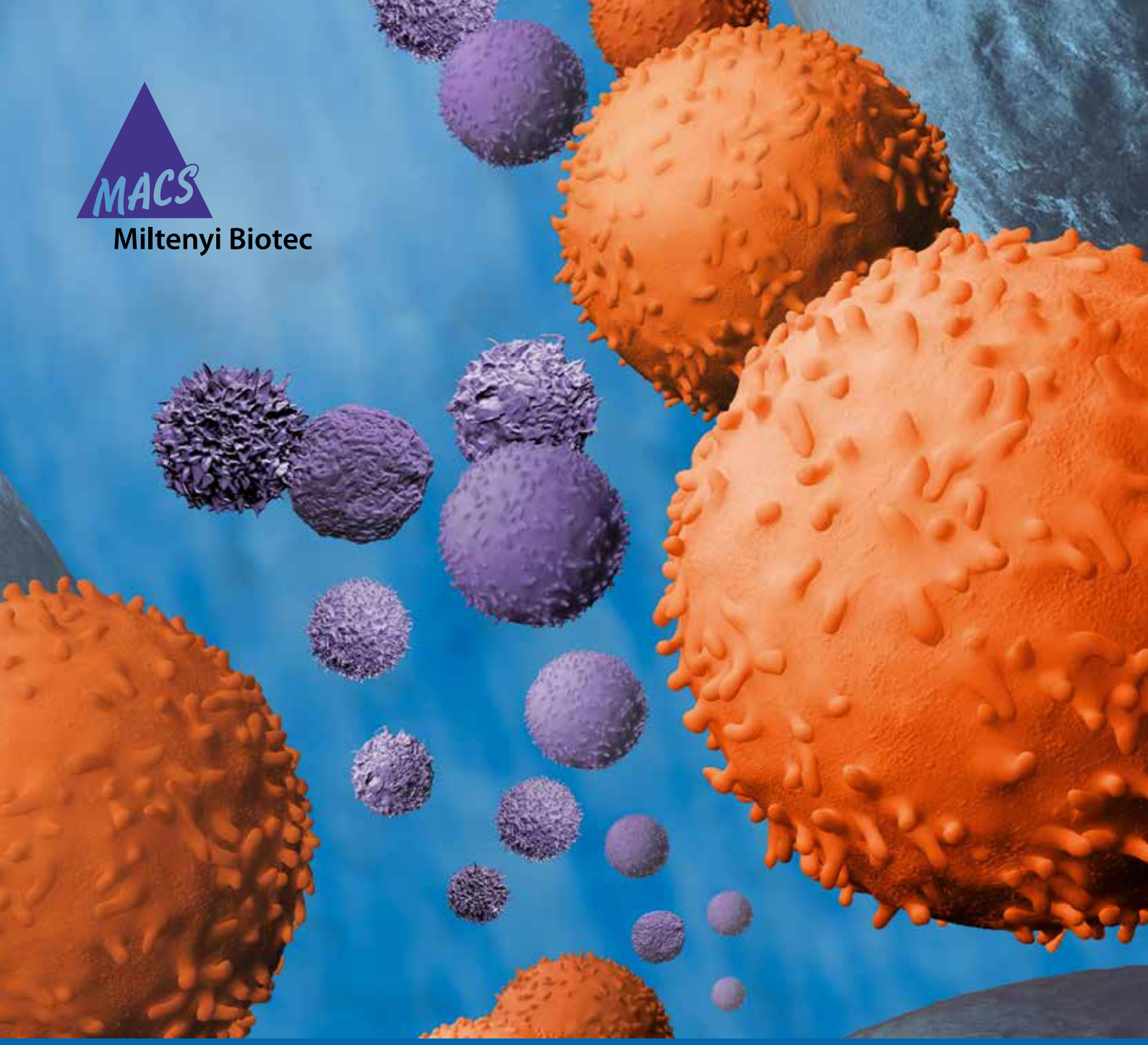

Select the best

Superior MACS® Technology for all your cell isolation needs

- **Preserved cell functionality** – minimal labeling and smallest bead size
- **No cell stress** – highest viability and no effects on cell biology
- **Full downstream compatibility** – free epitopes and no bead aggregates
- **Efficient separation** – maximum purity and recovery

▸ **miltenyibiotec.com/cellseparation**

Our technology

Steel spheres inside the column matrix amplify the magnetic gradient 10,000-fold (fig. 1).

This allows for:

- Smaller, nano-sized beads (50 nm)
- Minimal labeling

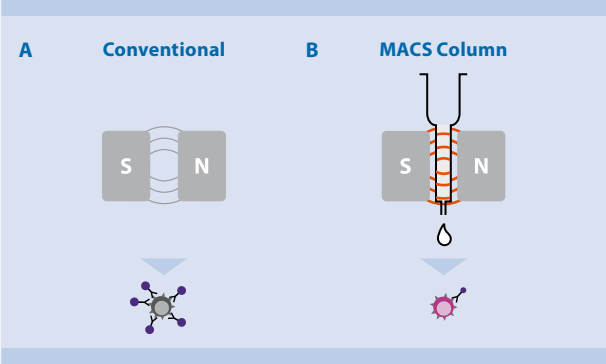

Figure 1: The MACS Technology advantage. (A) Without the use of a MACS Column, extensive labeling or large beads are needed for an adequate magnetic retention. (B) Only when using MACS Columns, the 10,000-fold amplification of the magnetic gradient ensures efficient cell retainment with minimal labeling and smallest bead size.

Your benefits

Only minimal labeling and the small bead size ensure absolute integrity of the cell's biology and full downstream compatibility.

Highest cell viability

The spacious steel sphere matrix inside the MACS® Columns ensures easy pass-through of unlabeled cells and gentle retention of target cells (fig. 2).

- No cell stress
- High recovery

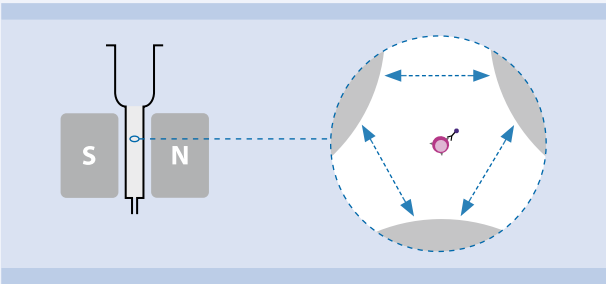

Figure 2: The MACS Column at a glance. Cells move freely between the steel spheres inside the column and are only retained by magnetic forces. Spaces between the spheres are up to 20 × the cell's size.

Preserved cell functionality

Miltenyi Biotec's nano-sized and colloidal MicroBeads do not clog the cell surface or aggregate in cell culture (fig. 3 and 4).

- Free epitopes
- No bead aggregates
- No epitope cross-linking

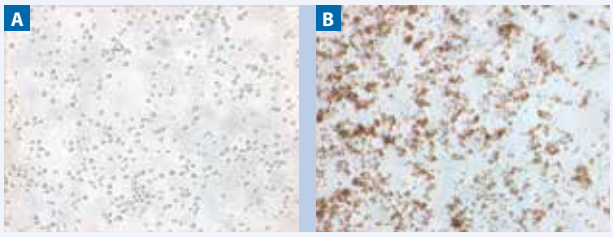

Figure 3: Light microscopic analysis of PBMC cultures labeled with MACS CD3 MicroBeads, human or a competitor's technology.
(A) No bead accumulation in cell culture observed with MACS MicroBeads.
(B) Clearly visible bead aggregation with competitor's technology.

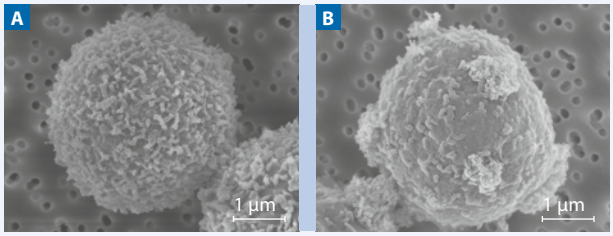

Figure 4: Electron microscope scanning of CD3⁺ T cells isolated with MACS CD3 MicroBeads, human or a competitor's technology.
(A) No aggregate formation on the cell's surface with MACS MicroBeads.
(B) Over-labeling and aggregate formation with competitor's beads.

Truly untouched separation

Miltenyi Biotec's Isolation Kits represent a highly efficient option for negative isolation without altering the biology of the cell (fig.5).

- No cell activation
- No unspecific binding

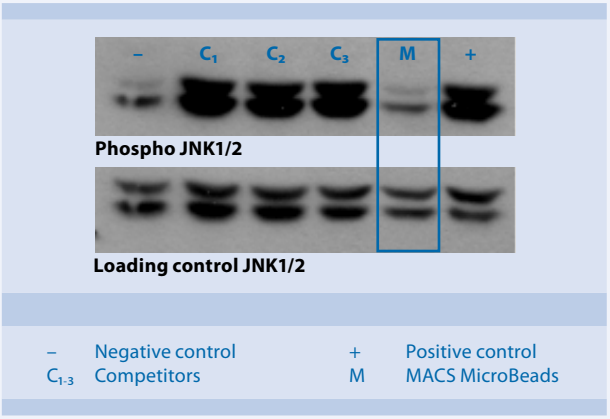

Figure 5: Western blot of CD4⁺ T cell lysates after isolation with Miltenyi Biotec's CD4⁺ T Cell Isolation Kit, human or competitors' products. Clearly visible cell activation after negative isolation with competitors' beads (phospho JNK1/2; lanes C1 – C3), but not with MACS MicroBeads (lane M). CD4⁺ cells were isolated from SUP-T1 cells. Lysate from LPS-treated cells served as positive control and untreated cells as negative control.

Miltenyi Biotec

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