BD Leucocount™ and BD™ Plasma Count
Reliable Enumeration of Residual Cells in Blood Products

- Improve the efficiency of your Quality Control assays.
- Discover high-performance flow cytometric methods for enumerating residual cells in your blood products.

Residual cell contamination in blood-derived products is associated with an increased incidence of febrile transfusion reactions, cytomegalovirus (CMV) transmission and alloimmunization to HLA antigens.1-3 Leucodepleted blood products minimize transfusion-associated complications and are the standard for supporting patients in need of multiple transfusions.4-6 Advancements in leucodepletion technology have led to decreased residual cell levels, frequently resulting in concentrations lower than the sensitivity range of traditionally used counting methods. As European guidelines for the leucoreduction of blood components are systematically being implemented, requirements for setting up fast and reliable process control programs to monitor residual cell levels in blood-derived products are becoming increasingly important.

Flow cytometry provides a rapid, sensitive, quantitative and reproducible application to identify and enumerate residual cell populations.7-12 BD Leucocount™ and BD™ Plasma Count are flow cytometric assays, designed for counting residual cell populations in blood component samples. The BD Leucocount and BD Plasma Count kits are available as CE-marked products and are sufficient for performing 50 tests.

**BD™ Plasma Count**

Simultaneous Enumeration of Residual White Blood Cells, Red Blood Cells and Platelets

| 50 tests | Cat. Nr. 338331 |

**BD Leucocount™**

Residual White Blood Cell Enumeration Kit

| 50 tests | Cat. Nr. 340523 |
A system you can Count on.

BD Leucocount and BD Plasma Count offer you efficient alternatives to tedious and operator-dependent manual methods for cell enumeration. Both assays incorporate our BD Trucount tubes to determine absolute cell counts, thereby eliminating the need for separate counting standards as well as the inaccuracies associated with the pipetting of liquid bead suspensions.

Both assay procedures can be readily implemented onto your existing flow cytometer. Together with your instrument, BD Leucocount and BD Plasma Count reagents provide you with a high-performance system, to manage the Quality Control process of your blood-derived products.


The BD Leucocount and BD Plasma Count assays are accurate, stable and robust. They provide excellent linearity, precision and accuracy, at clinically relevant decision thresholds in compliance with European recommendations for the preparation, use and quality assurance of blood components.15

BD Leucocount and BD Plasma Count give you the highest level of confidence in your process control.

There is no further need for spending long hours performing manual cell counts. Automation and high-throughput are achievable with both BD Leucocount and BD Plasma Count methods, through combining them with the BD FACSCalibur™ flow cytometer and the BD FACS™ Loader option.

The ease-of-use of the BD Leucocount and BD Plasma Count assay systems ensures that quality data are obtained, even in the busiest blood centers.

Straightforward procedures.

The BD Leucocount and BD Plasma Count assays save you time and labor, with their fast, simple procedures:

**BD Leucocount**
- Add 100 µl of sample to a BD Trucount™ Tube.
- Add 400 µl of BD Leucocount reagent.
- Mix, incubate for 5 minutes, then acquire and analyze with BD CellQuest™ Pro software.

**BD Plasma Count**
- Add 25-50 µl* of sample to a BD Trucount Tube.
- Add 100 µl of Reagent Mix A.
- Add 20 µl of Reagent Mix B.
- Mix, then incubate for 15 minutes in the dark.
- Add 1 ml of BD CellWASH™ solution, mix, and analyze with BD CellQuest Pro software.

*depending on range of rWBCs in sample

The BD Leucocount and BD Plasma Count kits contain reagents sufficient for performing 50 tests.
Optimized reagents.

The **BD Plasma Count Kit** is optimized for the simultaneous detection and quantitation of three residual cell populations – rWBCs, rRBCs and rPLTs – in fresh human plasma, in a convenient single tube assay.

**BD Plasma Count reagents include:**

- **Reagent Mix A**
  Thiazole Orange, for staining all nucleated cells. Thiazole Orange is a membrane-permeable nucleic acid dye that binds DNA and RNA. Excited at 488 nm, it emits in all three fluorescence channels on the BD FACSCalibur flow cytometer i.e. FL1, FL2 and FL3. The brightly stained leucocytes, easily distinguishable from any non-nucleated particles, appear along a diagonal axis in all double-fluorescence correlated plots (i.e. FL1 vs. FL2, FL1 vs. FL3 and FL2 vs. FL3). They are well separated from the other cell populations and from the BD Trucount bead population.

- **Reagent Mix B**
  FITC-labeled anti-CD235a (Glycophorin A) antibody clone GAR-2 (HIR-2), for staining rRBCs, and PerCP-Cy5.5-labeled CD41a antibody clone HIP8, for staining rPLTs. FITC-stained rRBCs are detected in the FL1 channel, and PerCP-Cy5.5-stained rPLTs in the FL3 channel on the BD FACSCalibur flow cytometer.

- **BD Trucount tubes**
  for absolute counting of residual cells. BD Trucount tubes contain a lyophilized pellet of fluorescent beads that serve as an internal standard for calculating absolute counts.

The **BD Leucocount Kit** uses a single reagent for both platelet and red cell products.

**The BD Leucocount reagent contains:**

- **A Nucleic Acid Dye**
  Propidium Iodide (PI), for staining all nucleated cells. This DNA/RNA-specific dye is excited at 488 nm and emits in the FL2 and FL3 channels. Brightly stained leucocytes are detected in FL2 and are easily distinguishable from any non-nucleated particles, such as erythrocytes and platelets.

- **RNase**
  for enzymatic digestion of any RNA present in the sample that could otherwise be stained by PI and lead to falsely elevated counts

- **A Detergent**
  for permeabilizing the cell membrane to permit entry of PI

- **Buffers**
  for providing a stable solution for stained samples, and for optimizing fluorescence and scatter properties

- **BD Trucount tubes**
  for absolute counting of residual cells

---

**Figure 1.** Representative plot summarizing the gating strategy used for BD Plasma Count data analysis.

Region 1 contains the BD Trucount bead population. Regions 2, 3 and 4 contain the rWBC, rRBC and rPLT populations, respectively.

**Figure 2.** Accuracy of the BD Plasma Count assay versus the Fuchs-Rosenthal manual counting method.
In addition, associated process controls are available and offered in different formats to best suit your laboratory's Quality Control program:

- **BD Leucocount RBC Control** (25 tests – Cat. Nr. 341001) and **BD Leucocount PLT Control** (25 tests – Cat. Nr. 341002) are composed of mammalian erythrocytes and platelets in a plasma-like fluid with preservatives, respectively, and spiked with a known amount of white blood cells.

- **BD Leucocount RBC and PLT controls** are also available together in a combination kit: **BD Leucocount Combo Control Kit** (25 tests each – Cat. Nr. 341003).

These quality controls are *in vitro* diagnostic reagents, made of stable material. They provide you with a means of monitoring the laboratory procedure with BD Leucocount for a high degree of confidence.

### References


