Solutions
For Life Sciences

Protein Production &
Assays

The Strep-tag® technology – Outstanding performance from purification to analytic applications

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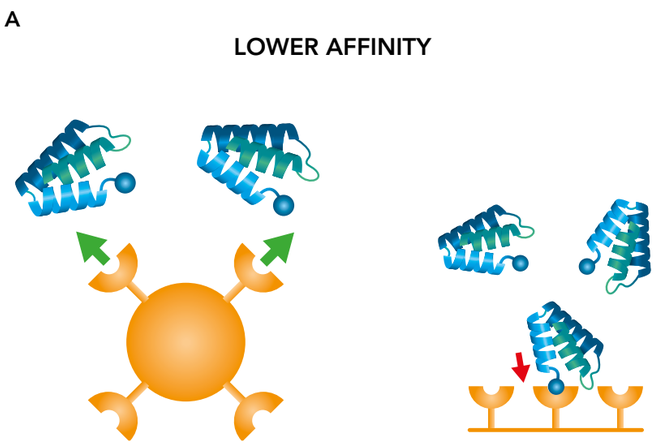
The Strep-tag® technology is a versatile protein purification, detection and immobilization platform. It is well known for its outstanding performance delivering exceptionally pure proteins. The Strep-Tactin®XT provides a remarkable binding affinity in low pM ranges while maintaining its binding reversibility and mild recovery of immobilized proteins. This allows protein purification at high yields and purity that outperforms His-tag purification (e.g. from Expi supernatants). Furthermore, it fulfills the high demands of analytical applications such as SPR or BLI.

AFFINITY – A COMPROMISE BETWEEN PURIFICATION AND ASSAY

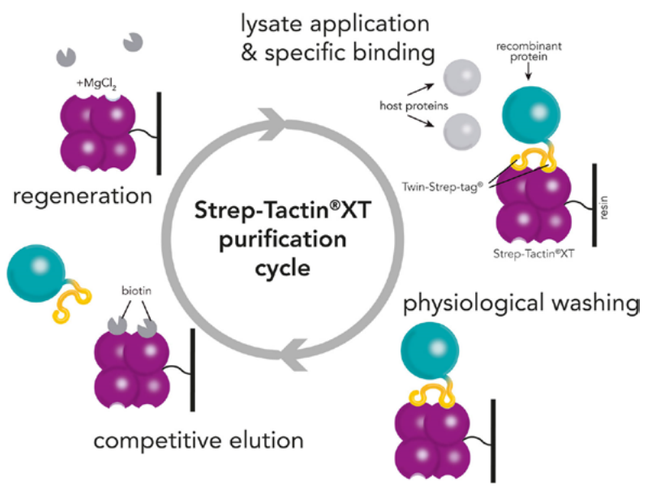
The affinity of a tag to its ligand is an important property depending on the application.

(A) Protein purification:
The affinity of the tag should allow an efficient elution from its ligand.

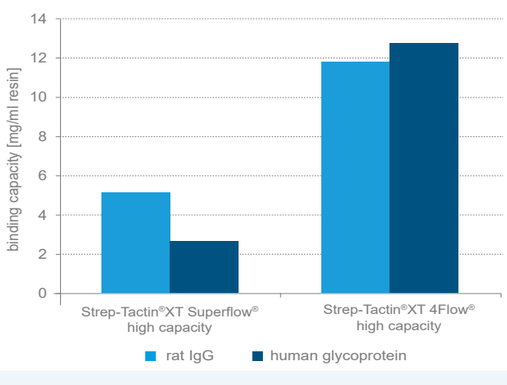
(B) Analytic applications (immobilization):
The tag must have an affinity that is high enough to bind efficiently to the ligand - even under challenging conditions.



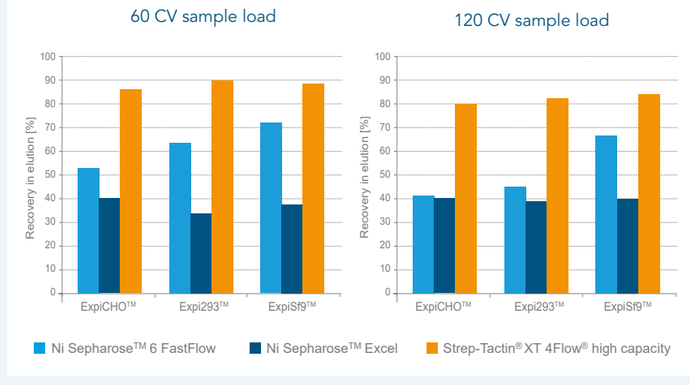
Purification



Twin-Strep-tag®:
WSHPQFEK-(GGGS)$_2$GG-SA**WSHPQFEK**

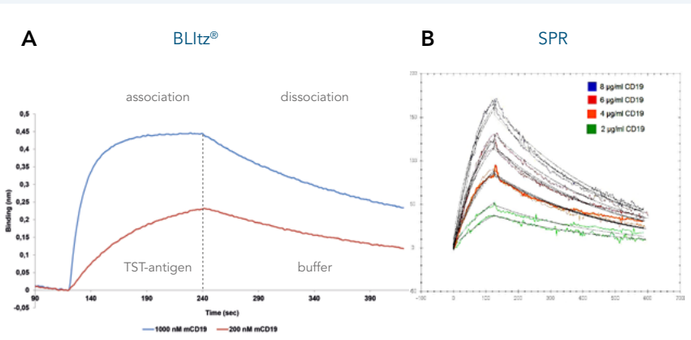


Strep-Tactin®XT 4Flow® – Higher capacity for large proteins. Twin-Strep-tag® proteins of different size (rat IgG, 150.2 kDa and human glycoprotein, 129 kDa) were spiked in buffer W and purified with either Strep-Tactin®XT Superflow® high capacity or Strep-Tactin®XT 4Flow® high capacity. Purification with Strep-Tactin®XT 4Flow® high capacity provides higher yields for both proteins.



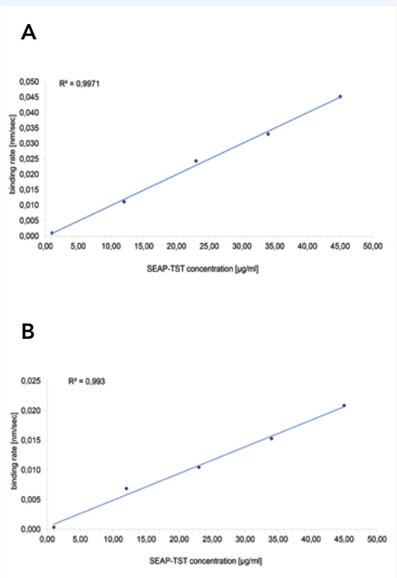
Strep-tag® outperforms His-tag in purification from Expi supernatants. A protein was purified with Ni Sepharose™ 6 Fast Flow, Ni Sepharose™ Excel, or Strep-Tactin®XT 4Flow® high capacity from Expi293™, Expi-CHO™ and ExpiSf9™. Independent from different sample loading volumes, the highest recovery was achieved with Strep-Tactin®XT 4Flow® high capacity.

Immobilization

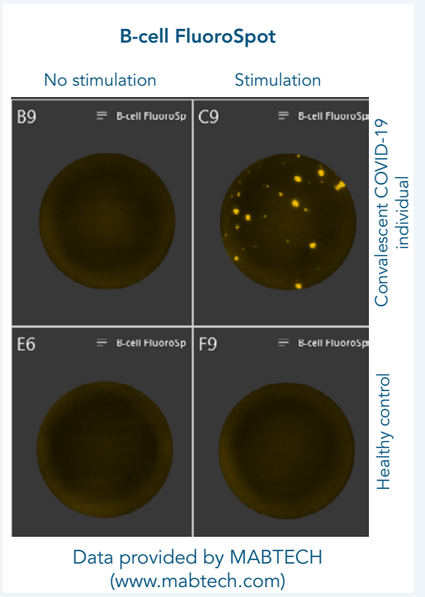


Method	K_D (M)	k_a (1/Ms)	k_d (1/s)	X^2	R^2
BLItz®	6.23×10^{-8}	6.61×10^{4}	4.12×10^{-3}	0.0266	0.9993
SPR	6.27×10^{-8}	4.55×10^{4}	2.85×10^{-3}	14.82	

Binding kinetic of an anti-mouse CD19 nanobody to mouse CD19 receptor. Kinetic was determined with BLItz® (**A**) and SPR (**B**) using Strep-Tactin®XT coated chips or biosensors. The nanobody and the antigen contained a Twin-Strep-tag®.



Reliable protein concentration measurements with Strep-Tactin®XT Dip and Read Biosensors on a BLItz® device. ExpiCHO™ **(A)** and Expi293™ **(B)** supernatants were spiked with five different SEAP-TST concentrations. Calibration curves show a high coefficient of determination (R^2) for a linear fit. Therefore, Strep-Tactin®XT Biosensors can be used for reliable high throughput measurement of protein concentration in high density cell culture media like Expi.



Data provided by MABTECH
(www.mabtech.com)

Antibody detection – Strep-Tactin®XT for FluoroSpot. To detect specific IgGs against a receptor binding domain protein (RBD) from SARS-CoV2, immobilized anti-human IgG antibodies are used to capture RBD specific IgGs secreted by B cells, derived from convalescent COVID-19 individuals. The RBD specific IgG, in turn, binds the Twin-Strep-tagged RBD, which can be detected afterwards with fluorescent labeled Strep-Tactin®XT.