

White Blood Cell Dilution (Counting Solution)

Cat. No.: W1511109 | Pack size: 100ml / 500ml | Storage: Room temperature

Product Description

White Blood Cells (WBC), formerly known as leucocytes, are the "guards" in the human body's fight against diseases and a vitally important group of immune cells in human blood.

WBC dilution, all mature red blood cells are lysed. The mixture is then loaded into a hemocytometer, and the number of white blood cells in a defined volume is counted under a microscope. The white blood cell concentration per liter of blood is subsequently calculated via conversion.

Functions:

1. Dilute white blood cells in the blood to prevent the aggregation and adhesion of blood cells.
2. Maintain stable physicochemical parameters such as pH, conductivity and osmotic pressure. (Note: The set pulse signal thresholds vary among different instruments when measuring samples via the electrical resistance method.)

This WBC diluent is for research use only to facilitate white blood cell counting, and not intended for clinical diagnosis.

Operating Procedures (For Reference Only):

1. Add 0.38 mL of WBC Diluent to a small test tube.
2. Use a clean, dry micropipette to draw 20 μ L of peripheral blood. Wipe off the residual blood on the outside of the pipette, insert the pipette to the bottom of the WBC Diluent, release the blood gently, then aspirate the supernatant to rinse the pipette 2–3 times and mix the solution thoroughly immediately. The standard dilution ratio is 1:20, and dilutions at 1:10 or 1:40 are also acceptable.
3. After complete red blood cell lysis (the solution turns brown), mix the solution again and load it into the hemocytometer, taking care to avoid bubble formation or overflow. Let it stand at room temperature for 2–3 minutes to allow white blood cells to settle.
4. Place the hemocytometer under the low-power microscope and count the number of white blood cells in the four large corner squares 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".

Precautions:

1. Do not over-squeeze the puncture site during blood collection, and ensure the needle puncture depth is appropriate.
2. Keep the small test tubes and hemocytometers thoroughly clean to prevent misidentification of foreign particles as white blood cells.
3. Within the reference range, the difference in the number of cells between large squares should not exceed 8, and the difference between two replicate counts should not be more than 10%.
4. If the white blood cell count is excessively high, increase the dilution ratio; if the white blood cell count is extremely low, count the cells in 8 large squares or collect a larger volume of blood for testing.
5. For your safety and health, wear a lab coat and disposable gloves during all operations.

Calculation:

$$\text{WBC count/L} = (N \div 4) \times 10 \times 20 \times 10^6 = (N \div 20) \times 10^9$$

Symbol / Factor	Description
N	Total number of white blood cells in 4 large squares
÷4	Average number of white blood cells per large square (0.1 µL)
×10	Convert the volume of 1 large square (0.1 µL) to 1.0 µL
×20	Blood dilution ratio
×10 ⁶	Convert from 1 µL to 1 L

Product Information

Item	Information
Cat. No.	W1511109
Product Name	White Blood Cell Dilution (Counting Solution) - BioReagent, Biological Stain, for microscopy
Synonyms	White Blood Cell Dilution Leukocyte Dilution WBC Dilution
Application	Cell analysis

Item	Information
Storage	Room temperature
Shipped In	Normal

Specifications

Parameter	Specification
Synonyms	White Blood Cell Dilution Leukocyte Dilution WBC Dilution
Specifications & Purity	BioReagent, Biological Stain, for microscopy
Stability And Storage	Store at room temperature long term (12 months).
Storage	Room temperature
Shipped In	Normal

Safety & Precautions

- Read the current Safety Data Sheet (SDS) before use and follow local laboratory safety and EHS requirements.
- Wear appropriate personal protective equipment, including lab coat, gloves, and eye protection.
- Use only for research and laboratory applications. Do not use for human or animal diagnostics, therapeutics, food, household, or cosmetic applications.

Quality Control

QC Item	Method	Acceptable Range
Appearance	Visual inspection	Solution should be clear and free from visible contamination unless otherwise stated on the COA.
Product identity and specifications	Lot-specific quality testing	Conforms to the approved product specification and certificate of analysis.
Storage and packaging	Label and packaging inspection	Pack size, storage condition, lot number, and expiry information are verified before release.

Troubleshooting

Issue	Possible Causes	Corrective Action
Unexpected cell response	Incorrect working concentration, unsuitable cell type, or temperature deviation	Verify the recommended application, equilibrate reagent as required, and optimize incubation conditions for the cell type.
Reduced performance	Repeated freeze-thaw, expired reagent, or inappropriate storage	Store according to the label and aliquot when recommended. Avoid repeated freeze-thaw cycles.
Visible contamination	Aseptic handling failure or compromised container	Do not use contaminated reagent. Use sterile technique and inspect the container before use.

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 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.
- Aladdin product labels, SDS, COA, and approved specifications take precedence over this document. If product formulation, label, SDS, storage conditions, pack size, or quality specifications change, this document should be reviewed and reissued.