusual muscle mass, cirrhosis, nephrotic syndrome, a past solid organ transplant, and some medications.



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**CLINICAL PATHOLOGY****Urine Complete Analysis**

Urine

**Urine, Physical Examination**

Volume  
Manual

30 mL

Colour  
Manual

Yellow

Pale yellow

Appearance  
RGB Sensor Technology

Clear

Clear

**Urine, Chemical Examination**

pH  
Double Indicator Method

6.0

5 - 8

Specific Gravity  
Bromo Thymol Blue Indicato

1.020

1.001 - 1.035

Protein  
Protein Error of pH Indicator

Nil

Nil

Glucose  
Enzyme Method Glucose Oxidase-Peroxidase (GOD-POD)

Nil

Nil

Ketones  
Nitroprusside Method/Dipstick

Nil

Nil

Bilirubin  
Azo Coupling Method

Nil

Nil

Blood  
Peroxidase Activity

Negative

Negative

Urobilinogen  
Azo Coupling Method

Normal

Normal

Leucocyte Esterase  
Granulocyte Esterase Method

Negative

Negative

Nitrites  
Griess Method

Negative

Negative

**Urine, Microscopic Examination**

Pus Cells  
Automated Morphological Microscopy

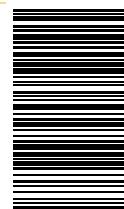
1-2

/hpf

0-5



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Test	Results	Units	Biological Reference
Epithelial Cells Automated Morphological Microscopy	0-1	/hpf	0-2
Red Blood Cells (RBC) Automated Morphological Microscopy	Nil		0-2
Granular Casts Automated Morphological Microscopy	Nil	/hpf	Nil
Hyaline Casts Automated Morphological Microscopy	Nil	/hpf	Occasional
Uric Acid Crystals Automated Morphological Microscopy	Nil	/hpf	Nil
Phosphate Crystals Automated Morphological Microscopy	Nil	/hpf	Nil
Calcium Oxalate Crystals Automated Morphological Microscopy	<u>Present</u>	/hpf	Nil
Amorphous Urates Automated Morphological Microscopy	Nil	/hpf	Nil
Amorphous Phosphates Automated Morphological Microscopy	Nil	/hpf	Nil
Yeast Automated Morphological Microscopy	Nil		Nil
Bacteria Automated Morphological Microscopy	Nil		Nil
Parasites Automated Morphological Microscopy	Nil	/hpf	Nil
Mucus Automated Morphological Microscopy	Absent		Absent

Increased protein in urine is seen in dehydration, kidney disorders, heart failure and transplant rejection. 24 hour urine protein and Protein/creatinine ratio in a random urine sample recommended if increased.

Glucosuria can be seen in kidney disorders, uncontrolled diabetes mellitus, hormonal disorders, and pregnancy. To be correlated with plasma glucose levels.

Ketonuria is seen in physical exercise, starvation, severe vomiting, exposure to cold, uncontrolled diabetes (diabetic ketoacidosis)

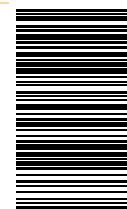
Increased bilirubin levels should be followed up with Liver function tests and indicates conjugated hyperbilirubinemia.

Increased urobilinogen can be seen due to haemolysis, megaloblastic anaemia and haemorrhage in tissues. Urobilinogen is absent or reduced in obstructive liver disease and antibiotic therapy.

RBCs in urine (Haematuria) can be seen in anticoagulant therapy, bleeding diathesis and traumatic catheterization history to be looked into. Dysmorphic RBCs suggestive of glomerular pathology. Non glomerular diseases like calculus, infections, tumours, after strenuous exercise and diseases of the prostate.



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Increase in pus cells are elevated in cases of UTI, to be correlated with urine culture, if clinically indicated. Infection can be in either the upper or lower urinary tract or with acute glomerulonephritis, tubule interstitial nephritis. Leucocyte esterase detects esterase enzyme released from the granules of leucocytes.

Infected urine may contain considerable amounts of nitrite as a result of bacterial nitrate reductase activity, and detection of nitrite in urine is routinely used in the diagnosis of bacterial cystitis. It is indicative of the requirement of Urine culture and sensitivity testing for identification and treatment of UTI.

Hyaline casts are seen normally (not associated with disease states) seen after strenuous exercise and with non renal diseases, such as dehydration.

Granular casts can be seen in acute glomerulonephritis and pyelonephritis.

**Dr. Akshay Prashantkumar Vadavadgi**  
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**Dr. Sanchit Singhal**  
MBBS, MD (Pathology)  
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**Dr. Jushmita Pathak**  
MBBS, MD (Pathology)  
Pathologist

#### CONDITIONS OF LABORATORY TESTING & REPORTING

- Tests marked with NABL symbol are accredited by NABL vide certificate no MC-6367
- It is presumed that the test sample belongs to the patient named or identified in the test requisition form. Test results released pertain to the specimen submitted.
- Laboratory investigations are only a tool to facilitate arriving at a diagnosis and should be clinically correlated by the Referring Physician.
- All tests are performed and reported as per the turnaround time stated in the Orange Health Labs Directory of Services (DOS).
- Orange Health Labs confirms that all tests have been performed or assayed with the highest quality standards, clinical safety & technical integrity.
- All test results are dependent on the quality of the sample received by the Laboratory and the assay technology.
- Report delivery may be delayed due to unforeseen circumstances. Inconvenience is regretted.
- A requested test might not be performed if:
  - The specimen received is insufficient or inappropriate, or the specimen quality is unsatisfactory
  - Incorrect specimen type
  - Request for testing is withdrawn by the ordering doctor or patient
  - There is a discrepancy between the label on the specimen container and the name on the test requisition form
- Test results may show interlaboratory variations.
- Test results are not valid for medico-legal purposes.
- This is a computer-generated medical diagnostic report that has been validated by an Authorized Medical Practitioner/Doctor. The report does not need a physical signature.

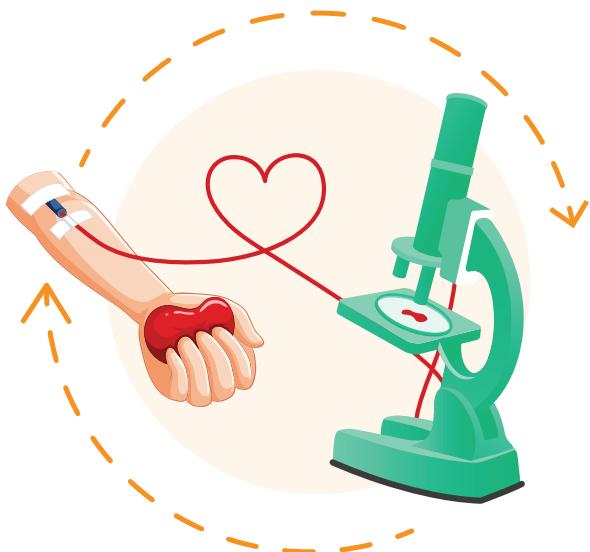
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## IN MATTERS RELATED TO HEALTH, FASTER IS BETTER.

We equate showing care to showing urgency.

Blood starts deteriorating the minute it leaves the human vein, unless stored right. We have built our logistics to achieve the **fastest vein-to-machine testing time** in the industry, and in our journey ahead will strive to reduce it further as much as possible.



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### NO BATCH TESTING

We don't batch your samples to save costs. They are tested the moment they come in.

### NO TIME WASTED

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