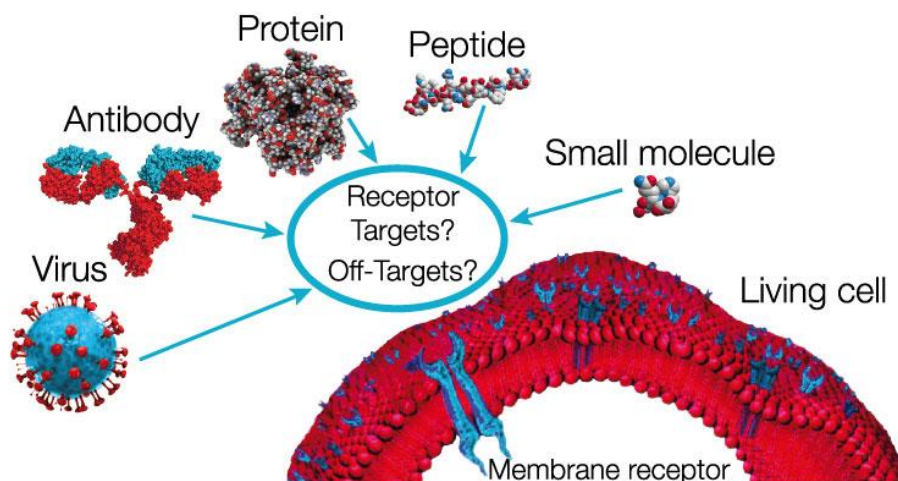


# Dualsystems Biotech - Target Identification on living cells

Dualsystems Biotech is a service provider of custom proteomics for industry and academia. We identify the targets and off-targets of your drug candidates/ligands while the cells are still alive and the unknown targets are in their natural microenvironment

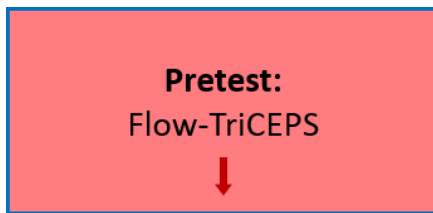


The interaction of cells with the environment is crucial for their function within the organism. These interchanges take place at the cell membrane. Extracellular signals are translated inside the cells through cell membrane proteins. Since the protein environment can influence their binding capabilities, it is imperative to study ligand target and off-target interactions within their natural microenvironment. Therefore, it is crucial to identify the targets of a ligand of interest on the living cells.

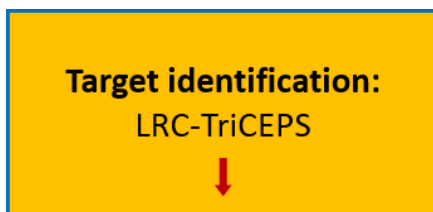
Understanding all the targets and off targets a given ligand binds to on a living cell is pivotal to comprehend its function. In the development of small molecules, peptides, proteins and antibodies for clinical, diagnostic and research purposes it is essential to know all their binding partners at the cell surface.

To tackle this question Frei\* et al. 2012 developed the TriCEPS™ molecule to enable ligand based receptor capturing (LRC-TriCEPS™) and further developed it also for the use of small molecules and N-, C-, O-, glycosylated targets, Sobotzki et al. 2018\*\*. This conceptually new approach identifies the targets of a ligand on living cells. The key molecule of the technology is the trifunctional molecule TriCEPS™.

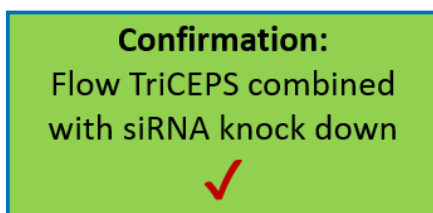
Using LRC-TriCEPS™ we have shown that even low expressed receptors of weak binding ligands can be identified.



*Test the optimal binding conditions of your ligand to the unknown targets (time, temperature, pH, best cell type, identify co-factors) using flow cytometry. Use TriCEPS coupled ligand in functional assays prior to the identification experiment*



*Identification of the targets and off-targets of your ligand of interest on living cells using the LC-MS/MS based LRC-TriCEPS and LRC-HATRIC technology platforms*



*Confirm the identified targets of your ligand by siRNA knockdown. Test by flow cytometry if the binding of your ligand is reduced when the identified target is knocked down*

Flow-TriCEPS™ technology is a tool to perform pretests for your target identification studies on the living cells for drug candidates/ ligands such as peptides, antibodies, ADC's, proteins and small molecules

- Identify the best cell type to use in your target identification experiment
- Identify the optimal binding conditions on the living cells
- Identify co-factors needed for binding to the cells of your drug candidates
- Perform functional assays with Flow-TriCEPS™ coupled drug candidates/ligands.

Dualsystems Biotech AG is the only company that offers this exciting new technologies in a service for fee model for industry and academia.

To find out how we can support your projects please contact us.

## Dualsystems Biotech AG

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Reference:

\*A. P. Frei *et al.*, Direct identification of ligand-receptor interactions on living cells and tissues. *Nat. Biotechnol.* 30, 997–1001 (2012).

\*\*N. Sobotzki *et al.*, HATRIC-based identification of receptors for orphan ligands NATURE COMMUNICATIONS | (2018) 9:1519