

**Density Gradient Centrifugation** is a widely used method to separate particles of (slightly) different weight. The particle sedimentation time depends on:

- the g-force
- specific weight of the particles'
- particle volume and
- specific weight and viscosity of the separation medium

Since the introduction of density gradient centrifugation in blood cell isolation at the late 60's, it is a standard procedure to separate the erythrocytes from leucocytes.

Pluriselect developed a line of ready-to-use density gradient media for specific isolation of different blood cell populations through single step density gradient centrifugation.

1. PBMC-Spin with a density of 1,077 g/ml at room temperature is used for the isolation of PBMC (peripheral blood mononuclear cells - containing lymphocytes and monocytes) out of fresh sample material within 12 hours.
2. Leuko Spin is optimized for the enrichment of all Leukocytes out of fresh sample material. If you have to work with blood older than 12 or even 24 hours, we recommend to use.
3. PBMC24+ Spin, which is optimized for these conditions to reduce contamination with granulocytes.
4. Monocyte Spin
5. PLT Spin
6. if you need a specific density for isolation of non-blood cells, detritus separation, or particles of different origin we offer HDSM and DDM Spin Medium Set to mix any density between 1.0 and 1.1 g/ml.

To make the procedure easier, pluriSelect offers separation devices for an unproblematic separation of the target cells:

1. pluriMate was developed for optimal separation of leukocytes and peripheral blood mononuclear cells (PBMC) from whole blood and bone marrow. The key feature of pluriMate is the separation mesh incorporated the centrifuge tube. The mesh openings are much bigger than blood cell. This mechanical barrier prevents you from timeconsuming and laborious overlaying of the sample material. Anticoagulated blood or bone marrow can simply be poured directly from the blood sampling tube into the pluriMate tube. The mesh-barrier prevents mixture of the sample material with the separation medium. During centrifugation, leucocytes, lymphocytes and PBMCs are separated from unwanted erythrocytes and granulocytes, depending on the density gradient used (Leuko Spin Medium, Lympho Spin Medium, Lympho 24+ Spin Medium or PLT Spin Medium) based on their density and enriched in an interphase above the separation medium. When separation is complete, the barrier prevents recontamination of the enriched cell fraction during harvest. pluriMate is

offered in 3 different tube sizes. Use only with Whole Blood, Buffy Coat, Cord Blood, Bone Marrow.

2. TwinSpin is a double tube centrifugation device. The inner tube functions like a pipette, is submersed in a density gradient medium of choice, and contains the sample to be centrifugated. This device allows the enrichment of the targets in either inside the pipette or on the bottom of the outer tube.
  - a. Are your target particles/cells are of less specific weight than the “impurities” than you sediment these “impurities” out of the pipette through a medium of a density high enough to prevent sedimentation of the targets.
  - b. Is your target of a higher density than the impurities, like cell detritus, membrane components, bacteria, viruses...than you sediment your targets out of the pipette into the outer tube.

The inner pipette has a sample volume of 6 ml. The outer tube can collect up to 3 ml sediment.