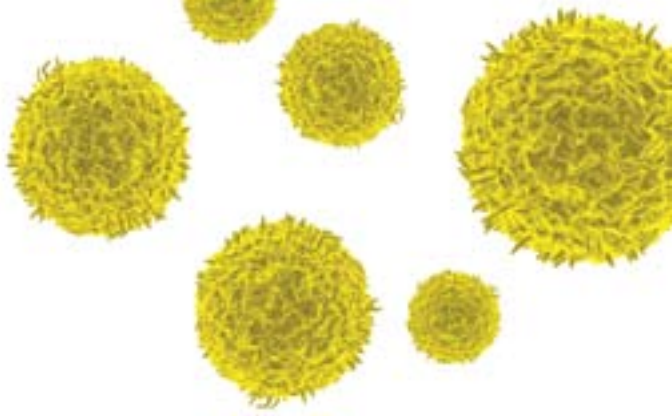

When viability matters

Dynabeads® for gentle cell isolation

At least one out of four monocytes will die during column-based cell isolation.

Dynabeads® magnetic separation technology reduces cell death and improves results.

- → More viable cells—apoptosis plunges with Dynabeads® method
- → Get more of what you want—greater purity of monocyte samples
- → Take advantage of a simpler method—generate dendritic cells and macrophages more easily

Monocytes are fragile cells. Experimental conditions easily trigger apoptosis. Bohenkamp et al. found that 37.8% of monocytes underwent apoptosis in a column-based isolation method.[1] Invitrogen provides a gentler method to obtain pure and viable cells from your sample.

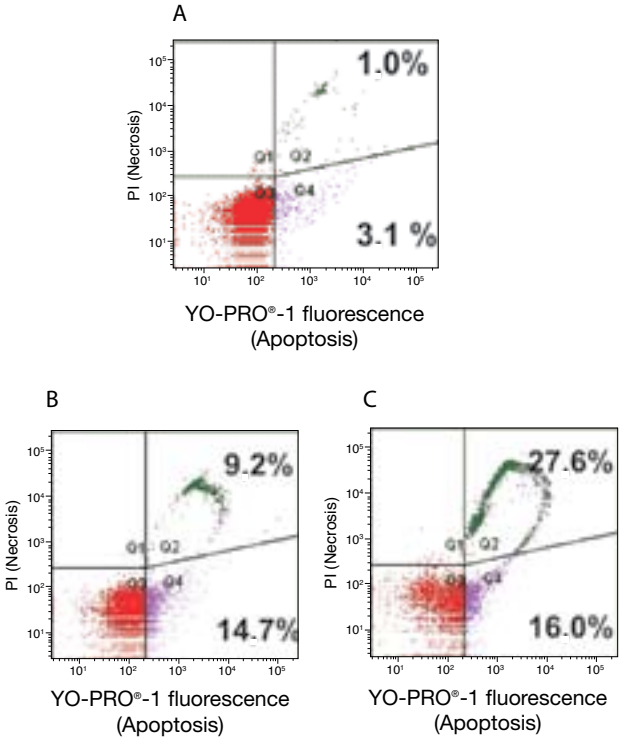

Figure 1—Flow cytometric measurement of cell death 24 hr after cell isolation. Isolating monocytes using the Dynabeads® Untouched Human Monocytes kit **(A)** results in fewer apoptotic cells than column-based negative isolation **(B)** and column-based positive isolation **(C)**.

Cell viability

Cell apoptosis and necrosis were measured by flow cytometry 24 hr after monocyte isolation. While the tube-based Dynabeads® negative isolation method showed a monocyte viability of more than 95%, the corresponding viability for column-based negative isolation was only 76%. In the case of column-based positive isolation, monocyte viability was as low as 56% (Figures 1 and 2). The unexpectedly high percentage of cell death observed in column-based systems indicates that the use of columns and unstable biodegradable nanoparticles results in higher monocyte apoptosis and necrosis.

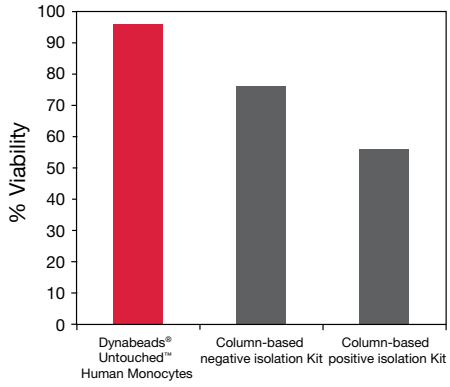

Figure 2—Cell viability 24 hr after isolation. Data are derived from Figure 1.

Cell purity

The Dynabeads® negative isolation method yields higher purity of monocytes than the column-based negative or positive isolation methods (Figure 3). Gentle Dynabeads® tube-based cell isolation allows you to obtain high yields of pure, viable, and functional cells. Dynabeads® products are available for isolation of mouse and human cells, and you can choose between positive and negative isolation, and depletion methods.

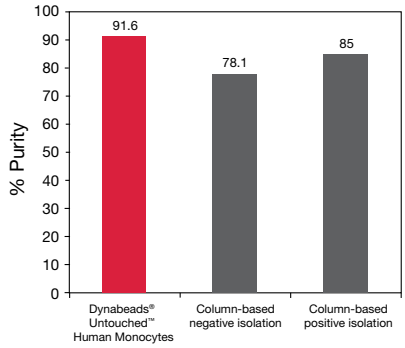

Figure 3—Purity of cells isolated by the Dynabeads® negative isolation method compared to column-based negative and positive isolation.

Ordering information

Product	Quantity	Cat. no.
Dynabeads® Untouched™ Human Monocytes	Processes 1 x 10^9 cells	113-50D
Related products		
Dynabeads® CD14 (for human cell depletion or molecular studies)	Processes 2 x 10^9 cells	111-49D
Dynabeads® Human DC Enrichment Kit	Processes 2 x 10^9 cells	113-08D
Dynabeads® Mouse DC Enrichment Kit	Processes 1 x 10^9 cells	114-29D
DynaMag™-15 (magnet)	1 unit	123-01D
DynaMag™-50 (magnet)	1 unit	123-02D
Additional Invitrogen reagents		
Mouse Anti–Human CD14-FITC	0.5 ml/100 µg	MHCD1400
Mouse Anti–Human CD11c-PE	0.5 ml/100 min. tests	MHCD11c04
Mouse Anti–Human HLA-DR, PE-Cy®5.5	0.5 ml/100 min. tests	MHLDR18
Propidium Iodide	100 mg	P1304MP
YO-PRO®-1 Dye	1 ml	Y3603
Mouse Anti–Human CD14 PE-Alexa Fluor® 700	0.5 ml/100 min. tests	MHCD1424
Mouse Anti–Human CD14 Alexa Fluor® 700	0.5 ml/100 min. tests	MHCD1429
Annexin V Alexa Fluor® 488 Conjugate	500 µl	A13201
Annexin V Alexa Fluor® 568 Conjugate	500 µl	A13202
Annexin V Alexa Fluor® 594 Conjugate	500 µl	A13203
Annexin V Alexa Fluor® 647 Conjugate	500 µl	A13204

Visit www.invitrogen.com/immunology for other relevant antibodies or flow cytometry reagents.
See www.invitrogen.com/magnets for magnet recommendations.
For current prices, visit www.invitrogen.com.

To learn more about the high recovery, viability, and purity you can get with Dynabeads®, visit www.invitrogen.com/cellisolation.

Reference

1. Bohencamp, H.R. et al. (2004) Apoptosis of monocytes and the influence on yield of monocyte-derived dendritic cells. *J Immunol Methods* 294:67–80.

Dynal® provides magnetic separation technology that brings significantly greater reproducibility and flexibility to cell and biomolecule isolation.

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