| | | | |
|---|---|---|---|
| **NAME** | : Ms. VAISHALI | | |
| **AGE/ GENDER** | : 30 YRS/FEMALE | **PATIENT ID** | : 1680201 |
| **COLLECTED BY** | : | **REG. NO./LAB NO.** | **: 012412100021** |
| **REFERRED BY** | : | **REGISTRATION DATE** | : 10/Dec/2024 09:52 AM |
| **BARCODE NO.** | : 01522256 | **COLLECTION DATE** | : 10/Dec/2024 09:53AM |
| **CLIENT CODE.** | : KOS DIAGNOSTIC LAB | **REPORTING DATE** | : 10/Dec/2024 11:13AM |
| **CLIENT ADDRESS** | : 6349/1, NICHOLSON ROAD, AMBALA CANTT | | |

| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|

## HAEMATOLOGY
### COMPLETE BLOOD COUNT (CBC)

#### RED BLOOD CELLS (RBCS) COUNT AND INDICES

| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|
| HAEMOGLOBIN (HB)<br>*by CALORIMETRIC* | $9.6^{L}$ | gm/dL | 12.0 - 16.0 |
| RED BLOOD CELL (RBC) COUNT<br>*by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE* | 3.98 | Millions/cmm | 3.50 - 5.00 |
| PACKED CELL VOLUME (PCV)<br>*by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER* | $32.4^{L}$ | % | 37.0 - 50.0 |
| MEAN CORPUSCULAR VOLUME (MCV)<br>*by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER* | 81.5 | fL | 80.0 - 100.0 |
| MEAN CORPUSCULAR HAEMOGLOBIN (MCH)<br>*by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER* | $24.1^{L}$ | pg | 27.0 - 34.0 |
| MEAN CORPUSCULAR HEMOGLOBIN CONC. (MCHC)<br>*by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER* | $29.6^{L}$ | g/dL | 32.0 - 36.0 |
| RED CELL DISTRIBUTION WIDTH (RDW-CV)<br>*by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER* | $18.4^{H}$ | % | 11.00 - 16.00 |
| RED CELL DISTRIBUTION WIDTH (RDW-SD)<br>*by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER* | $56.5^{H}$ | fL | 35.0 - 56.0 |
| MENTZERS INDEX<br>*by CALCULATED* | 20.48 | RATIO | BETA THALASSEMIA TRAIT: < 13.0<br>IRON DEFICIENCY ANEMIA: >13.0 |
| GREEN & KING INDEX<br>*by CALCULATED* | 37.65 | RATIO | BETA THALASSEMIA TRAIT:<= 65.0<br>IRON DEFICIENCY ANEMIA: > 65.0 |

#### WHITE BLOOD CELLS (WBCS)

| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|
| TOTAL LEUCOCYTE COUNT (TLC)<br>*by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 5910 | /cmm | 4000 - 11000 |
| NUCLEATED RED BLOOD CELLS (nRBCS)<br>*by AUTOMATED 6 PART HEMATOLOGY ANALYZER* | NIL | | 0.00 - 20.00 |
| NUCLEATED RED BLOOD CELLS (nRBCS) %<br>*by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER* | NIL | % | < 10 % |

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Page 1 of 6

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Chairman & Consultant Pathologist

Dr. Yugam Chopra
MD (Pathology)
CEO & Consultant Pathologist

| | | | |
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| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|
| **DIFFERENTIAL LEUCOCYTE COUNT (DLC)** | | | |
| NEUTROPHILS *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 54 | % | 50 - 70 |
| LYMPHOCYTES *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 35 | % | 20 - 40 |
| EOSINOPHILS *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 7$^H$ | % | 1 - 6 |
| MONOCYTES *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 4 | % | 2 - 12 |
| BASOPHILS *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 0 | % | 0 - 1 |
| **ABSOLUTE LEUKOCYTES (WBC) COUNT** | | | |
| ABSOLUTE NEUTROPHIL COUNT *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 3191 | /cmm | 2000 - 7500 |
| ABSOLUTE LYMPHOCYTE COUNT *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 2068 | /cmm | 800 - 4900 |
| ABSOLUTE EOSINOPHIL COUNT *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 414 | /cmm | 40 - 440 |
| ABSOLUTE MONOCYTE COUNT *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 236 | /cmm | 80 - 880 |
| ABSOLUTE BASOPHIL COUNT *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 0 | /cmm | 0 - 110 |
| ABSOLUTE IMMATURE GRANULOCYTE COUNT *by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY* | 0 | /cmm | 0.0 - 999.0 |
| **PLATELETS AND OTHER PLATELET PREDICTIVE MARKERS.** | | | |
| PLATELET COUNT (PLT) *by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE* | 7000$^L$ | /cmm | 150000 - 450000 |

NOTE: TEST CONDUCTED ON EDTA WHOLE BLOOD

RECHECKED.Correlate clinically

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Page 2 of 6

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| Dr. Vinay Chopra | Dr. Yugam Chopra |
|---|---|
| MD (Pathology & Microbiology) | MD (Pathology) |
| Chairman & Consultant Pathologist | CEO & Consultant Pathologist |

| NAME | : Ms. VAISHALI | | |
|---|---|---|---|
| AGE/ GENDER | : 30 YRS/FEMALE | PATIENT ID | : 1680201 |
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| BARCODE NO. | : 01522256 | COLLECTION DATE | : 10/Dec/2024 09:53AM |
| CLIENT CODE. | : KOS DIAGNOSTIC LAB | REPORTING DATE | : 10/Dec/2024 02:55PM |
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| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|

## IMMUNOPATHOLOGY/SEROLOGY

### HEPATITIS C VIRUS (HCV) ANTIBODY: TOTAL

| | | | |
|---|---|---|---|
| HEPATITIS C ANTIBODY (HCV) TOTAL: SERUM<br>*by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)* | 0.1 | S/CO | NEGATIVE: < 1.00<br>POSITIVE: > 1.00 |
| HEPATITIS C ANTIBODY (HCV) TOTAL<br>RESULT<br>*by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)* | NON - REACTIVE | | |

*INTERPRETATION:-*

| RESULT (INDEX) | REMARKS |
|---|---|
| < 1.00 | NON - REACTIVE/NOT - DETECTED |
| > =1.00 | REACTIVE/ASYMPTOMATIC/INFECTIVE STATE/CARRIER STATE. |

Hepatitis C (HCV) is an RNA virus of Favivirus group transmitted via blood transfusions, transplantation, injection drug abusers, accidental needle punctures in healthcare workers, dialysis patients and rarely from mother to infant. 10 % of new cases show sexual transmission. As compared to HAV & HBV , chronic infection with HCV occurs in 85 % of infected individuals. In high risk population, the predictive value of Anti HCV for HCV infection is > 99% whereas in low risk populations it is only 25 %.

**USES:**
1. Indicator of past or present infection, but does not differentiate between Acute/ Chronic/Resolved Infection.
2. Routine screening of low and high prevelance population including blood donors.

**NOTE:**
1. False positive results are seen in Auto-immune disease, Rheumatoid Factor, HYpergammaglobulinemia, Paraproteinemia, Passive antibody transfer, Anti-idiotypes and Anti-superoxide dismutase.
2. False negative results are seen in early Acute infection, Immunosuppression and Immuno—incompetence.
*3. HCV-RNA PCR recommended in all reactive results to differentiate between past and present infection.*

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Page 3 of 6

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ISO 9001 : 2008 CERTIFIED LAB

| Dr. Vinay Chopra | Dr. Yugam Chopra |
|---|---|
| MD (Pathology & Microbiology) | MD (Pathology) |
| Chairman & Consultant Pathologist | CEO & Consultant Pathologist |

| | | | |
|---|---|---|---|
| **NAME** | : Ms. VAISHALI | | |
| **AGE/ GENDER** | : 30 YRS/FEMALE | **PATIENT ID** | : 1680201 |
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| **CLIENT CODE.** | : KOS DIAGNOSTIC LAB | **REPORTING DATE** | : 10/Dec/2024 11:43AM |
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| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|

## RHEUMATOID FACTOR (RA): QUANTITATIVE - SERUM

| | | | |
|---|---|---|---|
| RHEUMATOID (RA) FACTOR QUANTITATIVE: SERUM<br>*by NEPHLOMETRY* | 9.63 | IU/mL | NEGATIVE: < 18.0<br>BORDERLINE: 18.0 - 25.0<br>POSITIVE: > 25.0 |

*INTERPRETATION:-*
**RHEUMATOID FACTOR (RA):**
1. Rheumatoid factors (RF) are antibodies that are directed against the Fc fragment of IgG altered in its tertiary structure.
2. Over 75% of patients with rheumatoid arthritis (RA) have an IgM antibody to IgG immunoglobulin. This autoantibody (RF) is diagnostically useful although it may not be etiologically related to RA.
3. Inflammatory Markers such as ESR & C-Reactive protein (CRP) are normal in about 60 % of patients with positive RA.
4. The titer of RF correlates poorly with disease activity, but those patients with high titers tend to have more severe disease course.
5. The test is useful for diagnosis and prognosis of rheumatoid arthritis.

**RHEUMATOID ARTHIRITIS:**
1. Rheumatoid Arthiritis is a systemic autoimmune disease that is multi-functional in origin and is characterized by chronic inflammation of the membrane lining (synovium) joints which ledas to progressive joint destruction and in most cases to disability and reduction of quality life.
2. The disease spredas from small to large joints, with greatest damage in early phase.
3. The diagnosis of RA is primarily based on clinical, radiological & immunological features.The most frequent serological test is the measurement of RA factor.

**CAUTION (FALSE POSTIVE):-**
*1. RA factor is not specific for Rheumatoid arthiritis, as it is often present in healthy individuals with other autoimmune diseases and chronic infections.*
*2. Non rheumatoid and rheumatoid arthritis (RA) populations are not clearly separate with regard to the presence of rheumatoid factor (RF) (15% of RA patients have a nonreactive titer and 8% of nonrheumatoid patients have a positive titer).*
*3. Patients with various nonrheumatoid diseases,characterized by chronic inflammation may have positive tests for RF. These diseases include systemic lupus erythematosus, polymyositis, tuberculosis, syphilis, viral hepatitis, infectious mononucleosis, and influenza.*
*4. Anti-CCP have been discovered in joints of patients with RA, but not in other form of joint disease.Anti-CCP2 is HIGHLY SENSITIVE (71%) & more specific (98%) than RA factor.*
*5. Upto 30 % of patients with Seronegative Rheumatoid arthiritis also show Anti-CCP antibodies.*
*6. The positive predictive value of Anti-CCP antibodies for Rheumatoid Arthiritis is far greater than Rheumatoid factor.*

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| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|

## SPECIAL INVESTIGATIONS

### ANTI NUCLEAR ANTIBODY/FACTOR (ANA/ANF) - WITH REFLEX TO TITRES: IFA (HEP-2)

| Test Name | Value | | Biological Reference interval |
|---|---|---|---|
| ANTI NUCLEAR ANTIBODY (ANA) - IFA, HEp2<br>*by IFA (IMMUNO FLUORESCENT ASSAY)* | Equivocal | | NEGATIVE (-ve) |
| PRIMARY DILUTION<br>*by IFA (IMMUNO FLUORESCENT ASSAY)* | 1:100 | | |
| PRIMARY INTENSITY (GRADE) ON IF<br>*by IFA (IMMUNO FLUORESCENT ASSAY)* | Intensity + | | |
| ANA PATTERN<br>*by IFA (IMMUNO FLUORESCENT ASSAY)* | Nuclear Fine Speckled (AC-4) | | |
| END POINT TITRES<br>*by IFA (IMMUNO FLUORESCENT ASSAY)* | <1:100 | | |

**INTERPRETATION:**

1. Anti Nuclear antibody ( ANA) in dilutions is recommended for all positive results and follow up

2. Immunofluorescence microscopy using human cellular extracts like HEp-2 cells is a sensitive test for detection of serum antibodies that react specifically with various cellular proteins and nucleic acids

3. Test conducted on Serum

**INTERPRETATION GUIDELINES : (Sample screening Dilution - 1:100):**

Negative : No Immunofluorescence

+ : Weak Positive (1:100)

++ : Moderate Positive (1:320)

+++ : Strong Positive (1:1000)

++++ : Very strong Positive (1:3200)

**COMMENTS:**

Anti Nuclear antibody (ANA / ANF) is a group of autoantibodies directed against constituents of cell nuclei including DNA, RNA & various nuclear proteins. These autoantibodies are found with high frequency in patients with connective tissue disorders specially SLE. Since positive ANA results have been reported in healthy individuals, these reactivities are not by themselves diagnostic but must be correlated with other laboratory and clinical findings.

| PATTERN | DISEASE ASSOCIATION |
|---|---|

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Page 5 of 6

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| Test Name | Value | Unit | Biological Reference interval |
|---|---|---|---|
| **NUCLEAR** | | | |
| Homogenous | SLE & other connective tissue disorders, Drug induced SLE | | |
| Peripheral | SLE & other connective tissue disorders | | |
| Speckled Coarse | Mixed connective Tissue Disorders (MCTD), Scleroderma-Polymyositis Overlap Syndrome, Raynauds Phenomenon, Psoariasis, Sjogrens Syndrome, Systemic Sclerosis. | | |
| Speckled Fine | SLE,Sjogrens syndrome,Scleroderma,Myositis,MCTD | | |
| **NUCLEAR DOTS** | | | |
| Few | Auto-immune & Viral disease- Primary Biliay Cirrhosis & Chronic Active Hepatitis, Rarely Collagen Vascular disease | | |
| Multiple | Primary Biliary Cirrhosis (>30%) | | |
| Centromere | CREST syndrome, Progresive Systemic Sclerosis | | |
| **NUCLEOLAR** | | | |
| Homogeneous | Scleroderma, Myositis, Raynauds Phenomena, SLE & Rheumatoid arthiritis | | |
| Clumpy | Systemic sclerosis & Scleroderma | | |
| **CYTOPLASMIC** | | | |
| Mitochondrial | Primary Biliary Cirrhosis,Scleroderma & Overlap syndrome | | |
| Ribosomal | SLE (10-20%) | | |

Follow - Up:-  Clinical correlation and/or repeat testing after 6-12 weeks and /or confirmation by ANA profile(Refer interpretive note below)

*** End Of Report ***