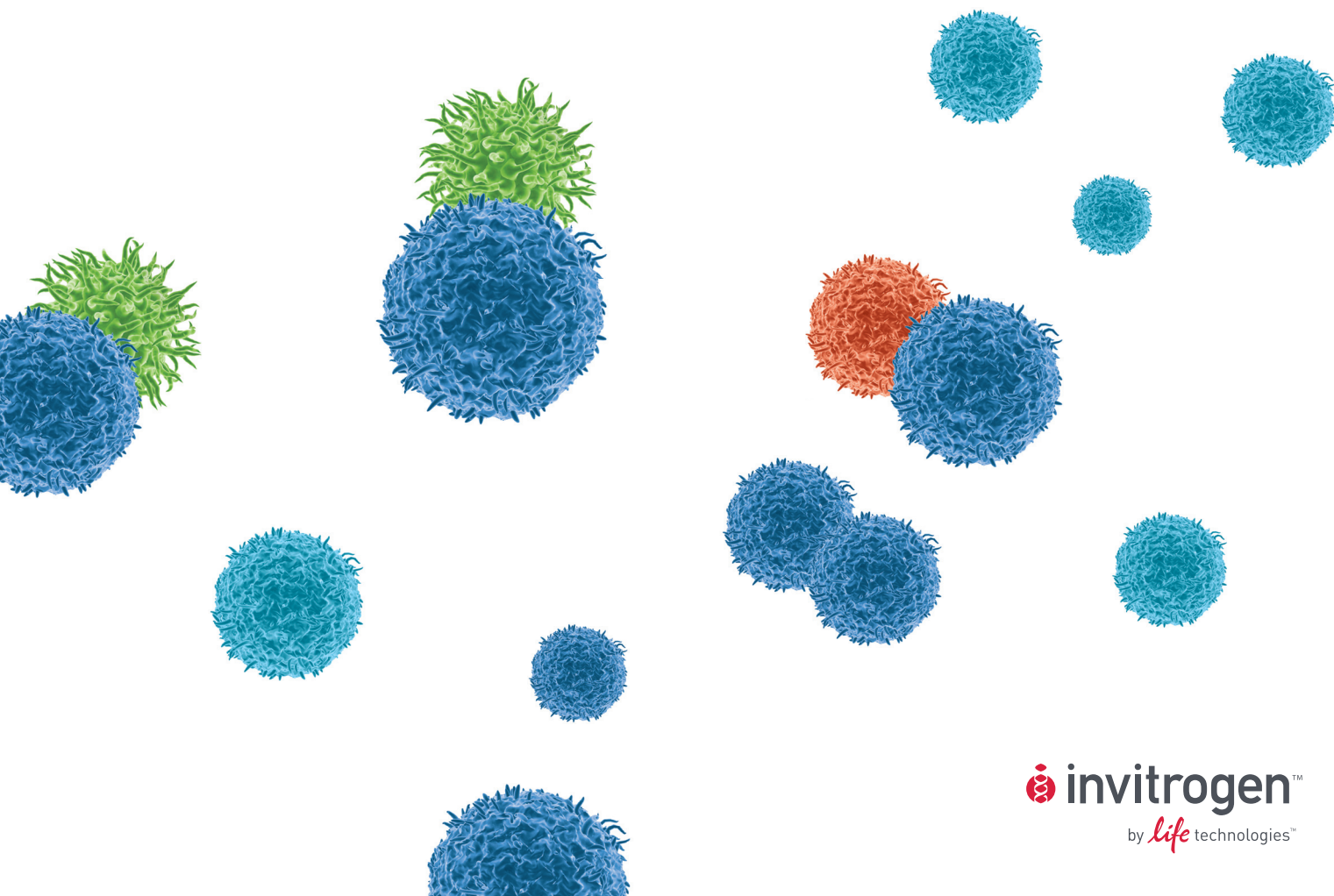




Start your T cell research right

Dynabeads® tube-based cell isolation





When you need healthy, pure, and viable T cells

Dynabeads® for human and mouse T cell isolation

- Isolation method that won't alter your results
- Optimal purity, recovery, and viability
- Maximal reproducibility with minimal effort

As an immunologist studying T cells, you know how important the sample preparation and isolation step is to your final results. Dynabeads® ensure the best starting point for your T cell research. The isolation takes place in a single tube, with only a few handling steps, and without the use of columns (Figures 1 and 2). The attraction is simply *magnetisk*.*

Tube-based cell isolation

T cell isolation couldn't be easier. Just add the Dynabeads® to your sample, incubate, and watch as the cells are pulled toward the tube wall when the magnet is applied. Your cells are not exposed to the stress of going through a column, so you eliminate the risk of your results being variable or altered by the isolation method.

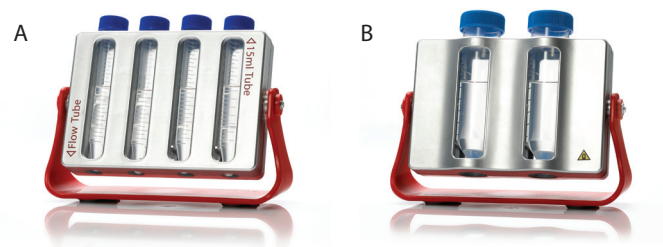


Figure 1. Magnets for efficient cell isolation. The DynaMag™-15 (A) and DynaMag™-50 (B) magnets combine strong magnetic attraction with a flexible and smart ergonomic design. A tilting mechanism lets you rest your elbows while pipetting, providing good control and easy viewing.

Choose your isolation strategy

Depending on your specific application, choose between products for positive cell isolation, negative cell isolation, and cell depletion.

Positive cell isolation

- Recommended when highest purity and yield are critical
- Ideal for cell-based assays and flow analysis
- Obtained directly from whole blood, bone marrow or buffy coat, spleen, or lymph node

In positive isolation, Dynabeads® bind the target cells and the bead-cell complexes are pulled to the magnet. The supernatant is discarded, leaving the pure target cells behind in the sample. The beads can easily be removed using innovative FlowComp™ technology or the traditional DETACHaBEAD™ release mechanism. The positively isolated and bead-free T cells are ideal for use in flow cytometry and cell-based assays (Figure 3A).

* *Magnetisk* is the Norwegian word for magnetic. Did you know that Dynabeads® magnetic separation technology was pioneered in the 1980s by the Norwegian company Dynal, now part of Invitrogen? To learn more, check out www.invitrogen.com/dynal.

Negative cell isolation

- Truly untouched cells, close to the *in vivo* state
- High yield, purity, and viability
- Cells remain in perfect shape for any application

In negative isolation, Dynabeads® are used to deplete all the unwanted cells. Your bead-free and untouched target cells are left in the sample, and can be directly analyzed in a flow cytometer and used in any functional assay (Figure 3B).

Cell depletion

- Easy depletion from any sample
- Ideal for positive isolation for molecular assays
- High yield and purity

In depletion, Dynabeads® are used to remove specific unwanted cell types from a mixed cell sample with ~99% efficiency. Recover the depleted supernatant—still containing all your wanted cells—for downstream assays. Alternatively, you can use the positively targeted and bead-bound cells for molecular applications that do not require release from the beads.

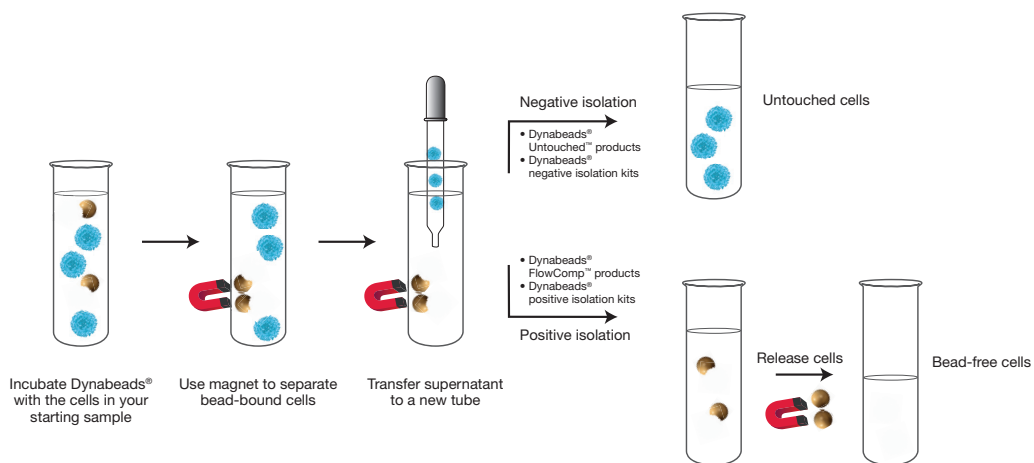


Figure 2. Tube-based cell isolation avoids the stress of going through a column. Dynabeads® act as a suspendable solid support that can be fixed by the use of a magnet. You can choose from a positive or negative isolation strategy for simple, efficient, and easily scalable separations.

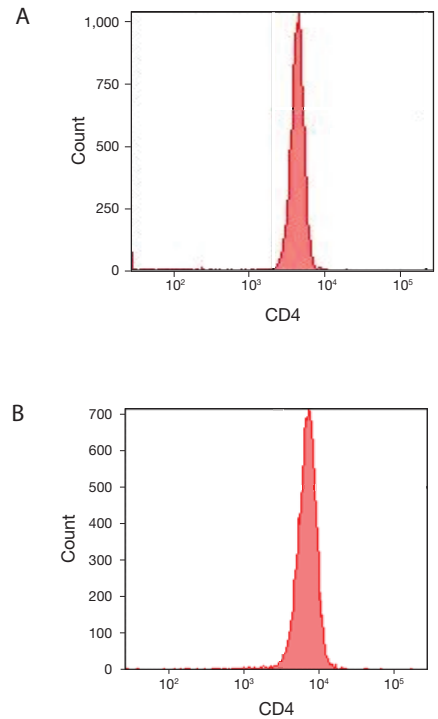


Figure 3. High cell purity is obtained with Dynabeads® positive and negative isolation strategies. Dynabeads® FlowComp™ Human CD4 allow positive isolation of highly pure human CD4⁺ T cells (A), while Dynabeads® Untouched™ Human CD4 T Cells isolate highly pure human CD4⁺ T cells by a negative isolation strategy (B).

T cell activation and expansion

Polyclonal T cells

Dynabeads® T-Activator CD3/CD28 products mimic *in vivo* T cell activation from antigen-presenting cells (APCs) by providing consistent and simultaneous signals to CD3/TCR and CD28 (Figure 4). This gentle, yet efficient technology allows specific physiological activation and expansion of human or mouse T cell clones and naive T cells. The bead-free T cells retain their functional properties and can be restimulated several times without the need to maintain cultures of APCs or feeder cells.

Other benefits include:

- Easy adaptation of stimulation length and intensity
- Up to 3,000-fold expansion in just 14 days
- Function, cytokine profile, and T cell repertoire after stimulation reflect those of *in vivo* settings

Our full product portfolio also includes a clinical research–grade version, allowing you to move from mouse studies to clinical research using the same technology platform.

Ag-specific T cells

Dynabeads® T-Activator CD3/CD28/CD137 products allow for physiological re-stimulation and expansion of antigen-specific (Ag-specific) T cells from human or mouse cell lines, cell clones, or freshly isolated/enriched Ag-specific T cells. Agonistic anti-CD137 antibodies act as an activating co-stimulatory molecule especially important for effector/memory T cells.

Other benefits include:

- Expanded T cells maintain Ag-specificity when tested in bioassays
- No need to find or prepare donor matched APCs or antigen
- Promotes increased proliferation and survival of T cell lines/clones

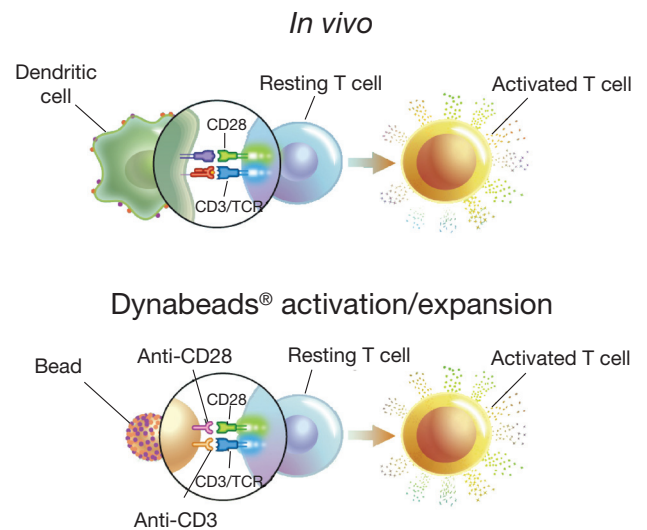
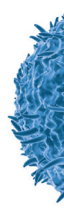


Figure 4. Consistent and reliable T cell activation. Dynabeads® T-Activator CD3/CD28 products offer a simple solution for mimicking the *in vivo* interaction of T cells with antigen-presenting cells (APCs) by utilizing the two activation signals present on the APCs, CD3, and CD28, bound to a three-dimensional bead similar in size to APCs.

Ordering information

Product	Methodology	Quantity	Cat. No.
Human T cells			
Dynabeads® Untouched™ Human T Cells	Negative isolation	2 x 5 mL	113-44D
Dynabeads® CD2 Pan T	Depletion	5 mL	111-59D
Dynabeads® FlowComp™ Human CD3	Positive isolation	3 mL	113-65D
Dynabeads® CD3	Depletion	5 mL	111-51D
Dynabeads® FlowComp™ Human CD4	Positive isolation	3 mL	113-61D
Dynal® CD4 Positive Isolation Kit	Positive isolation	5 mL	113-31D
Dynabeads® Untouched™ Human CD4 T Cells	Negative isolation	2 x 5 mL	113-46D
Dynabeads® CD4	Depletion	5 mL	111-45D
Dynabeads® FlowComp™ Human CD8	Positive isolation	3 mL	113-62D
Dynal® CD8 Positive Isolation Kit	Positive isolation	5 mL	113-33D
Dynabeads® Untouched™ Human CD8 T Cells	Negative isolation	2 x 5 mL	113-48D
Dynabeads® CD8	Depletion	5 mL	111-47D
Dynabeads® CD25	Depletion	5 mL	111-57D
Dynal® T4 Quant	Positive isolation	2 mL	113-21D
Dynabeads® Regulatory CD4 ⁺ CD25 ⁺ T Cell Kit	Positive isolation	2 x 5 mL	113-63D
Dynabeads® Human T-Activator CD3/CD28	Polyclonal T cell expansion	0.4 mL 2 mL 10 mL	111-61D 111-31D 111-32D
Dynabeads® Human T-Activator CD3/CD28/CD137	Ag-specific T cell expansion	0.4 mL 2 mL	111-62D 111-63D
Dynabeads® Human Treg Expander	Treg cell expansion	2 mL	111-29D
Dynabeads® Human T-Expander CD3/CD28	Preclinical T cell expansion	10 mL	111-41D
Dynabeads® <i>ClinExVivo</i> ™ CD3/CD28 (formerly Xcyte™ Dynabeads®)	Clinical-grade T cell expansion	10 mL	402-03D
Mouse T cells			
Dynal® Mouse T Cell Negative Isolation Kit	Negative isolation	2 x 10 mL	114-13D
Dynabeads® Mouse pan T (Thy1.2)	Depletion	5 mL	114-43D
Dynabeads® FlowComp™ Mouse Pan T (CD90.2)	Positive isolation	3 mL	114-65D
Dynabeads® FlowComp™ Mouse CD4	Positive isolation	3 mL	114-61D
Dynal® Mouse CD4 Negative Isolation Kit	Negative isolation	2 x 10 mL	114-15D
Dynabeads® Mouse CD4 (L3T4)	Depletion	5 mL	114-45D
Dynabeads® FlowComp™ Mouse CD8	Positive isolation	3 mL	114-62D
Dynal® Mouse CD8 Negative Isolation Kit	Negative isolation	2 x 10 mL	114-17D
Dynabeads® Mouse CD8 (Lyt 2)	Depletion	5 mL	114-47D
Dynabeads® FlowComp™ Mouse CD4 ⁺ CD25 ⁺ Treg Cells	Positive isolation	2 x 10 mL	114-63D
Dynabeads® Mouse T-Activator CD3/CD28	Polyclonal T cell expansion	0.4 mL 2 mL 10 mL	114-56D 114-52D 114-53D
Dynabeads® Mouse T-Activator CD3/CD28/CD137	Ag-specific T cell expansion	0.4 mL 2 mL	114-54D 114-55D
Magnets and Mixers			
DynaMag™-15 Magnet Holds 4 standard 15 mL tubes or 4 x 5 mL tubes	Magnetic separation	1 unit	123-01D
DynaMag™-50 Magnet Holds 2 x 50 mL tubes (5–50 mL)	Magnetic separation	1 unit	123-02D
HulaMixer™ Sample Mixer Holds 2 mL–50 mL tubes	Sample mixer	1 unit	159-20D



DYNAL® has pioneered magnetic separation technology for biological discovery that is both simple and highly reproducible. Based on their patented superparamagnetic, monodisperse beads, Dynabeads® technologies represent a superior paradigm for cell and biomolecule separation in a wide range of basic and clinical research applications, diagnostic assays, and therapeutic protocols.



DYNAL®

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