

AG- Reticulocyte Stain (IFU)

PRINCIPLE

AstraGene's Reticulocyte stain solution formulated to contain new methylene blue for staining reticulocyte in blood smear. Reticulocytes are immature red blood cells (RBCs) and they differ from other red blood cells in that they have a more convoluted shape and are about 8% larger than the mature RBCs with considerable quantities of ribosomal and mitochondrial RNA. Normally, there are a small number of reticulocytes in the peripheral blood which remain for 24-48 hours during maturation. Reticulocyte number increases when there is an increase in erythropoietic activity. Hence Reticulocyte count is the test for determining bone marrow function and evaluating erythropoietic activity. It is used to classify and monitor therapy for anemias.

The reticulocyte count is based on the property of ribosomal RNA to react with isotonic solution of new methylene blue stain. Here, Blood is mixed with the stain and incubated. The RNA in the cell gets precipitated as dark blue network or reticulum color against pink stained RBCs. Blood smear is made and examined under microscope. As a direct count is not possible, a relative count is taken against the number of RBCs and expressed as the percentage of RBC.

PACKAGE CONTENTS

Description	Catalogue Number	Quantity
AG - Reticulocyte Stain	AG/RS/Stain/22/01	100 mL

STORAGE & STABILITY

Store at 2 - 8 °C away from bright light. Use before expiry date given on the product label

TYPES OF SPECIMENS

Anticoagulated Blood specimens and blood smears

DIRECTIONS/PROCEDURE:

- Take 2-3 drops of AG-Reticulocyte stain in a test tube with cap.
- Add 2-4 drops of patient's EDTA-anticoagulated blood sample and mix gently with a plastic Pasteur pipette.
- Cap the tube and incubate at 37°C for 15-20 minutes.
- After incubation, mix well and make a thin smear of the stained blood.
- When dry, examine the films at 100X without fixing or counterstain.
- Count 1000 RBCs and note the number of reticulocytes among them. A dark-blue reticulum or network will be present in reticulocytes.
- The enumeration of reticulocyte count will be the measure of the number of cells delivered by the marrow to the blood each day. That is the measure of effective erythropoiesis.

INTERPRETATION OF THE RESULTS:

For interpretation of reticulocytes, Count 1000 red blood cells including reticulocytes and determine percentage of reticulocytes using the formula:

1. Reticulocyte Percentage:

This is the percentage of reticulocytes per 1000 RBCs.

$$\text{Reticulocyte \%} = \frac{\text{No. of reticulocytes per 1000RBCs}}{1000} \times 100$$

2. Absolute Reticulocyte Count

The absolute reticulocyte count (ARC) is the actual number of reticulocytes in 1 L of whole blood.

$$\text{Absolute reticulocyte count} = \frac{\text{Reticulocyte (\%)} \times \text{RBC count (10}^{12}/\text{L)}}{100}$$

3. Corrected Reticulocyte Count

In specimens with a low hematocrit, the percentage of reticulocytes may be falsely elevated because whole blood contains fewer RBCs. A correction factor is used, with the average normal hematocrit considered to be 45%.

$$\text{Corrected reticulocyte count} = \frac{\text{Reticulocyte (\%)} \times \text{patient's Hematocrit}}{45}$$

Reference reticulocyte ranges: Adults: 0.2-2%, Infants: 2-6%, Children <5 years: 0.2-5.0%

LIMITATION:

- Only experienced personnel should carry out the interpretation of stained slides.
- Read prepared slides as soon as possible after staining. Failure to do so may affect the results.

WARNING & PRECAUTIONS:

- For *In vitro* diagnostic and professional use only.
- Directions should be read and followed carefully.
- Do not use beyond the stated expiration dates.
- Safety precautions should be taken in handling, processing and discarding all clinical specimens.

SYMBOLS:



Date of manufacture

Batch Code



Use-by-date

Refer to the instructions



Do not use if package is damaged

ISO



Manufacturer

GMP



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