

#### Gurugram

Pathkind Diagnostics Pvt. Ltd.

Plot No. 55-56, Udhyog Vihar Ph-IV, Gurugram - 122015

# **Processed By**

#### Pathkind Diagnostics Pvt. Ltd.

Plot No. 55-56, Udhyog Vihar Ph-IV, Gurugram - 122015

: Mr. PL140 07/07/202312:29:18 Name **Billing Date** Age : 35 Yrs Sample Collected on 10/07/2023 10:01:31 10/07/2023 11:02:13 Sex : Male Sample Received on Report Released on P. ID No. : P1000100012873 18/07/2023 17:46:22 : 10002304929 Barcode No. **Accession No** 10002304929-01

Referring Doctor: Self

Referred By : Ref no. :

#### Report Status - Final

Test Name	Result	Biological Ref. Interval	Unit
	BIOCHEMIS	STRY	
Jaundice Panel			
Liver Function Test (LFT)			
Bilirubin Total Sample: Serum Method: Spectrophotometry-Diazo	1.4 H	0.0 - 1.2	mg/dL
Bilirubin Direct Sample: Serum Method: Spectrophotometry-Diazo	1.1 H	0.0 - 0.2	mg/dL
Serum Bilirubin (Indirect) Sample: Serum Method: Calculated	0.30	0.00 - 0.90	mg/dL
SGOT / AST Sample: Serum Method: Spectrophotometry-IFCC Without Pyridoxal PO4	36 H	0 - 33	U/L
SGPT / ALT Sample: Serum Method: Spectrophotometry-IFCC Without Pyridoxal PO4	45 H	0 - 41	U/L
AST / ALT Ratio Sample: Serum Method: Calculated	0.80		
Alkaline Phosphatase (ALP) Sample: Serum Method: IFCC	120	40 - 129	U/L
Total Protein Sample: Serum Method: Spectrophotometry Biuret	7.4	6.4 - 8.3	g/dL
Albumin Sample: Serum Method: Spectrophotometry-Bromocresol Purple	4.5	3.5 - 4.8	g/dL
Globulin Sample: Serum Method: Calculated	2.9	1.9 - 3.7	g/dL

10002304929 Mr. PL140

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est Name	Result	Biological Ref. Interval	Unit	
Albumin/Globulin (A/G) Ratio Sample: Serum Method: Calculated	1.6	1.0 - 2.1	g/dL	
	<u>SEROLOGY</u>			
Hepatitis A Virus IgM Antibodies Sample: Serum Method: CMIA	2.30 H	<0.80: NON REACTIVE 0.80 - 1.20: GRAYZONE REACTIVE >1.20: REACTIVE	S/CO	
Hepatitis B Surface Antigen (HBsAg) Rapid Card Sample: Serum Method: Immunochromatography	Non Reactive	Non Reactive		
Hepatitis C Antibody (HCV), Rapid Card Sample: Serum Method: Immunodot Assay	Non Reactive	Non Reactive		
Hepatitis E Virus IgM Antibodies Sample: Serum Method: ELISA	0.30	Negative : < 0.9 Equivocal : 0.9 - 1.1 Positive : > 1.1		
Sample: Serum	0.00	Equivocal: 0.9 - 1.1		

# **Bilirubin Total**

# Interpretation

Bilirubin is one of the most commonly used tests to assess liver function. Approximately 85% of the total bilirubin produced is derived from hemoglobin, while the remaining 15% is produced from RBC precursors destroyed in the bone marrow and from the catabolism of other hemecontaining proteins. After production in peripheral tissues, bilirubin is rapidly taken up by hepatocytes where it is conjugated and then excreted in the bile. A number of inherited and acquired diseases affect one or more of the steps involved in the production, uptake, storage, metabolism, and excretion of bilirubin. In hepatobiliary diseases of various causes, bilirubin uptake, storage, and excretion are impaired to varying degrees.

The most commonly occurring form of unconjugated hyperbilirubinemia is that seen in newborns and referred to as physiological jaundice. Indirect bilirubin is a calculated parameter its range has not been defined for neonatal period (0-14 days).

# **Bilirubin Direct**

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# **Interpretation**

Bilirubin is one of the most commonly used tests to assess liver function. Approximately 85% of the total bilirubin produced is derived from hemoglobin, while the remaining 15% is produced from RBC precursors destroyed in the bone marrow and from the catabolism of other hemecontaining proteins. After production in peripheral tissues, bilirubin is rapidly taken up by hepatocytes where it is conjugated and then excreted in the bile. A number of inherited and acquired diseases affect one or more of the steps involved in the production, uptake, storage, metabolism, and excretion of bilirubin. In hepatobiliary diseases of various causes, bilirubin uptake, storage, and excretion are impaired to varying degrees.

The most commonly occurring form of unconjugated hyperbilirubinemia is that seen in newborns and referred to as physiological jaundice. Indirect bilirubin is a calculated parameter its range has not been defined for neonatal period (0-14 days).

#### SGOT / AST

#### Clinical Significance:

"Elevated aspartate aminotransferase (AST) values are seen most commonly in parenchymal liver diseases. Values can be elevated from 10 to 100 times the normal range, though commonly 20 to 50 times elevations are seen. AST levels are raised in infectious hepatitis and other inflammatory conditions affecting the liver along with ALT, though ALT levels are higher. The ALT:AST ratio which is normally <1 is reversed in these conditions and becomes >1. AST levels are usually raised before clinical signs and symptoms of disease appear. AST and ALT also rise in primary or metastatic carcinoma of the liver, with AST usually being higher than ALT. Elevated AST values may also be seen in disorders affecting the heart, skeletal muscle and kidney, such as myocardial infarction, muscular dystrophy, dermatomyositis, acute pancreatitis and crushed muscle injuries."

#### SGPT / ALT

#### Clinical Significance:

Elevated alanine aminotransferase (ALT) values are seen in parenchymal liver diseases characterized by a destruction of hepatocytes. Values are at least 10 times higher the normal range and may reach up to 100 times the upper reference limit. Commonly, values are seen to be 20 - 50 times higher than normal. In infectious hepatitis and other inflammatory conditions affecting the liver, ALT levels rise more than aspartate aminotransferase (AST), and the ALT/AST ratio, which is normally <1, is reversed and becomes >1. ALT levels usually rise before clinical signs and symptoms of disease appear.

**Alkaline Phosphatase (ALP)** 











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#### Clinical Significance:

Alkaline Phosphatase levels can be elevated in both liver related as well as bone related conditions. ALP levels are raised (more than 3 fold) in extrahepatic biliary obstruction (eg, by stone or by cancer of the head of the pancreas) than in intrahepatic obstruction, and is directly proportional to the level of obstruction. Levels may rise up to 10 to 12 times the upper limit of normal range and returns to normal on surgical removal of the obstruction. ALP levels rise together with GGT levels and If both GGT and ALP are elevated, a liver source of the ALP is likely. Among bone diseases, ALP levels rise in Paget disease (up to 25 fold), osteomalacia, rickets, primary and secondary hyperparathyroidism and osteogenic bone cancer. Elevated ALP is seen in children following accelerated bone growth. Also, a 2 to 3fold elevation may be observed in women in the third trimester of pregnancy, although the interval is very wide and levels may not exceed the upper limit of the reference interval in some cases.

#### **Total Protein**

#### Clinical Significance:

High levels of Serum Total Protein is seen in increased acute phase reactants in inflammation, late-stage liver disease, infections, multiple myeloma and other malignant paraproteinemias.n. Hypoproteinemia is seen in hypogammaglobulinemia, nephrotic syndrome and protein-losing enteropathy.

#### **Albumin**

#### Clinical Significance:

"Hypoalbuminemia can be caused by impaired synthesis due to liver disease (primary) or due to diminished protein intake (secondary), increased catabolism due to tissue damage and inflammation; malabsorption of amino acids; and increased renal excretion (eg, nephrotic syndrome). Hyperalbuminemia is seen in dehydration."

#### **Hepatitis A Virus IgM Antibodies**

- -This assay is used for qualitative detection of IgM antibodies to Hepatitis A virus in serum samples.
- -Its presence in serum indicates ongoing or recent infection and is the most useful serological marker for diagnosing acute HAV infection.
- -False positive results may be observed in patients receiving mouse monoclonal antibodies, on heparin therapy, on biotin supplements for diagnosis or therapy & presence of heterophilic antibodies in serum.
- -False negative reaction may be due to processing of sample collected early in the course of disease, immunosuppression / immunosuppressant cases.





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#### Uses

- -To aid in differentiation of acute from chronic hepatitis A infection.
- To diagnose acute infection.

#### **Hepatitis B Surface Antigen (HBsAg)**

#### Clinical Significance:

Hepatitis B surface antigen (HBsAg) is the first serologic marker appearing in the serum at 6 to 16 weeks following exposure to HBV. In acute infection, HBsAg usually disappears in 1 to 2 months after the onset of symptoms. Persistence of HBsAg for more than 6 months in duration indicates development of either a chronic carrier state or chronic HBV infection.

### In case of negative results:

Please note that while rapid test is a sensitive and reliable screening test, it should not be used as a sole criterion for diagnosis. It is recommended to use molecular testing (PCR) for confirmation.

#### In case of positive results:

The test has been performed on two different rapid technologies. Please note that while rapid test is a sensitive and reliable screening test, it should not be used as a sole criterion for diagnosis. It is recommended to use molecular testing (PCR) for confirmation.

#### Hepatitis C Antibody (HCV), Rapid Card

#### Clinical Significance:

HCV rapid test is a qualitative test used to screen for antibodies against Hepatitis C Virus.

#### In case of negative results:

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Test Name	Result	Biological Ref. Interval	Unit	

# In case of positive results:

The test has been performed on two different rapid technologies. Please note that while rapid test is a sensitive and reliable screening test, it should not be used as a sole criterion for diagnosis. It is recommended to use molecular testing (PCR) for confirmation.

### **Hepatitis E Virus IgM Antibodies**

Method: ELISA

Interpretation:

Nonreactive	Presumed not to have had acute or recent Hepatitis E infection
Reactive	Indicates acute or recent (in the preceding 6 months) hepatitis E infection.

#### **Clinical Significance:**

- A negative test result does not exclude the presence of recent Hepatitis E infection, especially in immunocompromised patients. Repeat testing of serum for Hepatitis E virus (HEV) IgM in 1 to 2 months may be necessary for diagnosis of acute or recent Hepatitis E infection.
- Positive test results should be correlated with the presence of elevated liver enzymes, clinical signs and symptoms and a history of risk factors.

\*\* End of Report\*\*

Dr. Aarti Khanna Naqpal

DNB (Pathology) Senior Consultant Dr. Saloni Garg

Consultant Microbiology



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