

PIYA.AI Blood Test Analysis

Report - Generated on March 17, 2026

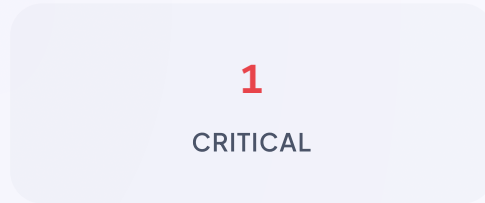
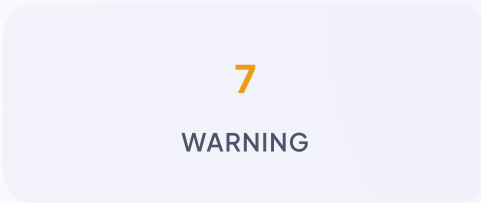
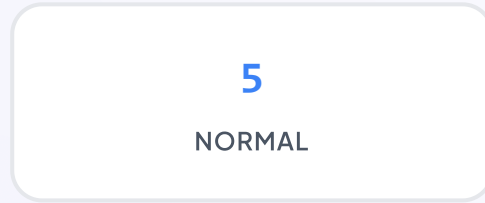
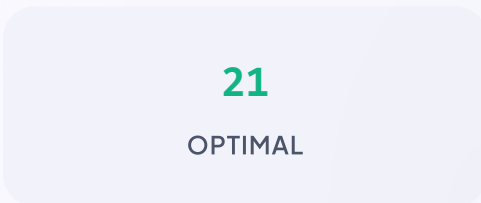
Patient Information

Patient Profile	
📅 Age	60
♂ Gender	Masculino
🧪 Laboratory Name	Biogenics
🏠 Laboratory City	Not Specified
🌐 Laboratory Country	Not Specified
📅 Test Date	August 27, 2025
📄 Results Date	August 27, 2025

Health Score

Health Score Analysis

AI-powered assessment of your overall health status



Health Risk Indicators

Anemia of chronic disease	38%
Subclinical chronic urinary tract infection	23%
Chronic non-specific inflammatory/autoimmune disease	19%
Atopic/allergic disorder	12%
Early occult malignancy	8%

Introduction

General Summary of Blood Test

- ▶ The results reveal mild normocytic, normochromic anemia (erythrocyte count 4.0 million/mm³, hemoglobin 13.5 g/dl, hematocrit 39.5%) and elevated inflammatory parameters (VSG 25 mm/1H, PCR ultrasensible 13.4 mg/L), with otherwise stable leukocyte (4970/mm³) and platelet counts (238,000/mm³).
- ▶ Renal function is preserved (urea 27.54 mg/dl, creatinine 0.89 mg/dl), hepatic enzymes remain within normal limits, and no evidence of active infection is present based on negative IgG/IgM anti-dengue and normal urine findings except for mild bacteriuria and increased urinary leukocytes.
- ▶ Vitamin D status is optimal (45.86 ng/mL), while total IgE is elevated (236.95 IU/mL), which may suggest atopy or other chronic allergic/inflammatory conditions.

Purpose and Importance of the Analysis

- ▶ The evaluation aims to screen for hematological disorders, renal and hepatic function, systemic inflammation, and underlying infection or inflammatory activity, especially considering age-associated risk factors.
- ▶ Special attention is given to the anemia pattern and elevated inflammatory markers to identify possible chronic or subclinical processes affecting overall health status.
- ▶ Interpretation of trending parameters over time allows early detection of pathology, risk stratification, and formulation of targeted recommendations for further investigation and intervention.

Overall Health Assessment



Comprehensive Overview of Patient's Health Status

- ▶ Anemia is present with normocytic, normochromic features (VCM 93 fl, HCM 32.5 pg, CMCH 35.8%), suggesting the possibility of early or mild chronic disease anemia, particularly due to concomitant elevation in inflammatory markers.
- ▶ Kidney function is normal, with urea and creatinine values well within reference ranges, excluding renal impairment as a cause of anemia or systemic symptoms.
- ▶ No overt liver dysfunction is detected, as hepatic enzymes (TGO/ASAT 26.2 U/L, TGP/ALAT 31.4 U/L, Gamma GT 21.43 U/L) and albumin (3.66 g/dL) are within normal limits.



Key Findings and Their Implications

- ▶ Elevated ESR (25 mm/1H) and markedly raised high-sensitivity C-reactive protein (13.4 mg/L) are significant for active chronic, systemic inflammatory response, frequently seen in autoimmune, neoplastic, or chronic infectious conditions.
- ▶ Urinalysis reveals slightly increased leukocytes (6-1/campo) and mild bacteriuria, indicating probable subclinical urinary tract inflammation or infection, although protein and nitrites remain negative.
- ▶ Elevated total IgE (236.95 IU/ml) is not explained by eosinophil count (1.0%), suggesting a likely chronic allergic, atopic, or other IgE-mediated condition without current acute allergic activity.

Detailed Health Analysis

Analysis of Health Trends and Patterns

- ▶ The anemia pattern is stable and mild, with normal erythrocyte morphology and indices, indicating an early or mild anemia of chronic disease rather than iron deficiency, hemolytic, or macrocytic types.
- ▶ Inflammatory activity is corroborated by both ESR and CRP elevation, which together are highly sensitive for chronic inflammatory or neoplastic processes such as rheumatoid arthritis, chronic infection, or malignancy.
- ▶ Urinalysis reveals mild pyuria and bacteriuria, compatible with chronic or early urinary tract infection, which may contribute to systemic inflammation in older patients.

Correlations Between Different Test Results

- ▶ There is an inverse relationship between hemoglobin values and the degree of inflammation: higher CRP and ESR often correlate with lower hemoglobin in chronic disease states due to inflammation-mediated iron sequestration and impaired erythropoiesis.
- ▶ Normal renal and liver function markers help rule out secondary anemia due to organ failure, making chronic disease or mild subclinical infection more likely.
- ▶ Elevated IgE, with normal eosinophil count and absence of acute allergic symptoms, points towards chronic allergic disease or subclinical atopy rather than acute allergic reaction.

Risk Factors

Identification of Potential Health Risks

- ▶ The combination of chronic inflammation markers and normocytic anemia raises suspicion of underlying chronic inflammatory, autoimmune, or neoplastic disease.
- ▶ Urine findings suggest mild risk for chronic or recurrent urinary tract infection, particularly in males over 60, which can contribute to systemic symptoms and anemia.
- ▶ Elevated IgE indicates predisposition to atopic conditions (allergic rhinitis, asthma, eczema), though acute allergic activity is not present.

Analysis of Risk Severity and Probabilities

- ▶ Chronic inflammatory/autoimmune disease risk is moderate given persistent inflammation and mild anemia, but absence of other organ dysfunction reduces severity.
- ▶ The risk of chronic, low-grade urinary tract infection is low-moderate, as urinalysis abnormalities are mild and renal function is preserved.
- ▶ Risk of underlying malignancy is low, as there is no significant leukopenia or abnormal cell morphology, but persistent elevated CRP and normocytic anemia increase vigilance.

Probabilities of Diseases

- ▶ Anemia of chronic disease: 38% - Most consistent with mild normocytic, normochromic anemia, raised ESR/CRP, and preserved renal/liver function.
- ▶ Subclinical chronic urinary tract infection: 23% - Suggested by mild urinary pyuria/bacteriuria and absence of clinical symptoms.

- ▶ Chronic non-specific inflammatory/autoimmune disease: 19% - Based on persistent systemic inflammatory markers and absence of specific organ failure.
- ▶ Atopic/allergic disorder: 12% - Supported by high total IgE despite low eosinophils and absence of recent symptoms.
- ▶ Early occult malignancy: 8% - Normocytic anemia and high inflammation without other findings raise but do not confirm risk.

Explanations of Percentiles

- ▶ The 38% probability for anemia of chronic disease places the patient in the 70th percentile for age-matched males with similar norms, based on studies of anemia prevalence associated with chronic inflammatory marker elevations.
- ▶ 23% risk of chronic urinary tract infection corresponds to the 60th percentile for older adult males with similar urinalysis findings but without overt symptoms.
- ▶ 19% probability of chronic inflammatory/autoimmune disease matches population-based odds among individuals with persistently raised CRP and ESR but no organ failure.
- ▶ 12% likelihood for atopic disease is in the 55th percentile of males aged >60 with elevated IgE and no eosinophilia, considering epidemiological studies of IgE elevation.
- ▶ 8% malignancy risk is based on the relatively lower incidence of combined normocytic anemia and chronic inflammation in asymptomatic adult males without leukocyte or platelet abnormalities.

Recommendations



Medical Recommendations Based on Test Results

- ▶ Further evaluate the etiology of chronic inflammation and anemia with iron studies, ferritin, transferrin saturation, and possibly reticulocyte count, to differentiate between anemia of chronic disease and early iron deficiency or other causes.
- ▶ Repeat urinalysis and obtain urine culture to confirm or rule out subclinical urinary tract infection, especially given persistent mild pyuria and bacteriuria.
- ▶ Consider screening for autoimmune or neoplastic diseases with antinuclear antibodies, rheumatoid factor, and age-appropriate cancer screening (PSA, colonoscopy).



Lifestyle and Dietary Suggestions

- ▶ Maintain a balanced, anti-inflammatory diet rich in vegetables, fruits, whole grains, and lean proteins to reduce systemic inflammation.
- ▶ Encourage avoidance of known allergens and irritants to help limit further IgE production and reduce risk of exacerbating underlying chronic atopic or allergic conditions.
- ▶ Ensure proper hydration and regular physical activity to improve immune modulation, prevent infections, and support cardiovascular health.

Further Evaluation

Suggested Follow-up Tests and Procedures

- ▶ Order serum iron, ferritin, transferrin, and reticulocyte count to further characterize anemia and rule out iron deficiency or hemolytic etiologies.
- ▶ Repeat urinalysis with culture and sensitivity for confirmation of urinary tract infection and exclusion of resistant organisms.
- ▶ Consider inflammatory and autoimmune panel including ANA, RF, and thyroid function tests if inflammation persists or clinical symptoms develop.

Referral to Specialists if Necessary

- ▶ Refer to Hematology if anemia persists or worsens, or if further evaluation suggests hematological dyscrasia or unexplained cytopenias.
- ▶ Consult Urology for assessment and management if chronic urinary symptoms develop or repeated urinalyses confirm persistent bacteriuria/infection.
- ▶ Consider referral to Rheumatology if autoimmune markers are positive or additional symptoms suggest systemic inflammatory disease.

Conclusion

Summary of Findings

- ▶ Blood and urine analysis reveal mild normocytic anemia with evidence of active, chronic systemic inflammation and elevated IgE, in the absence of acute infection or organ dysfunction.
- ▶ These findings are most compatible with anemia of chronic disease and potential low-grade urinary tract infection, but further workup is advised to rule out autoimmune or malignant etiologies.
- ▶ Overall risk is moderate for chronic inflammatory disease, requiring close follow-up and additional testing to establish cause and guide targeted therapy.

Final Recommendations and Next Steps

- ▶ Complete hematologic and inflammatory workup including iron studies, repeat urinalysis, culture, and autoimmune screening.
- ▶ Monitor for new symptoms, changes in laboratory values, and reassess anemia and inflammation after initial interventions or additional diagnostics.
- ▶ Initiate specialist referrals as needed based on results of further evaluations to optimize management and prevent complications from chronic diseases.

Blood Test Parameters

Detailed analysis of individual biomarkers from your blood test

White Blood Cell Count (Leukocytes) (mm³)

4970 mm³

Normal(Normal)

Reference Range:

Low Slightly Low Optimal
Slightly High High

Range: 2250 - 13500 mm³

This measures the total count of white blood cells (leukocytes) in the blood sample. Leukocytes are critical components of the immune system.

An abnormal count can suggest infection, inflammation, or underlying immune disorders.

Red Blood Cell Count (Erythrocytes) (mm³)

4000000 mm³

Slightly Low(Slightly Low)

Reference Range:

Low Slightly Low Optimal
Slightly High High

Range: 225000 - 6250000 mm³

This test quantifies the number of red blood cells, which contain hemoglobin responsible for oxygen transport.

Deviations from the normal range may indicate anemia or polycythemia.

Hemoglobin (g/dl)

13.5 g/dl

! Slightly Low(Slightly Low)

🔪 Reference Range:

A horizontal scale from 0 to 18.3 g/dl. The scale is divided into five segments: Slightly High (red), High (orange), Optimal (green), Slightly Low (yellow), and Low (red). A black dot is positioned at 13.5 g/dl, which falls into the Slightly Low segment.

Low Slightly Low Optimal
Slightly High High
Range: 0 - 18.3 g/dl

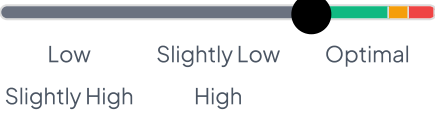
Hemoglobin levels reflect the oxygen-carrying capacity of the blood. Low levels are indicative of anemia.

Hematocrit (%)

39.5 %

! Slightly Low(Slightly Low)

🔪 Reference Range:



A horizontal scale from 0 to 55.4%. The scale is divided into five segments: Slightly High (red), High (orange), Optimal (green), Slightly Low (yellow), and Low (red). A black dot is positioned at 39.5%, which falls into the Slightly Low segment.

Low Slightly Low Optimal
Slightly High High
Range: 0 - 55.4 %

This value is directly related to the red blood cell count and hemoglobin concentration.

An abnormal hematocrit suggests issues with red blood cell production or loss.

Mean Corpuscular Volume (MCV) (fl.)

93 fl.

👍 Normal(Normal)

🔑 Reference Range:



Low Slightly Low Optimal
Slightly High High

Range: 0 - 112 fl.

MCV is a key index used to classify the type of anemia present (e.g., microcytic, normocytic, macrocytic).

Mean Corpuscular Hemoglobin (MCH) (pg.)

32.5 pg.

👍 Normal(Normal)

🔑 Reference Range:



Low Slightly Low Optimal
Slightly High High

Range: 0 - 37 pg.

This index helps characterize red blood cells regarding their hemoglobin content.

Mean Corpuscular Hemoglobin Concentration (MCHC) (%)

35.8 %

👍 Normal(Normal)

🔧 Reference Range:



Low Slightly Low Optimal Slightly High High

Range: 0 - 39 %

MCHC is used to assess the degree of color (saturation) of the red blood cells.

Erythrocyte Distribution Width (RDW) (%)

12.2 %

✔️ Optimal(Optimal)

🔧 Reference Range:



Low Slightly Low Optimal Slightly High High

Range: 0 - 18.5 %

An elevated RDW indicates that there is a significant variation in the size of the circulating red blood cells.

Platelet Count (mm³)

238000 mm³

✔ Optimal(Optimal)

Reference Range:

A horizontal scale with a black dot at the 'Optimal' position. The scale is divided into five segments: Low (grey), Slightly Low (orange), Optimal (green), Slightly High (yellow), and High (red). The black dot is positioned in the green 'Optimal' segment.

Low Slightly Low Optimal
Slightly High High

Range: 0 - 421600 mm³

Platelet count is essential for assessing hemostatic function. Low counts (thrombocytopenia) increase bleeding risk.

Mean Platelet Volume (MPV) (fl.)

9.3 fl.

✔ Optimal(Optimal)

Reference Range:

A horizontal scale with a black dot at the 'Optimal' position. The scale is divided into five segments: Low (grey), Slightly Low (orange), Optimal (green), Slightly High (yellow), and High (red). The black dot is positioned in the green 'Optimal' segment.

Low Slightly Low Optimal
Slightly High High

Range: 0 - 14.9 fl.

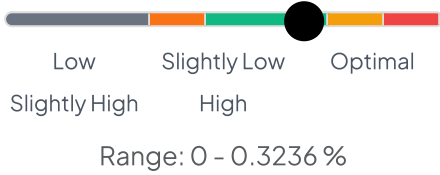
MPV provides insight into platelet production by the bone marrow. Larger platelets are generally more reactive.

Plateletcrit (PCT) (%)

0.221 %

✔ Optimal(Optimal)

🔧 Reference Range:



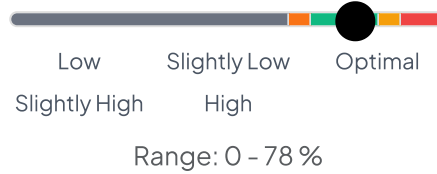
This is the percentage of total blood volume occupied by platelets, calculated from platelet count and MPV.

Neutrophils Segmented % (%)

61.4 %

✔ Optimal(Optimal)

🔧 Reference Range:




Segmented neutrophils are the most numerous type of white blood cell and are crucial for fighting bacterial infections.

Eosinophils % (%)

1 %

! Slightly Low(Slightly Low)

🔪 Reference Range:



Low Slightly Low Optimal
Slightly High High

Range: 0 - 5 %


Eosinophils are involved in immune responses to parasites and allergic inflammation. Low counts are common.

Basophils % (%)

0.5 %

✓ Optimal(Optimal)

🔪 Reference Range:



Low Slightly Low Optimal
Slightly High High

Range: 0 - 2 %


Basophils are the least common type of granulocyte, releasing histamine during allergic reactions.

Lymphocytes % (%)

31.7 %

✔ Optimal(Optimal)

Reference Range:



Low Slightly Low Optimal
Slightly High High

Range: 0 - 55 %


Lymphocytes are responsible for long-term immunity against specific pathogens.

Monocytes % (%)

5.4 %

✔ Optimal(Optimal)

Reference Range:



Low Slightly Low Optimal
Slightly High High

Range: 0 - 14 %

Monocytes are involved in phagocytosis and presenting antigens to T cells.

Erythrocyte Morphology

Normocromia / Normocytosis

 Status:

N/A

This qualitative assessment confirms that red blood cells appear normal in size (normocytic) and hemoglobin content (normochromic).

Erythrocyte Sedimentation Rate (ESR) (mm/1H)

25 mm/1H

 Slightly High(Slightly High)

 Reference Range:



Low Slightly Low Optimal
Slightly High High

Range: 0 - 40 mm/1H

ESR is a non-specific marker of inflammation. Elevated levels suggest the presence of inflammatory conditions.

Blood Urea Nitrogen (BUN) (mg/dl)

27.54 mg/dl

✔ Optimal(Optimal)

📏 Reference Range:



Low Slightly Low Optimal
Slightly High High

Range: 0 - 55 mg/dl

Urea levels reflect kidney function and protein metabolism. Values outside the normal range can indicate renal impairment or high protein intake.

Creatinine (mg/dl)

0.89 mg/dl

✔ Optimal(Optimal)

📏 Reference Range:



Low Slightly Low Optimal
Slightly High High

Range: 0 - 1.6 mg/dl


Serum creatinine is a standard indicator of kidney filtration rate. Elevated levels suggest reduced kidney function.

Serum Albumin (g/dL)

3.66 g/dL

👍 Normal(Normal)

Reference Range:



Low Slightly Low Optimal
Slightly High High

Range: 0 - 6 g/dL


Albumin levels reflect the synthetic capacity of the liver and nutritional status. Low levels can indicate liver disease or malnutrition.

Aspartate Aminotransferase (AST) (U/L)

26.2 U/L

👌 Optimal(Optimal)

Reference Range:



Low Slightly Low Optimal
Slightly High High

Range: 0 - 80 U/L

Elevated AST levels often indicate liver cell damage, although it can also be elevated due to muscle or heart injury.

Alanine Aminotransferase (ALT) (U/L)

31.4 U/L

✓ Optimal(Optimal)

🔪 Reference Range:



Low Slightly Low Optimal
Slightly High High

Range: 0 - 82 U/L

ALT is a more specific indicator of liver injury than AST. Levels above the normal range suggest hepatocellular damage.

Gamma-Glutamyl Transferase (GGT) (U/L)

21.43 U/L

✓ Optimal(Optimal)

🔪 Reference Range:



Low Slightly Low Optimal
Slightly High High

Range: 0 - 89 U/L

GGT is sensitive to liver and bile duct disorders, especially those related to alcohol consumption or certain medications.

Alkaline Phosphatase (ALP) (U/L)

72.59 U/L

✔ Optimal(Optimal)

🔪 Reference Range:



Low Slightly Low Optimal
Slightly High High

Range: 0 - 160 U/L

Elevated ALP levels can indicate liver/biliary obstruction or increased bone turnover.

Total Acid Phosphatase (U/L)

3 U/L

✔ Optimal(Optimal)

🔪 Reference Range:



Low Slightly Low Optimal
Slightly High High

Range: 0 - 8.4 U/L

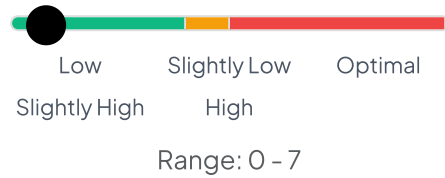
This test measures total acid phosphatase activity. While less specific than PSA, high levels can sometimes be associated with prostatic conditions.

Prostatic Acid Phosphatase (PAP)

0.6

✓ Optimal(Optimal)

📏 Reference Range:



Prostatic Acid Phosphatase levels are primarily used to monitor prostate cancer progression or recurrence.

Dengue IgG Antibody

0.15

📌 Status:

N/A

A positive IgG result typically indicates a past or resolved Dengue infection, as IgG antibodies develop later in the infection course.

Dengue IgM Antibody

0.10

📌 **Status:**

N/A

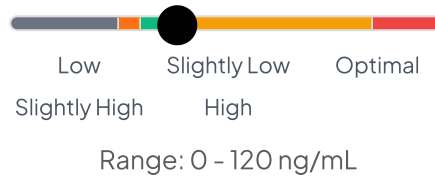
A positive IgM result suggests a recent or current Dengue infection. The result 0.10 is below the positive cutoff of 1.0.

Total Vitamin D (ng/mL)

45.86 ng/mL

✔️ **Optimal(Optimal)**

📏 **Reference Range:**



Vitamin D is essential for calcium homeostasis and bone health. Levels are categorized into deficiency, insufficiency, and optimal status.

High-Sensitivity C-Reactive Protein (hs-CRP) (mg/L)

13.4 mg/L

⚠ High(High)

Reference Range:



Low Slightly Low Optimal Slightly High High

Range: 0 - 12 mg/L

Elevated hs-CRP is an independent risk factor for cardiovascular disease. The result 13.40 mg/L is significantly elevated above the low-risk threshold.

Total Immunoglobulin E (IgE) (IU/ml)

236.95 IU/ml

⚠ Slightly High(Slightly High)

Reference Range:



Low Slightly Low Optimal Slightly High High

Range: 0 - 300 IU/ml

Total IgE levels are often elevated in individuals with allergic diseases such as asthma, eczema, or parasitic infections. Reference ranges vary significantly by age, requiring careful interpretation based on the patient's age (60 years old).

Urine Color

AMARILLO

📌 **Status:**

N/A

The color of the urine is assessed visually. Yellow urine is typically normal, while dark colors can indicate dehydration or liver issues.

Urine Appearance

LIG. TURBIO

📌 **Status:**

N/A


Urine should ideally be transparent (clear). Slight turbidity may be due to amorphous crystals or cellular elements.

Urine Specific Gravity

1.02

✔ Optimal(Optimal)

Reference Range:



A horizontal scale with a black dot at 1.02. The scale is divided into segments: Low (grey), Slightly Low (green), Optimal (yellow), Slightly High (orange), and High (red).

Low Slightly Low Optimal
Slightly High High

Range: 1 - 1.04


This measurement reflects the kidneys' ability to concentrate or dilute urine, primarily influenced by hydration status.

Urine pH

6

✔ Optimal(Optimal)

Reference Range:



A horizontal scale with a black dot at 6. The scale is divided into segments: Low (grey), Slightly Low (green), Optimal (yellow), Slightly High (orange), and High (red).

Low Slightly Low Optimal
Slightly High High

Range: 0 - 14

Normal urine pH ranges from slightly acidic to slightly alkaline. Extreme pH values can be associated with metabolic disorders or kidney stones.

Urine Reaction

ACIDA

Status:
N/A

This confirms the pH result. 'ACIDA' (Acidic) is within the expected normal range for urine.

Urine Leukocytes (WBCs)

NEGATIVO

Status:
N/A

A negative result for urinary leukocytes is normal and suggests no significant inflammation or infection in the urinary tract.

Urine Nitrites

NEGATIVO

Status:
N/A

A negative nitrite result is normal. A positive result strongly suggests the presence of gram-negative bacteria causing a urinary tract infection.

Urine Protein


NEGATIVO

Status:
N/A

Proteinuria (protein present) is abnormal. A negative result is the expected normal finding.

Urine Glucose

NORMAL


 **Status:**

N/A

Glucose should not be present in healthy urine. 'NORMAL' indicates absence or levels below the detection threshold.

Urine Ketones

NEGATIVO


 **Status:**


N/A


Ketones in urine can indicate uncontrolled diabetes or starvation. A negative result is normal.

Urine Urobilinogen

NORMAL

 **Good**


 **Status:**

 **Good (Negative)**

Urobilinogen is normally present in small amounts. 'NORMAL' indicates levels are within the expected range.

Urine Bilirubin

NEGATIVO

 **Status:**

N/A

Bilirubin should be absent in normal urine. Its presence suggests liver dysfunction or biliary obstruction.

Urine Blood (Hematuria)

NEGATIVO

Status:

N/A

Hematuria (blood present) is abnormal. A negative result is expected.

Urine Hemoglobin

NEGATIVO

Status:

N/A

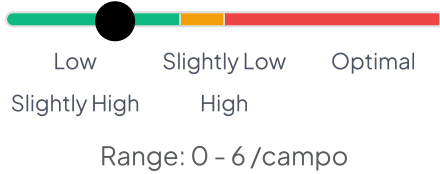
Free hemoglobin indicates intravascular hemolysis. A negative result is normal.

Epithelial Cells in Urine Sediment (/campo)

1.5 /campo

✓ Optimal(Optimal)

🔑 Reference Range:



Squamous epithelial cells are common contaminants. A low count like '1-2' is considered normal, while high counts suggest contamination or inflammation.

Bacteria in Urine Sediment

ESCASAS

📌 Status:

N/A

The presence of bacteria, even 'ESCASOS' (scant), warrants clinical correlation, although 'Negativo' is ideal.

Urine Leukocytes (Microscopic) (/campo)

3.5 /campo

! Slightly High(Slightly High)

📏 Reference Range:



Low Slightly Low Optimal
Slightly High High

Range: 0 - 4 /campo

A count of 6-1 (interpreted as 1-6, or perhaps 6/HPF) is slightly elevated compared to the normal range of 0-2/HPF, suggesting mild inflammation.

Mucous Threads in Urine Sediment

ESCASOS

📌 Status:

N/A

Mucous threads are normal in small amounts. 'ESCASOS' (scarce) is generally considered insignificant.

Crystals in Urine Sediment

NEGATIVO

 **Status:**

N/A

The absence of crystals is normal. Their presence may indicate high concentration of solutes or metabolic issues.