

Red Blood Cell Dilution (Counting Solution)

Cat. No.: M1511108 | Pack size: 100ml / 500ml | Storage: Room temperature

Product Information

Item	Description
Product name	Red Blood Cell Dilution (Counting Solution)
Catalog No.	M1511108
Pack size	100ml / 500ml
Specifications & Purity	BioReagent, Biological Stain, for microscopy
Synonyms	Red Blood Cell Dilution Erythrocyte Dilution RBC dilution
Storage	Room temperature
Shipped in	Normal
Application	Cell analysis
Stability and storage	Store at room temperature long term (12 months).

Overview

Red blood cells, also known as erythrocytes and commonly abbreviated as RBC in routine laboratory tests, are the most numerous type of blood cell in the blood. They serve as the primary medium for oxygen transport in the blood of vertebrates and also possess immune functions. Mature red blood cells in mammals are anucleate, meaning they lack DNA. They also have no mitochondria and produce energy through glucose metabolism. In addition to transporting oxygen, they carry a portion of carbon dioxide—appearing dark purple when transporting carbon dioxide and bright red when transporting oxygen—and they also have immune functions.

Principle of Action of Red Blood Cell Diluent (RBC Dilution), An isotonic diluent is used to dilute blood at a specific ratio. The diluted blood is then loaded into a hemocytometer, and the number of red blood cells in a defined volume is counted under a microscope. The red blood cell concentration per liter of blood is subsequently calculated via conversion. This RBC diluent is for research use only and not intended for clinical diagnosis.

Self-Prepared Materials:

1. Fresh whole blood or EDTA-anticoagulated whole blood.
2. Micropipettes.
3. Hemocytometers.
4. Microscopes.

Operating Procedures (For Reference Only):

1. Take a medium-sized test tube and add 2 mL of RBC Dilution to it.
2. Use a clean, dry micropipette to draw 10 μ L of peripheral blood or anticoagulated blood. Wipe off excess blood from the outside of the pipette, insert the pipette to the bottom of the RBC Dilution, then gently aspirate the supernatant to rinse the pipette 2–3 times and mix the solution thoroughly immediately.
3. Use a clean micropipette to load the red blood cell suspension into the counting chamber of the hemocytometer, taking care to avoid bubble formation or overflow. Let it stand at room temperature for 1–3 minutes.
4. Place the hemocytometer under the high-power microscope and count the red blood cells in five medium squares in total— the four corner medium squares and the central medium square within the large central counting square—one by one. For cells overlapping the grid lines, follow the counting principle of "count cells touching the top and left lines, not the bottom and right lines".

Calculation:

$\text{RBC count/L} = \text{Number of red blood cells in 5 medium squares} \times 5 \times 10 \times 200 \times 10^6 = \text{Number of red blood cells in 5 medium squares} \times 10^{10}$

×5 Convert the count from 5 medium squares to 1 large square.

×10 Convert the volume of 1 large square (0.1 μ L) to 1.0 μ L.

×200 The actual blood dilution ratio is 201-fold, calculated as 200-fold for convenience.

×10⁶ Convert from 1 μ L to 1 L.

Safety & Precautions

1. Do not over-squeeze the puncture site during blood collection, and ensure an appropriate needle puncture depth.
2. Do not convert hemoglobin concentration to red blood cell count.
3. Within the reference range, the difference between two replicate red blood cell counts should not exceed 5%.
4. Read the current SDS before use and handle the product according to local laboratory safety and EHS procedures.
5. Avoid direct contact with staining solutions. Protect light-sensitive products from light as indicated on the label.
6. Wear a lab coat, disposable gloves, and appropriate eye protection during operation.
7. For research use only. Do not use for clinical diagnosis, treatment, food, cosmetic, or household applications.

Quality Control

QC Item	Method	Acceptable Range
Appearance and color	Visual inspection	Product-consistent color with no visible microbial contamination or abnormal precipitation
Staining performance	Use on representative samples according to the procedure	Expected staining intensity and contrast are obtained
Storage condition	Review label and COA before use	Stored under recommended conditions, protected from light when indicated

Troubleshooting

Issue	Possible Causes	Corrective Action
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Issue	Possible Causes	Corrective Action
Weak staining	• Insufficient staining time • Reagent deterioration or improper storage • Sample preparation not optimized	• Extend staining time within the recommended range • Confirm storage condition and protect from light where required • Optimize sample preparation and washing steps
High background or overstaining	• Excessive staining time • Inadequate washing or decolorization • Excess reagent carried over	• Shorten staining time • Increase washing/decolorization as appropriate • Use clean tools and recommended volumes
Precipitate or uneven staining	• Reagent not mixed well • Contaminated sample or container	• Mix gently before use • Use clean containers and filter only if validated for the assay

Recommended Applications

Cell analysis.

Contact & Global Offices

Whether you have a technical question, need help with a quotation, or want to inquire about an order, our regional teams are ready to assist. Please contact the office for your region; for general inquiries, the North American office is the corporate primary.

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Limitations & Disclaimer

- For Research Use Only (RUO). Not for use in human or animal diagnostics, therapeutics, or in vivo applications. Not for food, cosmetic, or household use.
- This product is not a CE-marked in vitro diagnostic device under IVDR (EU) 2017/746 and is not an FDA-cleared device under 21 CFR. Use is restricted to verified businesses, institutions, and qualified professionals for research and development purposes.
- Where any product component is classified as hazardous under CLP (EC) 1272/2008 or OSHA HCS (29 CFR 1910.1200), the product Safety Data Sheet (SDS) takes precedence over this document for handling, storage, and disposal information.
- Performance depends on sample type, sample condition, handling, and operator technique. Users are responsible for validating the product for their specific application.
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