# PROFICIENCY TESTING REPORT

***ISHTM-AIIMS EXTERNAL QUALITY ASSURANCE PROGRAMME***

NABL accredited program as per ISO/IEC 17043:2010 standard

Organized By Department of Hematology, AIIMS, New Delhi-110029

PC-1002

*Duration of stability testing - minimum upto 8 days at ambient temp. after dispatch of specimens*

**EQAP CODE No. :** 4355 **Distribution No.:** 156-L **Month/Year:** July/2022

**Instrument ID:** YUMIZEN H550

**Name & Contact No. of PT Co-ordinator:** Dr. Seema Tyagi (Prof.), Hematology, AIIMS, Delhi,
Tel: 9013085730 , E-Mail : accuracy2000@gmail.com

**Date of issue & status of the report:** 27-09-2022[Final].

## CBC and Retic Assessment

| Test Parameters | S.No. | | | Among Lab (Accuracy Testing) | | | | Within Lab (Precision Testing) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Your Result 1 | Your Result 2 | Your Results Sum of 2 Value | Consensus result sum of 2 values (Assigned Value) | Uncertainty of Assigned Values | Z Score | Yours Results Diff. of 2 Values | Consensus Result Diff. of 2 values (Assigned Value) | Uncertainty of Assigned Values | Z Score |
| **WBC x10$^3$/µl** | 1 | 6.1 | 4.75 | 10.85 | 12.18 | 0.0990 | **-0.45** | 1.35 | 0.15 | 0.0120 | **7.36** |
| **RBC x10$^6$/µl** | 1 | 4.4 | 4.36 | 8.76 | 8.69 | 0.0140 | **0.18** | 0.04 | 0.05 | 0.0040 | **-0.15** |
| **Hb g/dl** | 1 | 12.5 | 12.5 | 25 | 24.8 | 0.0290 | **0.25** | 0 | 0.1 | 0.0100 | **-0.45** |
| **HCT%** | 1 | 39.5 | 39.3 | 78.8 | 79.6 | 0.2150 | **-0.14** | 0.2 | 0.4 | 0.0290 | **-0.34** |
| **MCV-fl** | 1 | 90.1 | 89.7 | 179.8 | 183.3 | 0.3570 | **-0.35** | 0.4 | 0.4 | 0.0270 | **0.00** |
| **MCH-Pg** | 1 | 28.7 | 28.5 | 57.2 | 57.3 | 0.0800 | **-0.05** | 0.2 | 0.3 | 0.0200 | **-0.34** |
| **MCHC-g/dl** | 1 | 31.9 | 31.7 | 63.6 | 62.4 | 0.1610 | **0.28** | 0.2 | 0.3 | 0.0230 | **-0.27** |
| **Plt. x10$^3$/µl** | 1 | 190 | 187 | 377 | 348 | 1.70 | **0.65** | 3 | 7 | 0.47 | **-0.45** |
| **Retic %** | 2 | | | | | | | | | | |

**P.S . Assesment**

| YOUR REPORT | | | CONSENSUS REPORT |
|---|---|---|---|
| **DLC%** | 3 | Nrbcs=5 , Poly=44 L=1, E=3, Mono/Promono=0 , B1=0 P.M.=1, Mye=33, Meta=18, Other= | Poly: 32 – 50, Myelo: 14 - 28, Meta: 10 – 18, Promyelo: 2-8, Lympho: 2-7, nRBC/ /Blast/Eos/Baso/Mono: 0 – 5 |
| **RBC Morphology** | 3 | PREDOMINANTLY NORMOCYTIC NORMOCHROMIC, SPHEROCYTES-(+). MICROCYTES-FEW, ANISOCYTOSIS-(+). | Predominantly: Normocytic/Normochromic; Moderate: Anisocytosis, hypochromia, Microcytosis; Mild: Macrocytosis, Poikilocytosis |
| **Diagnosis** | 3 | CHRONIC MYELOID LEUKAEMIA (CHRONIC PHASE) | Chronic Myeloid Leukemia (Chronic Phase) |

## COMBINED DATA VALUES OF TOTAL PARTICIPANTS

| Test parameters | S.No. | Total participants covered in the current dist. 156--L | Total No. responded | % of Labs with Z Score 0-2 | | % of Labs with Z Score 2-3 | | % of Labs with Z Score >3 | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Among labs | Within lab | Among labs | Within lab | Among labs | Within lab |
| WBC $x10^3/\mu l$ | 1 | 318 | 306 | 92.16 | 82.35 | 5.56 | 5.88 | 2.28 | 11.77 |
| RBC $x10^6/\mu l$ | 1 | 318 | 318 | 87.11 | 83.65 | 5.35 | 4.4 | 7.54 | 11.95 |
| Hb g/dl | 1 | 318 | 318 | 87.74 | 84.91 | 3.14 | 5.35 | 9.12 | 9.74 |
| HCT% | 1 | 318 | 307 | 92.18 | 89.25 | 4.56 | 5.21 | 3.26 | 5.54 |
| MCV-fl | 1 | 318 | 307 | 91.21 | 91.86 | 5.54 | 3.58 | 3.25 | 4.56 |
| MCH-Pg | 1 | 318 | 307 | 89.25 | 85.67 | 4.89 | 3.58 | 5.86 | 10.75 |
| MCHC-g/dl | 1 | 318 | 307 | 90.88 | 86.97 | 5.86 | 5.21 | 3.26 | 7.82 |
| Plt. $x10^3/\mu l$ | 1 | 318 | 307 | 91.86 | 92.18 | 5.86 | 2.61 | 2.28 | 5.21 |
| ReticCount% | 2 | 318 | 218 | 91.28 | 83.94 | 3.67 | 13.3 | 5.05 | 2.76 |
| PS Assessment | 3 | 318 | 216 | Satisfactory :93.4%, Borderline Sat. :2.83%, Unsatisfactory :3.77% | | | | | |

*Comments:

1). Among Lab (EQA) : Results acceptable.

2). Within Lab (IQA) : Difference in the CBC measurement values for WBC unacceptable, may be due to random/human error.

**Note-1: EQA** (External Quality Assurance) : Your Performance among various of participating labs in PT, to determine the accuracy of your results.
**IQA** ( Internal Quality Assurance) : Your Performance of comparison of two consecutive measurement values within your lab to test the precision of your autoanalyzer.

**Note-2:** Z score among & within lab were calculated, as per to ISO/IEC 13528:2015 standard. Z score among lab (EQA)= (Your Result Sum of two values – Consensus Result sum of two values)/(Normalised IQR)
Z score within lab (IQA)= (Your Result Difference of two values – Consensus Result difference of two values)/(Normalised IQR)
IQR = Quartile 3 - Quartile 1 of participant data, Normalised IQR = 0.7413 x IQR

**Note-3:** Z score 0 to ±2: Acceptable, Z score ±2 to ±3 :Warning Signal, Z score > ±3 : Unacceptable [As per ISO/IEC 13528:2015 standard]

**Note-4:** Z score value between"0 to ±2" are texted in green colour. Z score value between"±2 to ±3" are texted in orange colour. Z score value > ±3 are texted in red colour.

**Note-5:** Homogeneity and stability testing of PT sample were done as per ISO 13528:2015 standard. To pass homogeneity test, between sample SD (Ss) should be smaller than the check value (0.3*SDPA). To pass the stability test, average difference in measurement values of first and last day sample ($\bar{x}$-$\bar{y}$) should be smaller than the check value (0.3*SDPA).

**Note-6:** ISHTM-AIIMS-EQAP does not subcontract any task of its scheme

**Note-7:** Participants are free to use methods/analyzer of their own choice.

**Note-8:** Proficiency testing (PT ) samples are sent quarterly to each participant.

**Note-9:** All the necessary details regarding design and implementation of PT, are provided in the instruction sheet as well as on programme's website www.ishtmaiimseqap.com.

**Note 10:** Reports are kept confidential.

Report authorized by,

Dr. Seema Tyagi (Prof.)
PT Co-ordinator: ISHTM-AIIMS-EQAP
Department of Hematology, AIIMS, New Delhi

----------End Of Report----------

Date of Investigation: 29/09/2022

| |
|---|
| PT/EQAS Set Identification: ISHTM – AIIMS (156 – L) |
| Date of PT/EQAS: July – 22 |
| ~~Acceptable~~/ Unacceptable Results – 7.36 |
| Acceptable Result Range: |
| Previous Trends/ Unacceptable Results from this Analyte/ Test: – No |

Classification of Problems: (Please tick)

Clerical:

☐ Transcription error (may be pre- or post-analytical factors)

☐ Wrong method has been registered for analysis or method change not updated.

Details of Investigation: Nil

Methodological

☐ Instrument function checks (e.g., temperatures, blank readings, pressures) not performed as necessary, or results not within acceptable range.

☐ Scheduled instrument maintenance not performed appropriately.

☐ Incorrect instrument calibration.

☐ Standards or reagents improperly reconstituted and stored, or inadvertently used beyond expiration date.

☐ Instrument probes misaligned.

☐ Problem with instrument data processing functions. The laboratory may need to contact the manufacturer to evaluate such problems.

☐ Problem in manufacture of reagents / standards, or with instrument settings specified by manufacturer

☐ Carry-over from previous specimen.

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☐ Automatic pipettor not calibrated to acceptable precision and accuracy.

☐ Imprecision from result being close to detection limit of method.

☐ QC material not run within expiration date, or improperly stored.

☐ QC material not run at relevant analyte concentration.

☐ Result not within reportable range (linearity) for instrument / reagent system.

☐ Obstruction of instrument tubing / orifice by clot or protein.

☐ Incorrect incubation times.

Details of Investigation: Nil

Technical

☐ EQA material improperly reconstituted.

☐ Testing delayed after reconstitution of EQA material (with problem from evaporation or deterioration).

☐ Sample not placed in proper order on instrument.

☐ Result released despite unacceptable QC data.

☐ QC data within acceptable limits but showed trend suggestive of problem with the assay.

☐ Inappropriate quality control limits / rules. If the acceptable QC range is too wide, the probability increases that a result will fall within the acceptable QC range yet exceed acceptable limits for EQA.

☐ Manual pipetting / diluting performed inaccurately, at an incorrect temperature or with incorrect diluent.

☐ Calculation error or result reported using too few significant digits.

☐ Secondary specimen tubes incorrectly labeled.

☐ In addition to above discipline specific errors may also occur

Details of Investigation: Nil

Problem with PT/EQAS Material

☐ Matrix effects: The performance of some instrument / method combinations may be affected by the matrix of the PT/EQAS sample. This can be overcome to some extent by assessing participants in peer groups – to be done by the PT/EQAS provider.

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☐ Non-homogenous test material due to variability infill volumes, inadequate mixing, or inconsistent heating of lyophilized specimens.

☐ Non-viable samples for microbiology PT/EQAS program.

☐ Haemolysis on an immune-haemtology program samples.

Details of Investigation: Nil

Problem with PT/EQAS Evaluation

☐ Peer group not appropriate.

☐ Inappropriate target value: Target values developed from participant consensus can be inappropriate from non-homogeneous testing material or lingering ("masked") outliers. However, occasional inappropriate target values occur in every PT program. Inappropriate evaluation interval: An evaluation interval may be inappropriately narrow e.g. if ± 2 standard deviation units are used with an extremely precise method; the acceptable range may be much narrower than needed for clinical usefulness.

☐ Incorrect data entry by PT provider.

Details of Investigation: Nil

✓ No Explanation: Attributed to Random Error

Any Others (explain)

Summary of Investigation:

No any Specific deviations noted in EQC

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Was patient data affected? & Corrective action taken if Patient data was affected.

No

Corrective/ Preventive action taken to prevent Reoccurrence

Performance monti monitored closly in next Sample

Conclusions

Based on inter Laboratory Comparision Study and IQC performance Suspected random error.

Swarup saini

Quality Manager/ Team Leader Date: 24.12.2022

Lab Head Date: 24.12.2022

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# NON AVAILABILITY OF EQAP MATERIAL

me
dr.biplabkumarbiswas@yahoo.in
Show less

To EQAP accuracy2000@gmail.com
Md Ehtesham mdehtesham@lupindia...
Kanchan Amar Mundhe kanchanmund...
Manisha Khanna manishakhanna@lup...
HLM JeevanSuraksha hlmjsh@lupindi...

23 Dec 2022 at 7:33 pm

RESPECTED SIR/ MADAM,

I AM DR BIPLAB BISWAS, LAB HEAD, LUPIN DIAGNOSTICS & HLM JEEBAN SURAKSHA HOSPITAL, BANKURA, WEST BENGAL. WE HAVEN'T RECEIVED THE EQAP MATERIAL OF FOURTH QUARTER (OCT - DEC '22 TILL NOW.

REGARDS
DR BIPLAB BISWAS
9775689990

Delete Move to Forward Reply More

| Lupin Diagnostics ,Jeeban Suraksha (HLM) | LUPIN DIAGNOSTICS Good health starts here |
|---|---|
| Inter laboratory comparison study report of Complete Blood count | |

**Objective**:
Inter Laboratory comparison study conducted because AIMMS EQAS sample of period October-December-2022 is not received. As a part of preventive action ILC study performed with two patient samples.

**Reference Laboratory-** Lupin Diagnostics, NRL
**Date of study conducted**- 24.12.2022

| Sr No | Parameters | NRL | JSH | %Diff | Reference range | %Clinical Correlation |
|---|---|---|---|---|---|---|
| 1 | RBC | 5.68 | 5.68 | 0.00 | 3.8-6 | 100 |
| 2 | HB | 15.8 | 16 | -1.25 | 11.5-17 | 100 |
| 3 | PCV | 50.2 | 48.5 | 3.51 | 35-52 | 100 |
| 4 | MCV | 88.3 | 85.3 | 3.52 | 76-100 | 100 |
| 5 | HCH | 27.7 | 28.2 | -1.77 | 27-34 | 100 |
| 6 | HCHC | 31.4 | 33 | -4.85 | 32-35 | 0 |
| 7 | RDWCV | 15.3 | 14.1 | 8.51 | 11.0-17 | 100 |
| 8 | RDWSD | 50.4 | 47.9 | 5.22 | 37-49 | 75 |
| 9 | PLT | 316 | 281 | 12.46 | 150-400 | 100 |
| 10 | PCT | 0.38 | 0.34 | 11.76 | 0.15-0.40 | 100 |
| 11 | MPV | 11.9 | 12.1 | -1.65 | 8.0-11 | 75 |
| 12 | PDW | 23.2 | 22 | 5.45 | 11.0-22 | 75 |
| 13 | PLCC | 162 | 143 | 13.29 | 44-140 | 100 |
| 14 | PLCR | 51.4 | 50.8 | 1.18 | 18-50 | 100 |
| 15 | WBC | 7.11 | 7.23 | -1.66 | 3.5-10 | 100 |
| 16 | NEUT | 3.54 | 3.58 | -1.12 | 1.6-7 | 100 |
| 17 | LYMP | 2.76 | 2.63 | 4.94 | 1.0-3 | 100 |
| 18 | MONO | 0.49 | 0.56 | -12.50 | 0.2-0.8 | 100 |
| 19 | EOS | 0.24 | 0.3 | -20.00 | 0.0-0.50 | 100 |
| 20 | BASO | 0.04 | 0.07 | -42.86 | 0.0-0.15 | 100 |
| 21 | LIC | 0.04 | 0.09 | -55.56 | 0.0-0.10 | 75 |
| 22 | NEUT% | 49.8 | 50.3 | -0.99 | 40-73 | 75 |
| 23 | LYM% | 39.1 | 36.8 | 6.25 | 15-45 | 75 |
| 24 | MONO% | 7 | 7.8 | -10.26 | 4.0-12 | 100 |
| 25 | EOS% | 3.5 | 4.2 | -16.67 | 0.5-7 | 100 |
| 26 | BASO% | 0.6 | 0.9 | -33.33 | 0.0-2.0 | 100 |
| 27 | LIC% | 0.6 | 1.2 | -50.00 | 0.0-1.0 | 75 |
| | | | | | **Average** | **89.81** |

| Sr No | Parameters | NRL | JSH | %Diff | Reference range | %Clinical Correlation |
|---|---|---|---|---|---|---|
| 1 | RBC | 5.15 | 5.24 | -1.72 | 3.8-6 | 100 |
| 2 | HB | 15.3 | 15.3 | 0.00 | 11.5-17 | 100 |
| 3 | PCV | 46.7 | 46 | 1.52 | 35-52 | 100 |
| 4 | MCV | 90.6 | 87.8 | 3.19 | 76-100 | 100 |
| 5 | HCH | 29.8 | 29.2 | 2.05 | 27-34 | 100 |
| 6 | HCHC | 32.9 | 33.2 | -0.90 | 32-35 | 75 |
| 7 | RDWCV | 15.7 | 15.2 | 3.29 | 11.0-17 | 100 |
| 8 | RDWSD | 51.2 | 52.1 | -1.73 | 37-49 | 100 |
| 9 | PLT | 165 | 170 | -2.94 | 150-400 | 100 |
| 10 | PCT | 0.13 | 0.13 | 0.00 | 0.15-0.40 | 100 |
| 11 | MPV | 8 | 7.9 | 1.27 | 8.0-11 | 100 |
| 12 | PDW | 11.5 | 10.6 | 8.49 | 11.0-22 | 25 |
| 13 | PLCC | 31 | 28 | 10.71 | 44-140 | 100 |

| Lupin Diagnostics ,Jeeban Suraksha (HLM) | LUPIN DIAGNOSTICS Good health starts here |
|---|---|
| Inter laboratory comparison study report of Complete Blood count | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14 | PLCR | 18.9 | 16.7 | 13.17 | 18-50 | 50 |
| 15 | WBC | 6.43 | 6.32 | 1.74 | 3.5-10 | 100 |
| 16 | NEUT | 4.39 | 4.18 | 5.02 | 1.6-7 | 100 |
| 17 | LYMP | 1.36 | 1.38 | -1.45 | 1.0-3 | 100 |
| 18 | MONO | 0.49 | 0.57 | -14.04 | 0.2-0.8 | 100 |
| 19 | EOS | 0.15 | 0.13 | 15.38 | 0.0-0.50 | 100 |
| 20 | BASO | 0.03 | 0.05 | -40.00 | 0.0-0.15 | 100 |
| 21 | LIC | 0.01 | 0.01 | 0.00 | 0.0-0.10 | 100 |
| 22 | NEUT% | 68.4 | 66.5 | 2.86 | 40-73 | 100 |
| 23 | LYM% | 21.2 | 21.8 | -2.75 | 15-45 | 100 |
| 24 | MONO% | 7.7 | 9 | -14.44 | 4.0-12 | 100 |
| 25 | EOS% | 2.3 | 2 | 15.00 | 0.5-7 | 100 |
| 26 | BASO% | 0.4 | 0.7 | -42.86 | 0.0-2.0 | 100 |
| 27 | LIC% | 0.2 | 0.2 | 0.00 | 0.01.0 | 100 |
| | | | | | | **94.44** |

**Observations-**

- ✓ >80% Clinical correlation noted in both samples.
- ✓ High % Difference noted due to statistical limitations.

**Conclusion:**

Based on obtained result recovery Inter laboratory comparison study successfully passed for CBC test parameter.

Swarup Saini

**Documented By**
**(Mr Swarup Saini )**

**Approved by**
**(Dr Biplab K.)**

## Results

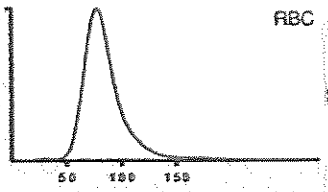
**Run Date** 24/12/2022 08:09:38 PM

**Operator** JSH

**Last Name**
**First Name**
**Gender** **Age**
**Patient ID**
**Birth Date**
**Sample comments**

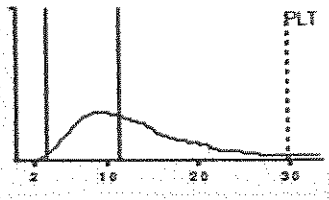
**Sample ID** JITENDRA VALID
**Rack/Pos**
**Department**
**Physician**
**Type** Standard

| | | | | Range |
|---|---|---|---|---|
| **RBC** | 5.68 | | $10^6/\mu L$ | 3.80 - 6.00 |
| **HGB** | 16.0 | | g/dL | 11.5 - 17.0 |
| **HCT** | 48.5 | | % | 35.0 - 52.0 |
| **MCV** | 85.3 | | $\mu m^3$ | 76.0 - 100.0 |
| **MCH** | 28.2 | | pg | 27.0 - 34.0 |
| **MCHC** | 33.0 | | g/dL | 32.0 - 35.0 |
| **RDW-CV** | 14.1 | | % | 11.0 - 17.0 |
| **RDW-SD** | 47.9 | | $\mu m^3$ | 37.0 - 49.0 |



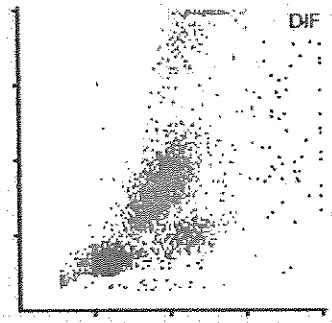

**Recommended actions**
Slide review
**Alarms**
Control failed
Control solution expired
**WBC**
LYM Interference
**Susp. Pathologies**
Macroplatelets
PLT aggregate or NRBC ?

| | | | | Range |
|---|---|---|---|---|
| **PLT** | 281 | * | $10^3/\mu L$ | 150 - 400 |
| **PCT** | 0.34 | * | % | 0.15 - 0.40 |
| **MPV** | 12.1 | H* | $\mu m^3$ | 8.0 - 11.0 |
| **PDW** | 22.0 | * | $\mu m^3$ | 11.0 - 22.0 |
| **P-LCC** | 143 | h | $10^3/\mu L$ | 44 - 140 |
| **P-LCR** | 50.8 | h | % | 18.0 - 50.0 |




| | | | | Range |
|---|---|---|---|---|
| **WBC** | 7.23 | * | $10^3/\mu L$ | 3.50 - 10.00 |

| | # | | Range | % | | Range |
|---|---|---|---|---|---|---|
| **NEU** | 3.58 | * | 1.60 - 7.00 | 50.3 | * | 40.0 - 73.0 |
| **LYM** | 2.63 | * | 1.00 - 3.00 | 36.8 | * | 15.0 - 45.0 |
| **MON** | 0.56 | * | 0.20 - 0.80 | 7.8 | * | 4.0 - 12.0 |
| **EOS** | 0.30 | * | 0.00 - 0.50 | 4.2 | * | 0.5 - 7.0 |
| **BAS** | 0.07 | * | 0.00 - 0.15 | 0.9 | * | 0.0 - 2.0 |
| **LIC** | 0.09 | * | 0.00 - 0.10 | 1.2 | h* | 0.0 - 1.0 |




### Slide Review

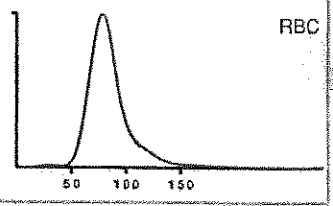
| | | |
|---|---|---|
| Neutrophil | Myeloblast | Anisocytosis |
| Lymphocyte | Promyelocyte | Hypochromia |
| Monocyte | Myelocyte | Polychromasia |
| Eosinophil | Metamyelocyte | Poikilocytosis |
| Basophil | Blast | Microcytosis |
| Atypical Lymphocyte | Target Cell | Macrocytosis |
| Other | Sickle Cell | Platelet Clumps |

Reviewed on _____ by _____ Signature :

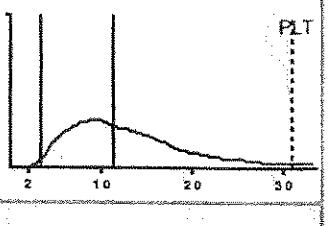
## Results

| | | | |
|---|---|---|---|
| **Run Date** | 24/12/2022 07:55:44 PM | **Operator** | LUPIN |
| **Last Name** | | **Sample ID** | AUTO_SID0005 |
| **First Name** | | **Rack/Pos** | 041731/1 |
| **Gender** | **Age** | **Department** | |
| **Patient ID** | | **Physician** | |
| **Birth Date** | | **Type** | Standard |
| **Sample comments** | | | |

| | | | | Range |
|---|---|---|---|---|
| **RBC** | 5.68 | * | $10^6/\mu L$ | 3.80 - 6.00 |
| **HGB** | 15.8 | | g/dL | 11.5 - 17.0 |
| **HCT** | 50.2 | * | % | 35.0 - 52.0 |
| **MCV** | 88.3 | * | $\mu m^3$ | 76.0 - 100.0 |
| **MCH** | 27.7 | | pg | 27.0 - 34.0 |
| **MCHC** | 31.4 | L | g/dL | 32.0 - 35.0 |
| **RDW-CV** | 15.3 | | % | 11.0 - 17.0 |
| **RDW-SD** | 50.4 | h | $\mu m^3$ | 37.0 - 49.0 |

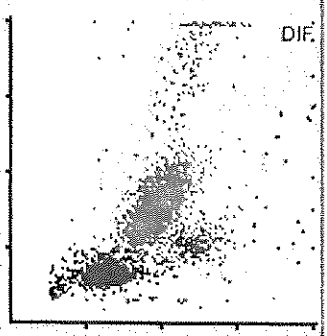



| | | | | Range |
|---|---|---|---|---|
| **PLT** | 316 | * | $10^3/\mu L$ | 150 - 400 |
| **PCT** | 0.38 | * | % | 0.15 - 0.40 |
| **MPV** | 11.9 | h* | $\mu m^3$ | 8.0 - 11.0 |
| **PDW** | 23.2 | h* | $\mu m^3$ | 11.0 - 22.0 |
| **P-LCC** | 162 | h | $10^3/\mu L$ | 44 - 140 |
| **P-LCR** | 51.4 | h | % | 18.0 - 50.0 |




| | | | | Range |
|---|---|---|---|---|
| **WBC** | 7.11 | | $10^3/\mu L$ | 3.50 - 10.00 |

| | # | Range | % | Range |
|---|---|---|---|---|
| **NEU** | 3.54 | 1.60 - 7.00 | 49.8 | 40.0 - 73.0 |
| **LYM** | 2.76 | 1.00 - 3.00 | 39.1 | 15.0 - 45.0 |
| **MON** | 0.49 | 0.20 - 0.80 | 7.0 | 4.0 - 12.0 |
| **EOS** | 0.24 | 0.00 - 0.50 | 3.5 | 0.5 - 7.0 |
| **BAS** | 0.04 | 0.00 - 0.15 | 0.6 | 0.0 - 2.0 |
| **LIC** | 0.04 | 0.00 - 0.10 | 0.6 | 0.0 - 1.0 |




**Recommended actions**

Slide review

**Alarms**

Control failed
**PLT**
RBC PLT Interference

**Susp. Pathologies**

PLT aggregate ?

## Slide Review

| | | |
|---|---|---|
| Neutrophil | Myeloblast | Anisocytosis |
| Lymphocyte | Promyelocyte | Hypochromia |
| Monocyte | Myelocyte | Polychromasia |
| Eosinophil | Metamyelocyte | Poikilocytosis |
| Basophil | Blast | Microcytosis |
| Atypical Lymphocyte | Target Cell | Macrocytosis |
| Other | Sickle Cell | Platelet Clumps |

Reviewed on _____ by _____ Signature :

## Results

**Run Date** 24/12/2022 08:13:01 PM

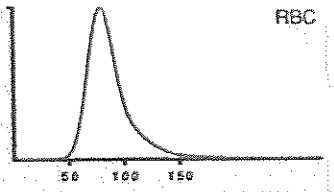
**Operator** JSH

**Last Name**
**First Name**
**Gender** **Age**
**Patient ID**
**Birth Date**
**Sample comments**

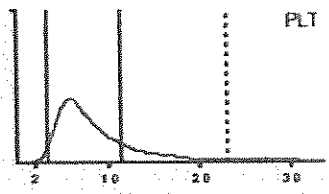
**Sample ID** RUSHIKESHVALID
**Rack/Pos**
**Department**
**Physician**
**Type** Standard

**Alarms**
Control failed
Control solution expired

| | | | | Range |
|---|---|---|---|---|
| **RBC** | 5.24 | | $10^6/\mu L$ | 3.80 - 6.00 |
| **HGB** | 15.3 | | g/dL | 11.5 - 17.0 |
| **HCT** | 46.0 | | % | 35.0 - 52.0 |
| **MCV** | 87.8 | | $\mu m^3$ | 76.0 - 100.0 |
| **MCH** | 29.2 | | pg | 27.0 - 34.0 |
| **MCHC** | 33.2 | | g/dL | 32.0 - 35.0 |
| **RDW-CV** | 15.2 | | % | 11.0 - 17.0 |
| **RDW-SD** | 52.1 | h | $\mu m^3$ | 37.0 - 49.0 |

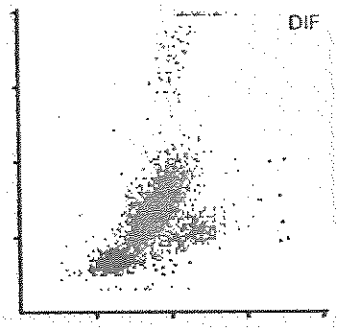



| | | | | Range |
|---|---|---|---|---|
| **PLT** | 170 | | $10^3/\mu L$ | 150 - 400 |
| **PCT** | 0.13 | l | % | 0.15 - 0.40 |
| **MPV** | 7.9 | l | $\mu m^3$ | 8.0 - 11.0 |
| **PDW** | 10.6 | l | $\mu m^3$ | 11.0 - 22.0 |
| **P-LCC** | 28 | l | $10^3/\mu L$ | 44 - 140 |
| **P-LCR** | 16.7 | l | % | 18.0 - 50.0 |




| | | Range |
|---|---|---|
| **WBC** | 6.32 | $10^3/\mu L$ 3.50 - 10.00 |

| | # | Range | % | Range |
|---|---|---|---|---|
| **NEU** | 4.18 | 1.60 - 7.00 | 66.5 | 40.0 - 73.0 |
| **LYM** | 1.38 | 1.00 - 3.00 | 21.8 | 15.0 - 45.0 |
| **MON** | 0.57 | 0.20 - 0.80 | 9.0 | 4.0 - 12.0 |
| **EOS** | 0.13 | 0.00 - 0.50 | 2.0 | 0.5 - 7.0 |
| **BAS** | 0.05 | 0.00 - 0.15 | 0.7 | 0.0 - 2.0 |
| **LIC** | 0.01 | 0.00 - 0.10 | 0.2 | 0.0 - 1.0 |




## Slide Review

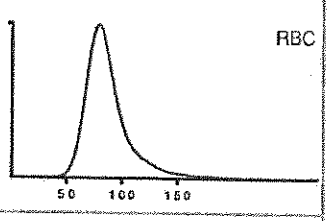
| | | |
|---|---|---|
| Neutrophil | Myeloblast | Anisocytosis |
| Lymphocyte | Promyelocyte | Hypochromia |
| Monocyte | Myelocyte | Polychromasia |
| Eosinophil | Metamyelocyte | Poikilocytosis |
| Basophil | Blast | Microcytosis |
| Atypical Lymphocyte | Target Cell | Macrocytosis |
| Other | Sickle Cell | Platelet Clumps |

Reviewed on _____ by _____ Signature :

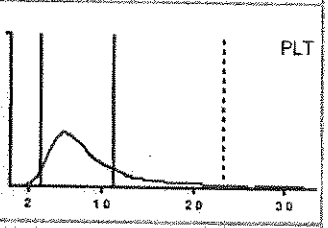
## Results

| | | | |
|---|---|---|---|
| **Run Date** | 24/12/2022 07:58:02 PM | **Operator** | LUPIN |
| **Last Name** | | **Sample ID** | AUTO_SID0006 |
| **First Name** | | **Rack/Pos** | 041731/2 |
| **Gender** | **Age** | **Department** | |
| **Patient ID** | | **Physician** | |
| **Birth Date** | | **Type** | Standard |
| **Sample comments** | | | |

| | | | | Range |
|---|---|---|---|---|
| **RBC** | 5.15 | | $10^6/\mu L$ | 3.80 - 6.00 |
| **HGB** | 15.3 | | g/dL | 11.5 - 17.0 |
| **HCT** | 46.7 | | % | 35.0 - 52.0 |
| **MCV** | 90.6 | | $\mu m^3$ | 76.0 - 100.0 |
| **MCH** | 29.8 | | pg | 27.0 - 34.0 |
| **MCHC** | 32.9 | | g/dL | 32.0 - 35.0 |
| **RDW-CV** | 15.7 | | % | 11.0 - 17.0 |
| **RDW-SD** | 51.2 | h | $\mu m^3$ | 37.0 - 49.0 |




| | | | | Range |
|---|---|---|---|---|
| **PLT** | 165 | | $10^3/\mu L$ | 150 - 400 |
| **PCT** | 0.13 | l | % | 0.15 - 0.40 |
| **MPV** | 8.0 | | $\mu m^3$ | 8.0 - 11.0 |
| **PDW** | 11.5 | | $\mu m^3$ | 11.0 - 22.0 |
| **P-LCC** | 31 | l | $10^3/\mu L$ | 44 - 140 |
| **P-LCR** | 18.9 | | % | 18.0 - 50.0 |

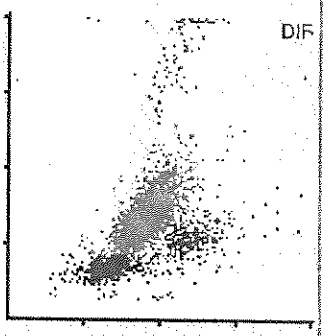



**Alarms**

Control failed

| | | | | Range |
|---|---|---|---|---|
| **WBC** | 6.43 | | $10^3/\mu L$ | 3.50 - 10.00 |

| | # | Range | % | Range |
|---|---|---|---|---|
| **NEU** | 4.39 | 1.60 - 7.00 | 68.4 | 40.0 - 73.0 |
| **LYM** | 1.36 | 1.00 - 3.00 | 21.2 | 15.0 - 45.0 |
| **MON** | 0.49 | 0.20 - 0.80 | 7.7 | 4.0 - 12.0 |
| **EOS** | 0.15 | 0.00 - 0.50 | 2.3 | 0.5 - 7.0 |
| **BAS** | 0.03 | 0.00 - 0.15 | 0.4 | 0.0 - 2.0 |
| **LIC** | 0.01 | 0.00 - 0.10 | 0.2 | 0.0 - 1.0 |




## Slide Review

| | | |
|---|---|---|
| Neutrophil | Myeloblast | Anisocytosis |
| Lymphocyte | Promyelocyte | Hypochromia |
| Monocyte | Myelocyte | Polychromasia |
| Eosinophil | Metamyelocyte | Poikilocytosis |
| Basophil | Blast | Microcytosis |
| Atypical Lymphocyte | Target Cell | Macrocytosis |
| Other | Sickle Cell | Platelet Clumps |

Reviewed on _____ by _____ Signature :