



STREPTAMERS® FOR T CELL EXPANSION



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Stimulation of T cell by two stimulatory signals.



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

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).

STREPTAMERS® 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 Streptamers[®] 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 cells with Streptamers[®] 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 Streptamers® for cell expansion. Fold expansion was measured.

Microscopy of T cells in culture showing cluster formation on day 3 after stimulation with Streptamers® 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 Streptamers® for cell expansion.







UNIQUE FLEXIBILITY FOR YOUR EXPERIMENTS!

In contrast to other existing expansion systems,

- with the Streptamers[®] 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 Streptamers[®] 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.

CD4+ unstimulated CD3/CD28 Streptamer 1.500 00 000 8 500 8 • CD8+ 2 000 99 9 1.500 000 8 # 200 - CFSE

T cell proliferation after stimulation with CD3/CD28 Streptamers® 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 Pl.

THE STREPTAMER® REAGENTS FOR T CELL EXPANSION

	Streptamer [®] CD3/CD28 Kit for T cell expansion, cat. no. 6-8900-000	
	Reagent	Amount
Flexible CD3 : CD28 ration	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	
Stop stimulation at any time	 Capacity: 1.6x10⁷ cells total 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. 	



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