

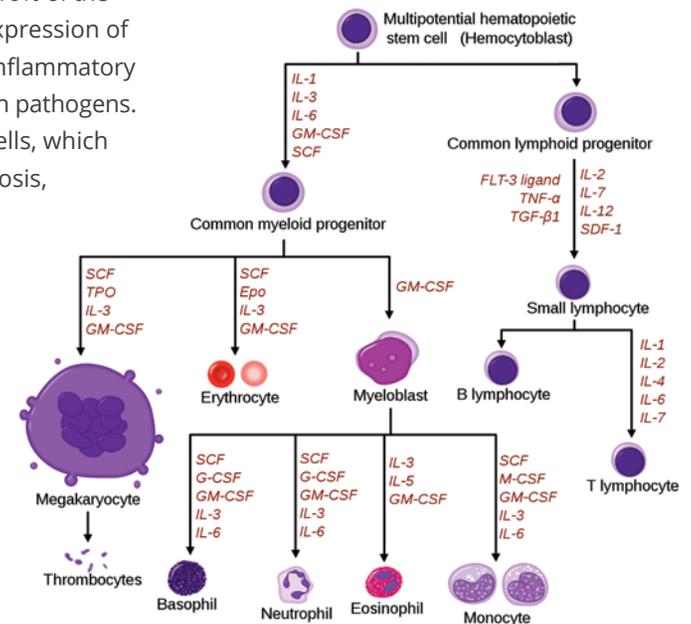
## What are Monocytes?

Hematopoietic stem cells (HSCs), which reside in the bone marrow give rise to blood cells in a process called hematopoiesis. HSCs differentiate into the lymphoid and myeloid lineages, which further differentiate into mature blood cell types.

Monocytes are large agranular leukocytes comprising ~ 5% - 10% of the circulating white blood cells. They are characterized by the expression of the CD14 cell surface receptor and play an integral role in inflammatory responses as part of the innate immune response to foreign pathogens. Monocytes differentiate into macrophages and dendritic cells, which serve three key functions in the immune system: phagocytosis, antigen presentation, and cytokine production.

## Research Applications

The ability to culture monocytes *in vitro* is critical not only for immunological research, but for newer areas of research, like personalized medicine with cell and gene therapies. Monocytes and macrophages, integral to the inflammation response and tissue repair, are increasing popular clinical candidates due to their spectrum of functionality. Researchers are investigating their role in degenerative disease pathology and the current evidence reveals that these cells could be utilized as an effective therapeutic strategy. Additionally, a recent publication utilized genetically-engineered patient-derived monocytes as a strategy to treat acute myeloid leukemia (AML).



CD14+  
MONOCYTES



For workflows requiring large quantities of CD14+ Monocytes, AllCells also offers Made-to-order (MTO) isolation services. Consistent, high-quality bulk CD14+ Monocyte isolations from a single or multiple donors not only saves time and money but also minimizes variability in your workflow.

## AllCells CD14+ Monocytes

AllCells offers both positively and negatively selected CD14+ monocytes isolated from leukapheresis material collected from IRB-consented healthy human donors. Peripheral blood is collected by leukapheresis using the Spectra Optia® Apheresis System. AllCells products are quality controlled for cell count and viability using validated AO/PI protocols.

Positive immunomagnetic selection uses CD14+ antibody to bind/isolate the monocytes from the heterogeneous cell population. Conversely, negative selection labels unwanted cell types for removal with antibodies or ligands targeting non-monocytes, leaving the CD14+ monocytes remain unbound by the particles. Although some studies show that positive and negative immunomagnetic isolation of CD14+ monocytes may result in cells that have slight functional differences, selecting the right isolation method depends on your intended downstream applications. While positively selected monocytes are most useful in analytical assays (genomics, FACS, etc.), negatively selected monocytes are generally preferred for functional assays (cell-based functional assays).

AllCells has the capacity of selecting CD14+ cells from a whole LeukoPak with great quality and competitive costs. Quality cells are key to attaining your research goals and having a dedicated partner like AllCells can minimize your risk and maximize your success.

## AllCells CD14+ Portfolio

Immunomagnetic Separation Method	Fill sizes available	Corresponding Catalog #	Minimum Viability	Minimum Purity
CD14+ Positively Selected	10M 50M	LP, CR, CD14+, PS, 10M LP, CR, CD14+, PS, 50M	NLT 80	NLT 90
CD14+ Negatively Selected	10M 50M	LP, CR, CD14+, NS, 10M LP, CR, CD14+, NS, 50M	NLT 80	NLT 85

Contact us today at [info@allcells.com](mailto:info@allcells.com) or **510.726.2700** to learn more and/or get a quote.



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