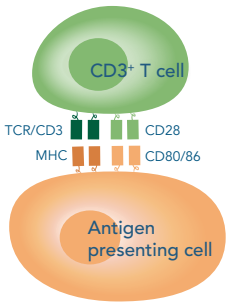
iba Solutions For Life Sciences

Cell Selection & Expansion

STREPTAMER® FOR T CELL EXPANSION



Stimulation of T cell by two stimulatory signals.

T CELL STIMULATION

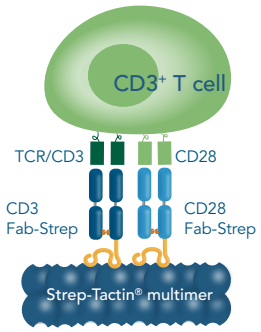
Naive T cells require at least two signals for activation, proliferation and differentiation. The first signal is generated via the T cell receptor (TCR) and its MHC ligand. The second, most effective co-stimulatory signal is evoked by the interaction of the CD28 receptor of the T cell with its ligand CD80/86 (glycoprotein B7).

STREPTAMER® FOR T CELL EXPANSION

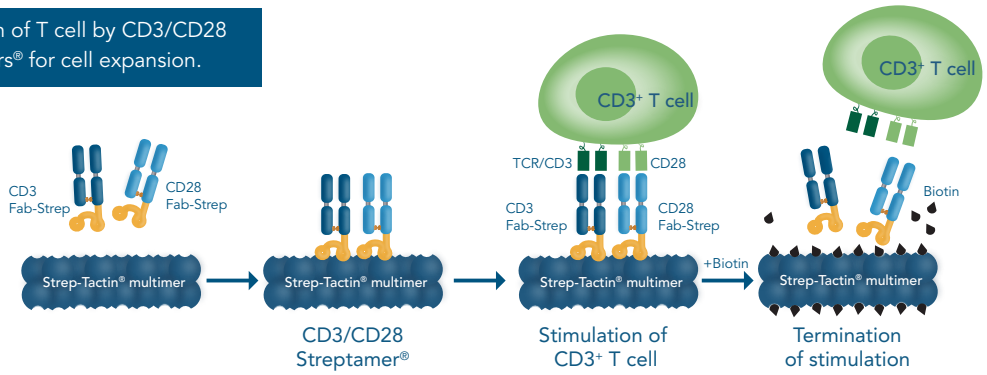
The *in vitro* generation of a large number of functional T cells is important for basic research as well as for therapeutic approaches. Commonly used stimulatory reagents for resting T cells are magnetic beads carrying anti-CD3 and anti-CD28 monoclonal antibodies.

The Streptamer® for T cell expansion are novel reagents for polyclonal expansion of T cells:

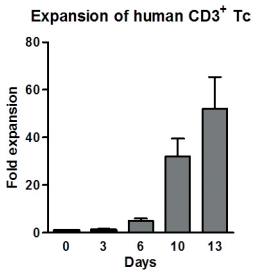
- They are non-magnetic soluble protein complexes generated by multimerization of anti-CD3 and anti-CD28 Fab-Streps with a Strep-Tactin® multimer.
- They are completely reversible reagents, i.e. they can be removed from the cells by the addition of biotin.



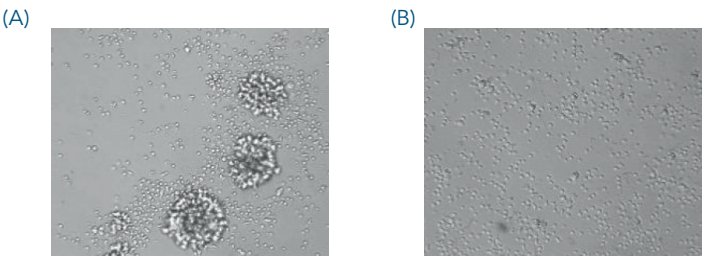
Stimulation of T cell by CD3/CD28 Streptamers® for cell expansion.



Stimulation of T cells with Streptamer® for cell expansion; the subsequent biotin-induced dissociation of the reagents allows an accurately defined termination of stimulation.



T cell expansion after stimulation with Streptamer® CD3/CD28 premix for T cell expansion.
Human T cells isolated with the CD3 Fab Streptamer® Isolation Kit MB (6-8000-201) were cultured for 13 days with the CD3/CD28 Streptamer® for cell expansion. Fold expansion was measured.

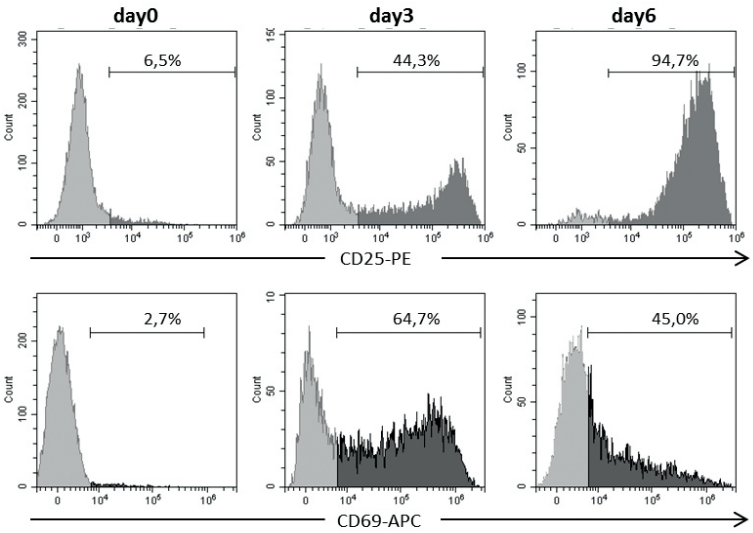


Microscopy of T cells in culture showing cluster formation on day 3 after stimulation with Streptamer® for T cell expansion.
Human T cells isolated with the CD3 Fab Streptamer® Isolation Kit MB (6-8000-201) were cultured with (A) or without (B) CD3/CD28 Streptamer® for cell expansion.

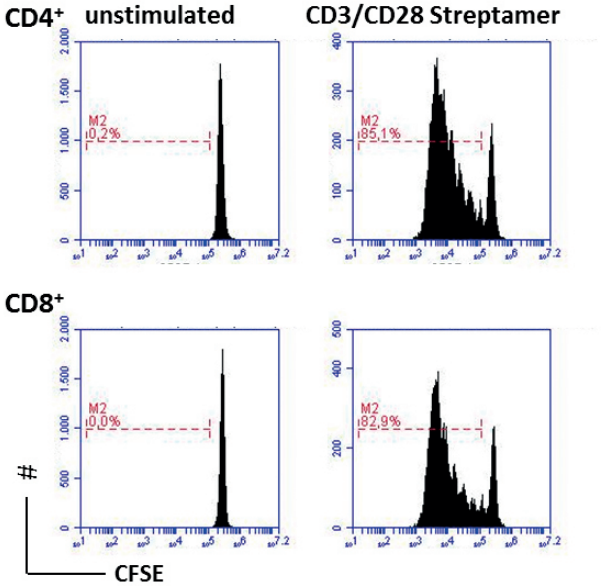
UNIQUE FLEXIBILITY FOR YOUR EXPERIMENTS!

In contrast to other existing expansion systems,

- with the Streptamer® for T cell expansion the stimulation of T cells can be stopped at any time. Simply add biotin to the medium. The stimulation state of the cells can thus be precisely controlled;
- with the Streptamer® CD3/CD28 Kit for T cell expansion you can modify the CD3 : CD28 Fab-Strep ratio according to your needs, or you follow our recommendations;
- with the Streptamer® CD3/CD28 premix for T cell expansion you can benefit from a quick protocol with ready-to-use reagents.



T cell activation markers CD25 and CD69 after stimulation with CD3/CD28 Streptamer® for T cell expansion.
Human T cells isolated with CD3 Fab Streptamer® Isolation Kit MB (6-8000-201) were cultured for 6 days. Activation markers CD25 or CD69 were accessed in pregated CD3⁺ T cells using Flow Cytometry. Dead cells were excluded from the analysis using DAPI.



T cell proliferation after stimulation with CD3/CD28 Streptamer® for T cell expansion.
Human T cells were isolated with the CD3 Fab Streptamer® Isolation Kit MB (6-8000-201), stained with CFSE and cultured in a 48 well plate for 5 days. Proliferation was measured in pregated CD4⁺ (upper panel) or CD8⁺ T cells (lower panel) using Flow Cytometry. Dead cells were excluded from the analysis using PI.

THE STREPTAMER® REAGENTS FOR T CELL EXPANSION

Flexible CD3 : CD28 ration

Streptamer® CD3/CD28 Kit for T cell expansion, cat. no. 6-8900-000	
Reagent	**Amount**
CD3 Fab-Strep for cell expansion	**160 µl**
CD28 Fab-Strep for cell expansion	**160 µl**
Strep-Tactin® multimer for cell expansion	**160 µl**

› Capacity: 1.6x10^7 cells total

Ready to use

Streptamer® CD3/CD28 premix for T cell expansion, cat. no. 6-8901-000
Premixed reagents : CD3 and CD28 Fab-Streps and Strep-Tactin® multimer for cell expansion, 480 µl

› Capacity: 1.6x10^7 cells total

Stop stimulation at any time

Optional reagents:
› Biotin stock solution (6-0219-001) for removal of the stimulation reagents, i.e. for termination of stimulation/ expansion
› Buffer IS (6-5602-050) for dilution of the Biotin stock solution

THE STREPTAMER® KITS FOR ANTIGEN-SPECIFIC STIMULATION OF T CELLS

Next generation kits

› Stimulate T cells via the TCR and an antigenic peptide of your choice in combination with CD28,
› or use a biotinylated antibody of your choice.
› Try any combination you wish, our technology offers countless options.

Expansion of specific T cells

PRE-SELECTION OF T CELLS PRIOR TO EXPANSION

The Streptamer® kits for cell expansion are suited for the expansion of any CD3$^+$ T cell.
› Isolate T cells from blood or buffy coat according to your protocol
› or pre-select specific T cells by using our Fab Streptamer® Isolation Kits MB.

Please contact us for more information:

Australian distributors:
Fisher Biotec Australia
free call: 1800 066 077
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web: www.fisherbiotec.com

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