

S Service Sheet



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Generation of sdAb-chelator conjugates

sdAbs as radiolabeled probes

Radiolabeled probes facilitate highly sensitive and quantitative molecular imaging through Positron Emission Tomography (PET) and Single Photon Emission Computed Tomography (SPECT).¹ To generate such probes, antibodies or antibody fragments are first labeled with chelators that can then be used to bind radioisotopes for imaging.² The small size of sdAbs allows for enhanced tissue penetration as compared to full-length antibodies and rapid clearance *in vivo*.^{3,4}

sdAb-chelator conjugation

sdAb-chelators conjugates (Figure 1) are generated via a click reaction of an unpaired cysteine of the sdAb provided by e.g. our C-terminal C-direct tag and commercially available maleimide-modified chelators. The resulting conjugate is checked for protein integrity and target binding. sdAb-chelator conjugates can subsequently be used for radiolabeling and imaging or MRI.

QVQ offers sdAb conjugates with the maleimide-modified chelators DOTAGA, DOTA, and NOTA. Other custom conjugations can be requested.

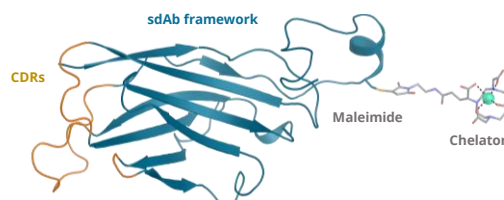


Figure 1. Structure model of sdAb-chelator. sdAb (framework: blue, CDRs: orange) conjugated via unpaired cysteine to maleimide-DOTAGA with chelated ion (cyan).

Deliverables

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

References:

- 1 Wu and Olafsen (2008) Cancer J. 14(3), 191-197.
- 2 Morais and Ma (2018) Drug Discov. Today Technol. 30, 91-104.
- 3 Jeremiasso et al (2024) EMBO molecular medicine 16(7), 1495-1514.
- 4 van Ineveld et al., (2021) Nat Biotechnology, 39, 1239-1245