

S Service Sheet



Yalelaan 1
3584 CL Utrecht
The Netherlands
+31 30 253 3421

www.qvquality.com
KvK: 30274082
VAT: 8215.17.168
NL88 RABO0153194936

Generation of sdAb-peptide conjugates

Peptides

Peptides can be valuable tools for functionalizing proteins of interest. For example, cell-penetrating or albumin-binding peptides can influence the uptake and in vivo biodistribution and final delivery of biologicals, such as antibodies.^{1,2} In molecular research, short peptides frequently serve as epitope tags, enabling the detection, immobilization or purifications of proteins in various assays.^{3,4}

sdAb-peptide conjugation

Single-domain antibody(sdAb)-peptide conjugates (Figure 1) are generated by using a maleimide-DBCO as bifunctional linker between an unpaired cysteine of the sdAb provided by e.g. our C-terminal C-direct tag and an azide-modified peptide. The resulting conjugate is checked for protein integrity, degree of labeling, target binding, and where applicable, functionality/recognizability of the peptide (Figure 2)

QVQ conjugates sdAbs to custom-ordered peptides.

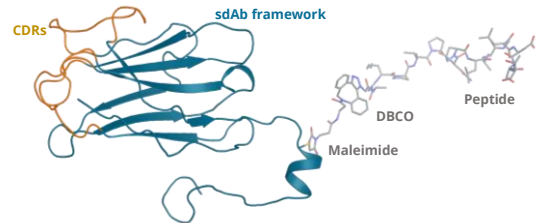


Figure 1. Structure model of sdAb-peptide. sdAb (framework: blue, CDRs: orange) conjugated via unpaired cysteine and DBCO to V5-tag peptide.

Deliverables

- Peptide-labeled sdAb in PBS
- Certificate of Analysis (CoA) containing:
 - Protein parameters (MW, absorption/extinction coefficients)
 - Protein concentration, degree of labeling
 - Assessment of protein integrity (SDS PAGE, PageBlue stained)
 - Confirmation of target binding and apparent binding affinity (ELISA)

Examples:

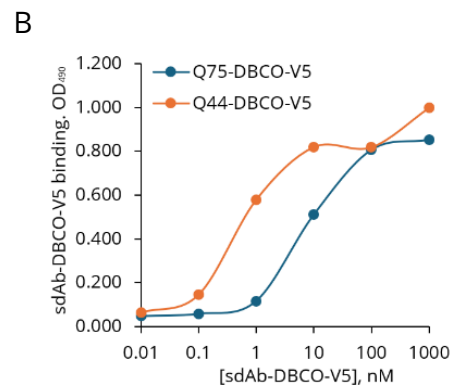
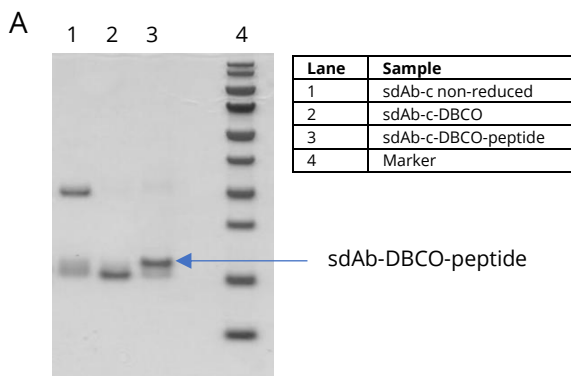


Figure 2. Example quality control of generated sdAb-peptide conjugate. A) SDS PAGE gel of sdAb-DBCO conjugated to azide-V5 tag peptide. B) sdAb-V5 tag conjugates binding to recombinant protein targets in ELISA. Bound V5-tagged sdAbs are detected using anti-V5-tag antibody.

References:

- 1 Dennis et al (2002) JBC 227(38), 35035-35043.
- 2 Guidotti et al (2017) TIPS 38(4), 406-424.
- 3 Marchetti et al (2023) FEBS Open Bio 13(12), 2239-2245.
- 4 Shevtsova et al (2006) EJM 23(8), 1961-1969.