Diagno Labs™

JAS-ANZ

RQ 91/ 8492

**Diagno Labs,**
**10, ShivPuri,**
**Near Eves Petrol Pump, EVES Crossing,**
**Meerut-250002,**
**UP, INDIA**
**Tel : 0121-4320003**

**C007183-Shiv Path Lab**
Shop No.1 Opp. Water Tank Basti Road Indira Chowk Gajrola
AMROHAR, 244235
UTTAR PRADESH, India
Tel : 9760194969
Email : vaibhavgoyal0512@gmail.com

**NAME : MR. SHYAM KUMAR BANSAL** AGE : 59 Years SEX : Male

LAB REF NO.: **23976694** ACCESSION NO : **0027HI000558**

COLLECTED ON : 05/09/2019 00:00 REGISTERED ON : 06/09/2019 09:07 REPORTED ON: 06/09/2019 12:11

**Report Status : Final** **REFERRED BY :** SELF

| Tests | Results | | Biological Reference Range | Units |
|---|---|---|---|---|
| **HEMATOLOGY** | | | | |
| **HEART CLINIC BASIC PACKAGE** | | | | |
| **COMPLETE BLOOD COUNT (CBC) WHOLE BLOOD** | | | | |
| HEMOGLOBIN | 14.3 | | 13 - 17 | g/dL |
| HEMATOCRIT | 43.5 | | 40 - 50 | % |
| RBC COUNT | 5.18 | | 4.50 - 5.50 | 10^6/uL |
| MCV | 84.0 | | 83 - 101 | fL |
| MCH | 27.6 | | 27 - 32 | pg |
| MCHC | 32.9 | | 31.50 - 34.50 | g/dL |
| RDW-CV | **18.6** | **High** | 11.60 - 14.0 | % |
| PLATELET COUNT | 269 | | 150 - 410 | 10^3/uL |
| TOTAL LEUCOCYTE COUNT | 7.7 | | 4 - 10 | 10^3/uL |
| **DIFFERENTIAL LEUKOCYTE COUNT, WHOLE BLOOD** | | | | |
| NEUTROPHILS | 55.8 | | 40 - 80 | % |
| LYMPHOCYTES | 37.3 | | 20 - 40 | % |
| MONOCYTES | 5.3 | | 2 - 10 | % |
| EOSINOPHILS | 1.2 | | 1 - 6 | % |
| BASOPHILS | 0.4 | | <2.0 | % |
| ABSOLUTE NEUTROPHIL COUNT | 4.29 | | 2 - 7 | 10^3/uL |
| ABSOLUTE LYMPHOCYTE COUNT | 2.87 | | 1 - 3 | 10^3/uL |
| ABSOLUTE MONOCYTE COUNT | 0.41 | | 0.20 - 1.0 | 10^3/uL |
| ABSOLUTE EOSINOPHIL COUNT | 0.09 | | 0.02 - 0.50 | 10^3/uL |
| ABSOLUTE BASOPHIL COUNT | 0.03 | | 0.02 - 0.10 | 10^3/uL |
| **GLUCOSE FASTING, PLASMA** | | | | |
| GLUCOSE FASTING | **125.0** | **High** | 70 - 110 | mg/dL |

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| **LIPID PROFILE, SERUM** | | | | |
| CHOLESTEROL TOTAL | 120.0 | | <200.0 DESIRABLE<br>200.0 - 239.0 BORDERLINE<br>>/=240.0 HIGH | mg/dL |
| METHOD : SPECTROPHOTOMETRY, CHOD- POD METHOD | | | | |
| TRIGLYCERIDES | **199.0** | **High** | <150 NORMAL<br>150 - 199 BORDERLINE<br>200 - 499 HIGH<br>>/= 500 VERY HIGH | mg/dL |
| METHOD : SPECTROPHOTOMETRY, GPO- POD METHOD | | | | |
| HDL | 41.0 | | <40.0 LOW<br>40.0 - 60.0 NORMAL<br>>/= 60.0 HIGH | mg/dL |
| METHOD : SPECTROPHOTOMETRY, DIRECT ENZYMATIC METHOD | | | | |
| CHOLESTEROL LDL, CALCULATED | 39.2 | | <100 OPTIMAL<br>100 - 129 NEAR OR ABOVE OPTIMAL<br>130 - 159 BORDERLINE HIGH<br>160 - 189 HIGH<br>>/=190 VERY HIGH | mg/dL |
| CHOLESTEROL VLDL, CALCULATED | **39.8** | **High** | </= 30.0 | mg/dL |
| CHOL / HDL RATIO | **2.9** | **Low** | 3.3 - 4.4 LOW RISK<br>4.5 - 7.0 AVERAGE RISK<br>7.1 - 11.0 MODERATE RISK<br>>11.0 HIGH RISK | Ratio |
| **Comments** | | | | |
| KINDLY CORRELATE CLINICALLY.<br>NOTE: 12 HRS FASTING IS MANDATORY BEFORE TESTING FOR LIPID PROFILE. | | | | |
| **BLOOD UREA NITROGEN (BUN), SERUM** | | | | |
| BLOOD UREA NITROGEN | 14.00 | | 7.0 - 18.0 | mg/dL |
| METHOD : SPECTROPHOTOMETRY, UREASE-GLDH | | | | |
| **CREATININE, SERUM** | | | | |
| CREATININE | 1.02 | | 0.80 - 1.30 | mg/dL |
| METHOD : SPECTROPHOTOMETRY, JAFFE-KINETIC | | | | |
| **BUN/CREATININE RATIO** | | | | |
| BUN/CREATININE RATIO | 13.7 | | | Ratio |
| **URIC ACID, SERUM** | | | | |
| URIC ACID | 4.1 | | 3.5 - 7.2 | mg/dL |
| METHOD : SPECTROPHOTOMETRY, URICASE | | | | |
| **CALCIUM, SERUM** | | | | |
| CALCIUM | 9.60 | | 8.5 - 10.1 | mg/dL |
| METHOD : SPECTROPHOTOMETRY, O-CRESOLPHTHALEIN COMPLEXONE (OCPC) REACTION | | | | |

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|---|---|---|---|
| **LIVER FUNCTION TEST, SERUM** | | | |
| BILIRUBIN TOTAL | 0.50 | 0.30 - 1.20 | mg/dL |
| BILIRUBIN DIRECT | 0.10 | 0.0 - 0.20 | mg/dL |
| METHOD : SPECTROPHOTOMETRY, DIAZO METHOD | | | |
| BILIRUBIN INDIRECT | 0.40 | 0.20 - 1.00 | mg /dL |
| METHOD : CALCULATED | | | |
| ASPARTATE AMINOTRANSFERASE (SGOT) | 29 | 15 - 37 | U/L |
| ALANINE AMINOTRANSFERASE (SGPT) | 44 | 16 - 63 | U/L |
| METHOD : SPECTROPHOTOMETRY, UV WITH PYRIDOXAL-5-PHOSPHATE | | | |
| ALKALINE PHOSPHATASE | 96 | 46.0 - 116.0 | U/L |
| METHOD : SPECTROPHOTOMETRY, PNP AMP KINETIC | | | |
| GAMMA GLUTAMYL TRANSFERASE | 54 | 15 - 85 | U/L |
| METHOD : SPECTROPHOTOMETRY, G-GLUTAMYL-CARBOXY-NITROANILIDE | | | |
| PROTEIN TOTAL | 7.4 | 6.4 - 8.2 | g/dL |
| METHOD : SPECTROPHOTOMETRY, BIURET | | | |
| ALBUMIN | 4.1 | 3.4 - 5.0 | g/dL |
| METHOD : BROMCRESOL PURPLE (BCP) | | | |
| GLOBULIN | 3.3 | 2.0 - 4.10 | g/dL |
| A:G RATIO | 1.24 | 1.0 - 2.1 | Ratio |

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|---|---|---|---|
| **THYROID PROFILE,TOTAL, SERUM** | | | |
| TRI-IODO THYRONIN, (T3) | 87.70 | 60.0 - 181.0 | ng/dL |
| THYROXIN, (T4) | 5.80 | 3.20 - 12.6 | µg/dL |
| THYROID STIMULATING HORMONE | 5.48 | 0.35 - 5.50 | µIU/mL |

METHOD : CHEMILUMINESCENCE (CLIA)

**Interpretation(s)**
TSH stimulates the production and secretion of the metabolically active thyroid hormones, thyroxine (T4) and triiodothyronine (T3), by interacting with a specific receptor on the thyroid cell surface. The synthesis and secretion of TSH is stimulated by Thyrotropin releasing hormone (TRH), in response to low levels of circulating thyroid hormones. Elevated levels of T3 and T4 suppress the production of TSH via a classic negative feedback mechanism. Failure at any level of regulation of the hypothalamic-pituitary-thyroid axis will result in either underproduction (hypothyroidism) or overproduction (hyperthyroidism) of T4 and/or T3.

**Limitations:**
T3 and T4 circulates in reversibly bound form with Thyroid binding globulins (TBG), and to a lesser extent albumin and Thyroid binding Pre Albumin, so conditions in which TBG and protein levels alter such as pregnancy, excess estrogens, androgens, steroids may falsely affect the T3 and T4 levels. Normal levels of T4 can also be seen in Hyperthyroid patients with : T3 Thyrotoxicosis, hypoproteinemia or ingestion of certain drugs. Serum T4 levels in neonates and infants are higher than values in the normal adult, due to the increased concentration of TBG in neonate serum. TSH may be normal in central hypothyroidism, recent rapid correction of hyperthyroidism or hypothyroidism, pregnancy, phenytoin therapy. Autoimmune disorders may produce spurious results. Various drugs can interfere with the test result. TSH has a diurnal rhythm so values may vary if sample collection is done at different times of the day.
Reference intervals for T3, T4 & TSH from TIETZ Textbook of CLINICAL CHEMISTRY & MOLECULAR DIAGNOSTICS- 5th Edition

| T3 | | T4 | | TSH | |
|---|---|---|---|---|---|
| **Age** | **Reference Intervals (ng/dL)** | **Age** | **Reference Intervals (µg/dL)** | **Age** | **Reference Intervals (µIU/mL)** |
| Children | | Children | | Children | |
| 1 - 3 Days | 100 - 740 | 1 - 3 Days | 11.8 - 22.6 | 0 - 4 Days | 1.0 - 39.0 |
| 1 - 11 Months | 105 - 245 | 1 - 2 Week | 9.9 - 16.6 | 2 weeks – 5 months | 1.7 – 9.1 |
| 1 - 5 Years | 105 - 269 | 1 – 4 Months | 7.2 - 14.4 | 6 months – 20 Years | 0.7 – 6.4 |
| 6 – 10 Years | 94 - 241 | 4 Months - 1 Year | 7.8 - 16.5 | > 55 years | 0.5 – 8.9 |
| 11 - 15 Years | 82 - 213 | 1 - 5 Years | 7.3 - 15.0 | Pregnancy | Adolescents |
| | 5- 10 Years 6.4 - 13.3 | First Trimester | 0.1 – 2.5 | | |
| 15 – 20 years | 80 – 210 | 11 - 15 Years | 5.6 - 11.7 | Second Trimester | 0.2 – 3.0 |
| Pregnancy | | | | Third Trimester | 0.3 – 3.0 |
| First Trimester | 81 - 190 | | | | |
| Second&Third Trimester | 100-260 | | | | |

*Pregnancy reference values for TSH provided as per recommendations by American Thyroid Association

Dr Lal PathLabs

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Web: www.lalpathlabs.com, CIN No.: L74899DL1995PLC065388

L40 - GAJRAULA CC
Opp Government hospital Shiv market
Gajraula. Mob no. 9837790322

| | | | | | |
|---|---|---|---|---|---|
| Name | : Mr. SHYAM KUMAR BANSAL | | | Collected | : 7/5/2020 10:42:00AM |
| Lab No. | : 273629655 | Age: 59 Years | Gender: Male | Received | : 7/5/2020 10:52:48AM |
| | | | | Reported | : 7/5/2020 4:04:05PM |
| A/c Status | : P | Ref By : Dr. SHIV PATH LAB | | Report Status | : Final |

| Test Name | Results | Units | Bio. Ref. Interval |
|---|---|---|---|
| **LIPID SCREEN, SERUM** (Spectrophotometry) | | | |
| Cholesterol, Total | 143.40 | mg/dL | <200.00 |
| Triglycerides | **267.00** | mg/dL | <150.00 |
| HDL Cholesterol | 40.20 | mg/dL | >40.00 |
| LDL Cholesterol, Calculated | 49.80 | mg/dL | <100.00 |
| VLDL Cholesterol,Calculated | **53.40** | mg/dL | <30.00 |
| Non-HDL Cholesterol | 103 | mg/dL | <130 |

**Interpretation**

| REMARKS | TOTAL CHOLESTEROL in mg/dL | TRIGLYCERIDE in mg/dL | LDL CHOLESTEROL in mg/dL | NON HDL CHOLESTEROL in mg/dL |
|---|---|---|---|---|
| Optimal | <200 | <150 | <100 | <130 |
| Above Optimal | - | - | 100-129 | 130 - 159 |
| Borderline High | 200-239 | 150-199 | 130-159 | 160 - 189 |
| High | >=240 | 200-499 | 160-189 | 190 - 219 |
| Very High | - | >=500 | >=190 | >=220 |

**Note**

1. Measurements in the same patient can show physiological & analytical variations. Three serial samples 1 week apart are recommended for Total Cholesterol, Triglycerides, HDL& LDL Cholesterol.
2. NLA-2014 recommends a complete lipoprotein profile as the initial test for evaluating cholesterol.

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| **Lab No.** | : **273629655** | **Age: 59 Years** | **Gender: Male** | **Reported** | : **7/5/2020 4:04:05PM** |
| **A/c Status** | : **P** | **Ref By : Dr. SHIV PATH LAB** | | **Report Status** | : **Final** |

| Test Name | Results | Units | Bio. Ref. Interval |
|---|---|---|---|

3. Friedewald equation to calculate LDL cholesterol is most accurate when Triglyceride level is < 400 mg/dL. Measurement of Direct LDL cholesterol is recommended when Triglyceride level is > 400 mg/dL
4. NLA-2014 identifies Non HDL Cholesterol(an indicator of all atherogeniclipoproteins such as LDL , VLDL, IDL, Lpa, Chylomicron remnants)along with LDL-cholesterol as co- primary target for cholesterol lowering therapy. Note that major risk factors can modify treatment goals for LDL &Non HDL.
5. Apolipoprotein B is an optional, secondary lipid target for treatment once LDL & Non HDL goals have been achieved
6. Additional testing for Apolipoprotein B, hsCRP,Lp(a ) & LP-PLA2 should be considered among patients with moderate risk for ASCVD for risk refinement

**Treatment Goals as per Lipid Association of India 2016**

| RISK CATEGORY | TREATMENT GOAL | | CONSIDER THERAPY | |
|---|---|---|---|---|
| | LDL CHOLESTEROL (LDL-C)(mg/dL) | NON HDL CHLOESTEROL (NON HDL-C) (mg/dL) | LDL CHOLESTEROL (LDL-C)(mg/dL) | NON HDL CHLOESTEROL (NON HDL-C) (mg/dL) |
| Very High | <50 | <80 | >=50 | >=80 |
| High | <70 | <100 | >=70 | >=100 |
| Moderate | <100 | <130 | >=100 | >=130 |
| Low | <100 | <130 | >=130* | >=160* |

*In low risk patient, consider therapy after an initial non-pharmacological intervention for at least 3 months

Dr Mohammad Naushad Ansari
MD Pathology
Chief of Laboratory
Dr Lal PathLabs Ltd

----------End of report ----------

If test results are alarming or unexpected, client is advised to contact the laboratory immediately for possible remedial action.
@ Tests conducted at Referral Lab.

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| **Lab No.** | : **273629655** | **Age: 59 Years** | **Gender: Male** | **Reported** | : **7/5/2020 4:04:05PM** |
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| Test Name | Results | Units | Bio. Ref. Interval |
|---|---|---|---|
| **COMPLETE BLOOD COUNT;CBC** (Impedence, Photometry, Calculated, DHSS, Flow Cytometry & Cytochemistry) | | | |
| Hemoglobin | 14.80 | g/dL | 13.00 - 17.00 |
| Packed Cell Volume (PCV) | 44.90 | % | 40.00 - 50.00 |
| RBC Count | 5.14 | mill/mm3 | 4.50 - 5.50 |
| MCV | 87.00 | fL | 80.00 - 100.00 |
| MCH | 28.90 | pg | 27.00 - 32.00 |
| MCHC | 33.00 | g/dL | 32.00 - 35.00 |
| Red Cell Distribution Width (RDW) | **17.90** | % | 11.50 - 14.50 |
| Total Leukocyte Count (TLC) | 8.80 | thou/mm3 | 4.00 - 10.00 |
| **Differential Leucocyte Count (DLC)** | | | |
| Segmented Neutrophils | **38.30** | % | 40.00 - 80.00 |
| Lymphocytes | **53.10** | % | 20.00 - 40.00 |
| Monocytes | 4.60 | % | 2.00 - 10.00 |
| Eosinophils | 4.00 | % | 1.00 - 6.00 |
| Basophils | 0.00 | % | <2.00 |
| **Absolute Leucocyte Count** | | | |
| Neutrophils | 3.37 | thou/mm3 | 2.00 - 7.00 |
| Lymphocytes | **4.67** | thou/mm3 | 1.00 - 3.00 |
| Monocytes | 0.40 | thou/mm3 | 0.20 - 1.00 |
| Eosinophils | 0.35 | thou/mm3 | 0.02 - 0.50 |
| Basophils | **0.00** | thou/mm3 | 0.01 - 0.10 |
| Platelet Count | 287.0 | thou/mm3 | 150.00 - 450.00 |

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| **A/c Status** | : **P** | **Ref By : Dr. SHIV PATH LAB** | | **Report Status** | : **Final** |

| Test Name | Results | Units | Bio. Ref. Interval |
|---|---|---|---|
| **HbA1c (GLYCOSYLATED HEMOGLOBIN), BLOOD** (HPLC) | | | |
| HbA1c | **7.2** | % | |
| Estimated average glucose (eAG) | 160 | mg/dL | |

**Interpretation**

As per American Diabetes Association (ADA)

| Reference Group | HbA1c in % |
|---|---|
| Non diabetic adults >=18 years | 4.0 - 5.6 |
| At risk (Prediabetes) | 5.7 - 6.4 |
| Diagnosing Diabetes | >= 6.5 |
| Therapeutic goals for glycemic control | < 7.0 |

**Note**

1. Since HbA1c reflects long term fluctuations in the blood glucose concentration, a diabetic patient who is recently under good control may still have a high concentration of HbA1c. Converse is true for a diabetic previously under good control but now poorly controlled
2. Target goals of < 7.0 % may be beneficial in patients with short duration of diabetes, long life expectancy and no significant cardiovascular disease. In patients with significant complications of diabetes, limited life expectancy or extensive co-morbid conditions, targeting a goal of < 7.0 % may not be appropriate
3. Presence of Hemoglobin variants and/or conditions that affect red cell turnover must be considered, particularly when the A1C result does not correlate with the patient's blood glucose levels
4. In patients with HbA1c level between 7-8%, Glycemark (1,5 Anhydroglucitol) test may be done to identify those with more frequent and extreme hyperglycemic excursions

**Comments**

HbA1C reflects average glycemia over approximately 3 months, the test is the major tool for assessing glycemic control and has strong predictive value for diabetes complications. Thus, HbA1C testing should be performed routinely in all patients with diabetes - at initial assessment and as part of continuing care.

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|---|---|---|---|

Measurement approximately every 3 months determines whether patients' glycemic targets have been reached and maintained. The frequency of A1C testing should depend on the clinical situation, the treatment regimen, and the clinician's judgement.

**ADA Recommendations for HbA1c testing**

1. Perform the A1C test at least two times a year in patients who are meeting treatment goals (and who have stable glycemic control)
2. Perform the A1C test quarterly in patients whose therapy has changed or who are not meeting glycemic goals

**Factors that Interfere with HbA1c Measurement:** Hemoglobin variants, elevated fetal hemoglobin (HbF) and chemically modified derivatives of hemoglobin (e.g. carbamylated Hb in patients with renal failure) can affect the accuracy of HbA1c measurements

**Factors that affect interpretation of HbA1c Results:** Any condition that shortens erythrocyte survival or decreases mean erythrocyte age (e.g., recovery from acute blood loss, hemolytic anemia, HbSS, HbCC, and HbSC) will falsely lower HbA1c test results regardless of the assay method used. Iron deficiency anemia is associated with higher HbA1c

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Client
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8 9, Begum Bridge Road, Opposite City Center,Bacha Park,

**Processed By**
**Pathkind Diagnostic Pvt. Ltd.**
Plot No. 55-56, Udhyog Vihar Ph-IV, Gurugram - 122015

| | | | | | |
|---|---|---|---|---|---|
| **Name** | **: Mr. SHYAM KUMAR BANSAL** | Billing Date | : | 31/12/2019 10:40:07 |
| Age | : 58 Yrs | Sample Collected on | : | 31/12/2019 10:41:52 |
| Sex | : Male | Sample Received on | : | 31/12/2019 14:58:30 |
| P. ID No. | : P110044470 | Report Released on | : | 01/01/2020 13:29:09 |
| **Accession No** | **: 110019000013536** | Barcode No. | : | 7183502 |
| Referring Doctor | : DR.RAKESH KUMAR ARAN | | | |
| Reference By | : | | | |

**Report Status - Final**

| Test Name | Result | Biological Ref. Interval | Unit |
|---|---|---|---|
| | **BIOCHEMISTRY** | | |
| | HEALTHKIND TOTAL | | |
| * **TSH 3rd Generation** | 2.690 | 0.270 - 4.200 | µIU/ml. |
| *Sample: Serum* | | | |
| *Method: CLIA* | | | |

**TSH 3rd Generation**

Clinical Significance :
TSH levels are elevated in primary hyporthyroidism and low in primary hyperthyroidism. Evaluation of TSH is useful in the differential diagnosis of primary from secondary and tertiary hypothyroidism. In primary hypothyroidism, TSH levels are elevated, while in secondary and tertiary hypothyroidism, TSH levels are low or normal. High TSH level in the presence of normal FT4 is called subclinical hypothyroidism and low TSH with normal FT4 is called subclinical hyperthyroidism. Sick, hospitalized patients may have falsely low or transiently elevated TSH. Significant diurnal variation is also seen in TSH levels.

Dr. Maneesh Bagai
MD (Pathology)
Head - Reference Lab

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Meerut- 250002,Contact No-7902101834,8448393145

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|---|---|---|---|
| **Name** | **: Mr. SHYAM KUMAR BANSAL** | Billing Date | : 31/12/2019 10:40:07 |
| Age | : 58 Yrs | Sample Collected on | : 31/12/2019 10:41:52 |
| Sex | : Male | Sample Received on | : 31/12/2019 14:58:30 |
| P. ID No. | : P110044470 | Report Released on | : 01/01/2020 13:29:09 |
| **Accession No** | **: 110019000013536** | Barcode No. | : 7183504 |
| Referring Doctor | : DR.RAKESH KUMAR ARAN | | |
| Referred By | : | | |

**Report Status - Final**

| Test Name | Result | Biological Ref. Interval | Unit |
|---|---|---|---|
| **Lymphocytes**<br>*Sample: Whole Blood EDTA*<br>*Method: VCS Technology & Microscopy* | **45 H** | 20 - 40 | % |
| **Eosinophils**<br>*Sample: Whole Blood EDTA*<br>*Method: VCS Technology & Microscopy* | 03 | 01 - 06 | % |
| **Monocytes**<br>*Sample: Whole Blood EDTA*<br>*Method: VCS Technology & Microscopy* | 04 | 02 - 10 | % |
| **Basophils**<br>*Sample: Whole Blood EDTA*<br>*Method: VCS Technology & Microscopy* | 00 | 00 - 02 | % |
| **Absolute Neutrophil Count**<br>*Sample: Whole Blood EDTA* | 4752 | 2000 - 7000 | /µL |
| **Absolute Lymphocyte Count**<br>*Sample: Whole Blood EDTA* | **4455 H** | 1000 - 3000 | /µL |
| **Absolute Eosinophil Count**<br>*Sample: Whole Blood EDTA* | 297 | 20 - 500 | /µL |
| **Absolute Monocyte Count**<br>*Sample: Whole Blood EDTA* | 396 | 200 - 1000 | /µL |
| **Absolute Basophil Count**<br>*Sample: Whole Blood EDTA* | **00 L** | 20 - 100 | /µL |
| **DLC Performed By**<br>*Sample: Whole Blood EDTA* | Automated | | |
| **Platelet Count**<br>*Sample: Whole Blood EDTA*<br>*Method: Impedance* | 303 | 150 - 410 | thou/µl |
| **MPV (Mean Platelet Volume)**<br>*Sample: Whole Blood EDTA*<br>*Method: Calculated* | 8.3 | 6.8 - 10.9 | fl. |

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|---|---|---|---|
| | | **BIOCHEMISTRY** | |
| **Fasting Plasma Glucose**<br>*Sample: Fluoride Plasma - F*<br>*Method: Hexokinase* | **151 H** | Normal : 74 - 99<br>Impaired Fasting Glucose :100 - 125<br>Diabetes : > 126 | mg/dL |
| **HbA1C (Glycosylated Hemoglobin)** | | | |
| **# HbA1c**<br>*Sample: Whole Blood EDTA*<br>*Method: High Perfomance Liquid Chromatography (HPLC)* | **7.8 H** | Non Diabetic : < 5.7 %<br>Prediabetic Range : 5.7 - 6.4 %<br>Diabetic Range : >= 6.5 %<br>Goal of Therapy :<7.0 %<br>Action suggested :>8.0 % | % |
| **# Mean Plasma Glucose**<br>*Sample: Whole Blood EDTA*<br>*Method: Calculated* | **177.2 H** | <116.0 | mg/dL |
| **Lipid Profile** | | | |
| **Total Cholesterol**<br>*Sample: Serum*<br>*Method: Spectrophometry-Esterase/CO/Peroxidase* | 158 | Desirable Level : < 200<br>Borderline : 200 - 239<br>High Risk : >/= 240 | mg/dL |
| **Triglycerides**<br>*Sample: Serum*<br>*Method: Spectrophotometry-Enzymatic* | **288 H** | Desirable : < 150<br>Borderline High : 150 - 199<br>High : 200 - 499<br>Very High : >/= 500 | mg/dL |
| **LDL Cholesterol (Calculated)**<br>*Sample: Serum*<br>*Method: Calculated* | 54 | Optimal : <100 mg/dL<br>Near Optimal : 100 - 129 mg/dL<br>Borderline High : 130 - 160 mg/dL<br>High : 161 - 189 mg/dL<br>Very High : >/=190 mg/dL | mg/dL |
| **HDL Cholesterol**<br>*Sample: Serum*<br>*Method: Spectrophometry-Esterase/CO/Peroxidase* | 46 | Low : < 40<br>Optimal : 40 - 60<br>High : > 60 | mg/dL |
| **VLDL Cholesterol**<br>*Sample: Serum*<br>*Method: Calculated* | **57.6 H** | Desirable 10 - 35 | mg/dL |

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| **Total Cholesterol / HDL Ratio**<br>*Sample: Serum*<br>*Method: Calculated* | 3.43 | Low Risk : 3.3 - 4.4<br>Average Risk : 4.5 - 7.0<br>Moderate Risk : 7.1 - 11.0<br>High Risk : > 11.0 | |
| **LDL / HDL Ratio**<br>*Sample: Serum*<br>*Method: Calculated* | 1.2 | 0.5 - 3.0<br><br>Low Risk : 0.5 - 3.0<br>Moderate Risk : 3.1 - 6.0<br>High Risk : > 6.0 | |
| **Blood Urea** | | | |
| **Blood Urea Nitrogen (BUN)**<br>*Sample: Serum*<br>*Method: Spectrophotometry Urease / GLDH* | 16.50 | 8.41 - 25.70 | mg/dL |
| **# Urea**<br>*Sample: Serum*<br>*Method: Urease/GLDH* | 35.31 | 18.00 - 55.00 | mg/dL |
| **Creatinine**<br>*Sample: Serum*<br>*Method: Spectrophotometry Alkaline Picrate* | 0.88 | 0.70 - 1.30 | mg/dL |
| **BUN Creatinine Ratio**<br>*Sample: Serum*<br>*Method: Calculated* | 19 | 10 - 20 | |
| **Uric Acid**<br>*Sample: Serum*<br>*Method: Uricase Peroxidase* | 5.0 | 3.6 - 8.2 | mg/dL |
| **SGOT / AST**<br>*Sample: Serum*<br>*Method: Spectrophotometry-IFCC Without Pyridoxal PO4* | **34 H** | 0 - 33 | U/L |
| **SGPT / ALT**<br>*Sample: Serum*<br>*Method: Spectrophotometry-IFCC Without Pyridoxal PO4* | 33 | 0 - 41 | U/L |
| **Alkaline Phosphatase (ALP)**<br>*Sample: Serum*<br>*Method: IFCC* | 104 | 40 - 129 | U/L |

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|---|---|---|---|

## CLINICAL PATHOLOGY

### Urine Routine & Microscopic Examination

*Method: Reflectance Photometry*

**Physical Examination**

| | | | |
|---|---|---|---|
| **Colour**<br>*Sample: Urine*<br>*Method: Physical Examination* | Pale Yellow | Pale Yellow | |
| **Appearance**<br>*Sample: Urine*<br>*Method: Physical Examination* | Slightly Hazy | Clear | |
| **Specific Gravity**<br>*Sample: Urine*<br>*Method: pKa change of pretreated polyelectrolytes* | 1.015 | 1.003 - 1.035 | |
| **pH**<br>*Sample: Urine*<br>*Method: Double indicator principle* | 5.0 | 4.7 - 7.5 | |

**Chemical Examination**

| | | | |
|---|---|---|---|
| **Glucose**<br>*Sample: Urine*<br>*Method: Glucose oxidase/peroxidase* | **Detected (+++)** | Not Detected | |

*URINE GLUCOSE RECHECKED MANUALLY BY BENEDICT'S TEST.*

| | | | |
|---|---|---|---|
| **Protein**<br>*Sample: Urine*<br>*Method: Protein-error-of-indicators principle* | Not Detected | Not Detected | |
| **Ketones**<br>*Sample: Urine*<br>*Method: Sodium nitroprusside reaction* | Not Detected | Not Detected | |
| **Blood**<br>*Sample: Urine*<br>*Method: Peroxidase* | Not Detected | Not Detected | |

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**Clinical Significance :**
Hemoglobin is the iron containing protein molecule in red blood cells that carries oxygen from the lungs to the body's tissues and returns carbon dioxide from the tissues back to the lungs. Decrease in Hemoglobin levels results in anaemia and very high Hemoglobin levels results in hemochromatosis.

## PCV / Hematocrit

Clinical Significance :
Hemoglobin is the iron containing protein molecule in red blood cells that carries oxygen from the lungs to the body's tissues and returns carbon dioxide from the tissues back to the lungs. Decrease in Hemoglobin levels results in anaemia and very high Hemoglobin levels results in hemochromatosis. Hematocrit or Packed cell volume (PCV) is the proportion of blood volume occupied by red blood cells and is typically about three times the hemoglobin concentration.

## Platelet Count

Clinical Significance :
Platelets or thrombocytes are a cellular component of blood whose function is to stop bleeding by clumping or clotting blood vessel injuries. Low platelet count, also known as Thrombocytopenia, can be either due to less production or increased destruction of platelets. High platelet count or Thrombocytosis can be due to unregulated production, secondary to congenital, reactive or neoplastic conditions.

## Complete Blood Count (CBC)

Clinical Significance :
CBC comprises of estimation of the cellular componenets of blood including RBCs, WBCs and Platelets. Mean corpuscular volume (MCV) is a measure of the size of the average RBC. MCH is a measure of the hemoglobin cointent of the average RBC and MCHC is the hemoglobin concentration per RBC. The red cell distribution width (RDW) is a measure of the degree of variation in RBC size (anisocytosis) and is helpful in distinguishing between some anemias. CBC examination is used as a screening tool to confirm a hematologic disorder, to establish or rule out a diagnosis, to detect an unsuspected hematologic disorder, or to monitor effects of radiation or chemotherapy. Abnormal results may be due to a primary disorder of the cell-producing organs or an underlying disease. Results should be interpreted in conjunction with the patient's clinical picture and appropriate additional testing performed.

## HbA1C (Glycosylated Hemoglobin)



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**Report Status - Final**

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Clinical Significance :
Hemoglobin A1c (HbA1c) level reflects the mean glucose concentration over the previous period (approximately 8-12 weeks) and provides a much better indication of long-term glycemic control than blood and urinary glucose determinations. American Diabetes Association (ADA) include the use of HbA1c to diagnose diabetes, using a cutpoint of 6.5%. The ADA recommends measurement of HbA1c 3-4 times per year for type 1 and poorly controlled type 2 diabetic patients, and 2 times per year for well-controlled type 2 diabetic patients) to assess whether a patient's metabolic control has remained continuously within the target range. Falsely low HbA1c results may be seen in conditions that shorten erythrocyte life span, and may not reflect glycemic control in these cases accurately.

### Total Cholesterol

Clinical Significance :
Serum cholesterol is elevated in hereditary hyperlipoproteinemias and in other metabolic diseases. Moderate-to-markedly elevated values are also seen in cholestatic liver disease. Increased levels are a risk factor for cardiovascular disease. Low levels of cholesterol may be seen in disorders like hyperthyroidism, malabsorption, and deficiencies of apolipoproteins.

### Triglycerides

Clinical Significance :
Triglycerides are partly synthesized in the liver and partly derived from the diet. Increased serum triglyceride levels are a risk factor for atherosclerosis. Hyperlipidemia may be inherited or may be due to conditions like biliary obstruction, diabetes mellitus, nephrotic syndrome, renal failure,certain metabolic disorders or drug induced.

### HDL Cholesterol

Clinical Significance :
High-density lipoprotein (HDL) is an important tool used to assess risk of developing coronary heart disease.Increased levels are seen in persons with more physical activity. Very high levels are seen in case of metabolic response to medications like hormone replacement therapy.Raised levels are also seen in case of chronic intoxication with alcohol, heavy metals or industrial chemicals.Low HDL cholesterol correlates with increased risk for coronary heart disease (CHD). Very low levels are seen in Tangier disease, cholestatic liver disease and in association with decreased hepatocyte function.

### Blood Urea Nitrogen (BUN)

Clinical Significance :



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| Age | : 58 Yrs | Sample Collected on | : 31/12/2019 10:41:57 |
| Sex | : Male | Sample Received on | : 31/12/2019 14:58:30 |
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Increased blood urea nitrogen (BUN) may be due to prerenal causes (cardiac decompensation, water depletion due to decreased intake and excessive loss, increased protein catabolism, and high protein diet), renal causes (acute glomerulonephritis, chronic nephritis, polycystic kidney disease, nephrosclerosis, and tubular necrosis) and postrenal causes (eg, all types of obstruction of the urinary tract, such as stones, enlarged prostate gland, tumors).

**Creatinine**

Clinical Significance :
Serum creatinine is inversely correlated with glomerular filtration rate (GFR). Increased levels of Serum Creatinine is associated with renal dysfunction.

**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)**

ath Kind Labs

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Customer Care: 1800-1-21-000

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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.

## Bilirubin Total

Clinical Significance :
"Total Bilirubin is one of the most commonly used tests to assess liver function. A number of inherited and acquired diseases affect bilirubin production, metabolism, storage and excretion and causes hyperbilirubinemia resulting in jaundice.Hyperbilirubinemia may be due to increased bilirubin production (eg, hemolysis and ineffective erythropoiesis), decreased bilirubin excretion (eg, obstruction and hepatitis), and abnormal bilirubin metabolism (eg, hereditary and neonatal jaundice). Unconjugated hyperbilirubinemia is seen in newborn andd known as physiological jaundice. Elevated unconjugated bilirubin in the neonatal period may result in brain damage (kernicterus).Crigler-Najjar syndromes type I and type II are also associated with elevated levels of indirect bilirubin.Both conjugated and unconjugated bilirubin are increased in hepatitis and space-occupying lesions of the liver; and obstructive lesions such as carcinoma of the head of the pancreas, common bile duct, or ampulla of Vater."

## Bilirubin Direct

Clinical Significance :
"Direct bilirubin is a measurement of conjugated bilirubin.Jaundice can occur as a result of increased bilirubin production (eg, hemolysis and ineffective erythropoiesis), decreased bilirubin excretion (eg, obstruction and hepatitis), and abnormal bilirubin metabolism (eg, hereditary and neonatal jaundice). Inherited disorders in which direct bilirubin levels are increased are seen in Dubin-Johnson syndrome and Rotor syndrome,idiopathic neonatal hepatitis and biliary atresia. The most commonly occurring form of jaundice of the newborn called physiological jaundiceis due to increase in levels of indirect bilirubin.Both conjugated and unconjugated bilirubin are increased in hepatocellular diseases such as hepatitis and space-occupying lesions of the liver; bstructive lesions such as carcinoma of the head of the pancreas, common bile duct, or ampulla of Vater."

## Bilirubin (Total, Direct & Indirect)

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| Referred By | : | | |

**Report Status - Final**

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|---|---|---|---|

Clinical Significance :
The most commonly occurring form of unconjugated hyperbilirubinemia is that seen in newborns and referred to as physiological jaundice. Elevated unconjugated bilirubin in the neonatal period may result in brain damage (kernicterus).

### 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."

### Urine Routine & Microscopic Examination

Clinical Significance :
Urine routine examination and microscopy comprises of a set of screening tests that can detect some common diseases like urinary tract infections, kidney disorders, liver problems, diabetes or other metabolic conditions. Physical characteristics (colour and appearance), chemical composition (glucose, protein, ketone, blood, bilirubin and urobilinogen) and microscopic content ( pus cells, epithelial cells, RBCs, casts and crystals) are analyzed and reported.

* Marked tests are processed in our companion laboratories

** End of Report**

Dr. Shambhavi
MD (Pathology)
Pathologist

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