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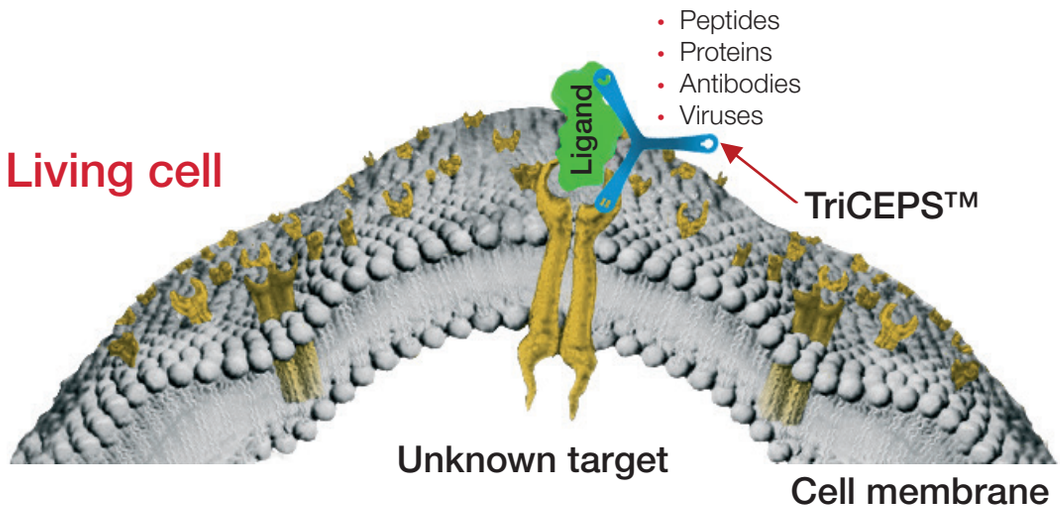
LRC-TriCEPS - We identify targets on living cells

Do you know the targets of your ligand?

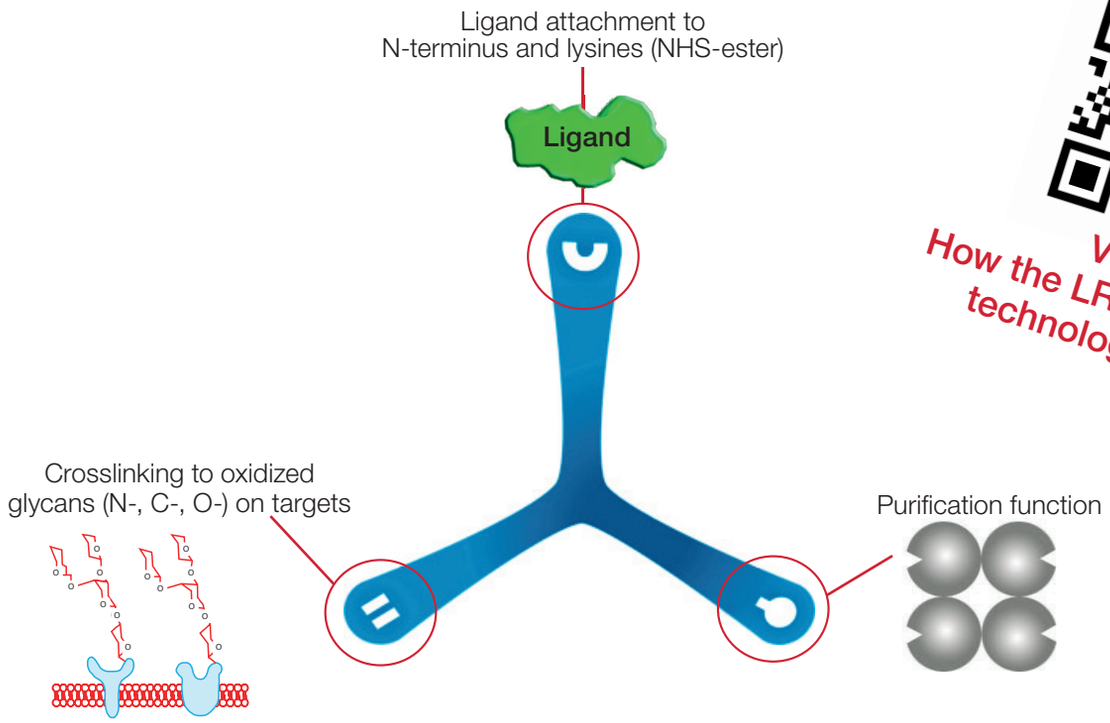
Ligand-receptor capture LRC-TriCEPS™

A novel approach for target and off-target identification on the living cell

TriCEPS™-based ligand-receptor capture (LRC-TriCEPS™) is a novel technology which enables the unbiased identification of cell surface targets on the living cell for many types of ligands, such as peptides, proteins, antibodies, engineered affinity binders or viruses.



LRC-TriCEPS™ uses a trifunctional crosslinker



Video
How the LRC-TriCEPS™ technology works

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Dualsystem Biotech Services

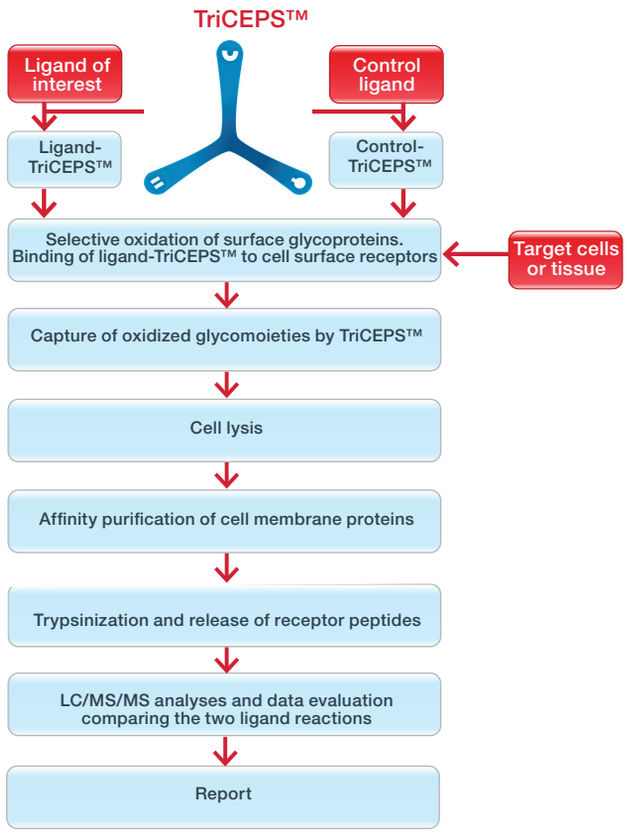
Option 1:
Dualsystems performs the entire experiment

Option 2:
Customer sends frozen cell pellets treated with TriCEPS™ coupled ligands to Dualsystems for further processing

Option 3:
(for biosafety level 2 projects only)
Customer sends lysates treated with TriCEPS™ coupled ligands to Dualsystems for further processing

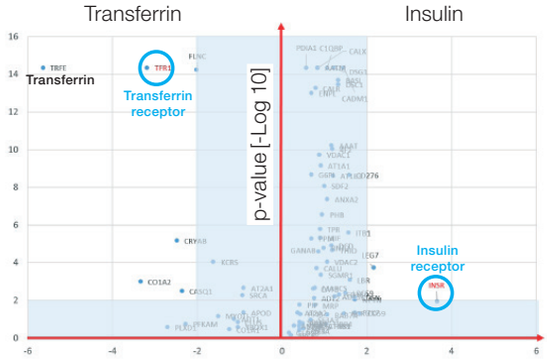
Available as fee for service

LRC-TriCEPS™ workflow



Transferrin | Insulin

Target(s) of control ligand (e.g. Transferrin)



Target(s) of ligand of interest (e.g. Insulin)

Volcano plot:
Comparison of control ligand with ligand of interest
Hek cells Transferrin vs Insulin

Successful target identifications

Ligand used	Cell line or tissue used	Targets identified
Human insulin	Murine adipocytes, Jurkat cells	Insulin receptor, IGF-R1
Apelin-17	U-2 OS osteosarcoma cells	Apelin receptor (GPCR)
Trastuzumab (Herceptin)	U251 human glioblastoma cells	ErbB2
Ankyrin repeat proteins	BT-474 human breast cancer cells	ErbB2, domain I
Vaccinia virus	HeLa CCL2 cells	AXL, M6PR, DAG1, CSPG4

Frei et al. (2012) Nature Biotechnology 30:997

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Flow-TriCEPS™ Service and Kit

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.

- Identify the **best cell type** to use in your target identification experiment
- Identify the **optimal binding conditions** for binding of your drug candidates/ligands 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

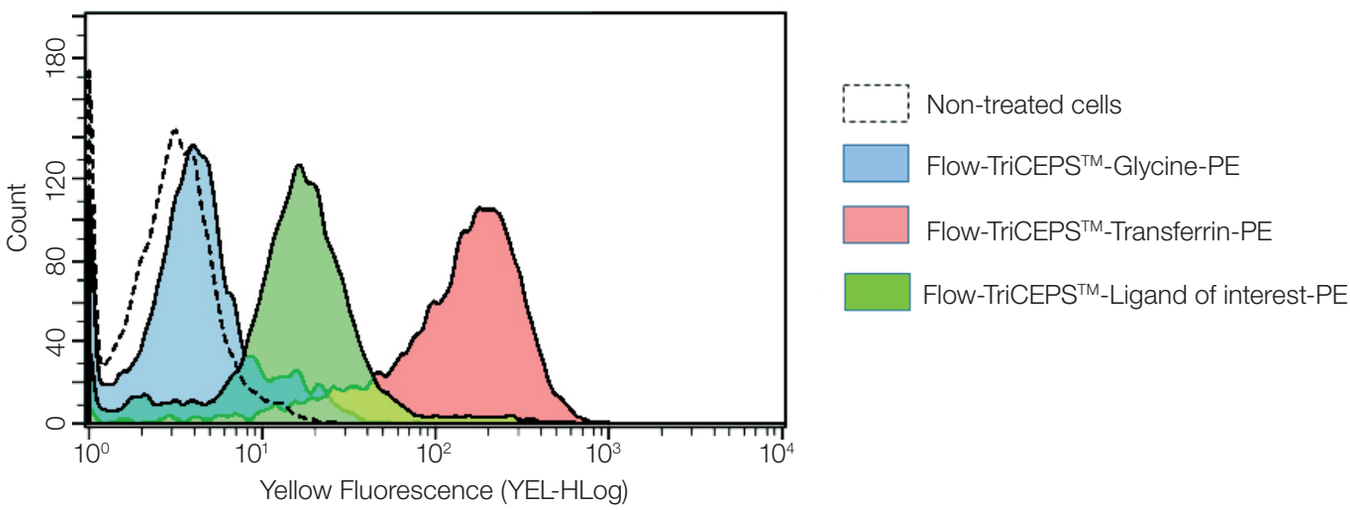
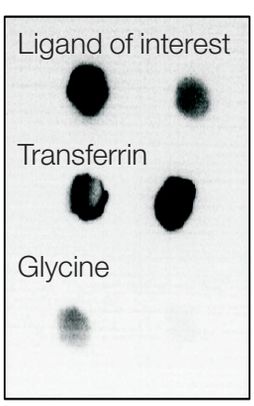


Figure 1: Flow cytometry results using ligands coupled to Flow-TriCEPS™ Version 2.0. The biotin group of the Flow-TriCEPS™ is detected using Streptavidin conjugated with R-Phycoerythrin.

- Which **cell types express the unknown targets** of my ligand / drug candidate?
- What is the **best condition** for ligand incubation (temperature, pH, time)?
- Are there any **co-factors** needed for optimal ligand binding?



Flow Cytometry TriCEPS™ enables direct visualization of the binding of your ligand of interest to its unknown targets without the need of any detection antibodies. Your ligand is coupled to Flow-TriCEPS™ Version 2.0 through its primary amines (N-term and lysines), the ligand binds to its targets on the living cells and the biotin of Flow-TriCEPS™ is detected using a streptavidin fluorophore by **flow cytometry**.

Figure 2: Dot blot to control coupling of Flow-TriCEPS™ to the ligands of interest. Negative control: Flow-TriCEPS™ alone respectively coupled with glycine does not bind to the nitrocellulose membrane.

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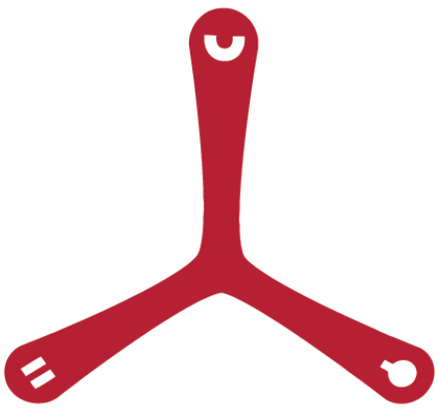
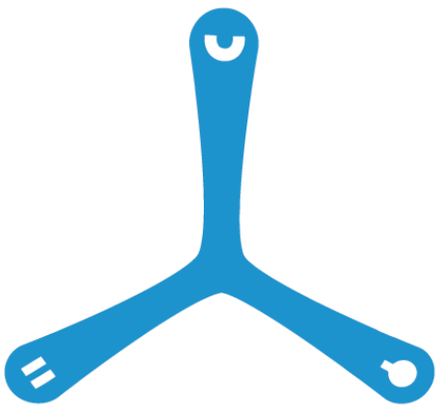
Flow-TriCEPS™



Service & Kit

Cell selection and optimization of binding conditions for target identification

LRC-TriCEPS™



Service

Identification of the targets and off-targets at the cell surface on the living cells

LRC-TriCEPS™ Publications

Identification of Putative Receptors for the Novel Adipokine CTRP3 Using Ligand-Receptor Capture Technology

PLoS One. 2016 Oct 11;11 (10): e0164593. doi: 10.1371/journal.pone.0164593. eCollection 2016.
Li Y., Ozment T., Wright GL., Peterson JM. (with support of Dualsystems)

Serum stimulation of CCR7 chemotaxis due to coagulation factor XIIa-dependent production of high-molecular-weight kininogen domain 5

Current Issue – vol. 113 no. 45 – Manish P. Ponda, E7059–E7068, doi: 10.1073/pnas.1615671113
Contributed by Jan L. Breslow, September 23, 2016 (sent for review August 1, 2016; reviewed by Myron Cybulsky and Carl F. Nathan) - Manish P. Ponda and Jan L. Breslow (with support of Dualsystems)

Identification of cell surface receptors for the novel adipokine CTRP3

April 2016, The FASEB Journal, vol. 30 no. 1 Supplement 1249.2 - Jonathan M. Peterson (with support of Dualsystems)

Laminin targeting of a peripheral nerve-highlighting peptide enables degenerated nerve visualization

Current Issue – vol. 113 no. 45- Heather L. Glasgow, 12774–12779, doi: 10.1073/pnas.161164211
Contributed by Roger Y. Tsien, August 3, 2016 (sent for review November 16, 2015; reviewed by Joshua E. Elias and Jeff W. Lichtman)
Heather L. Glasgow, Michael A. Whitney, Larry A. Gross, Beth Friedman, Stephen R. Adams, Jessica L. Crisp, Timon Hussain, Andreas P. Frei, Karel Novy, Bernd Wollscheid, Quyen T. Nguyen, and Roger Y. Tsien

Direct identification of ligand-receptor interactions on living cells and tissues

Nature Biotechnology 30, 997–1001 (2012) doi: 10.1038/nbt.2354 – Received 06 April 2012 Accepted 08 August 2012 Published online 16 September 2012
Andreas P Frei, Ock-Youm Jeon, Samuel Kilcher, Hansjoerg Moest, Lisa M Henning, Christian Jost, Andreas Plückthun, Jason Mercer, Ruedi Aebersold, Erick M Carreira & Bernd Wollscheid

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