

## Product Information

**SILu™ Lite SigmaMAb Nivolumab**  
**Monoclonal Antibody Standard**  
recombinant, expressed in CHO cells

Catalog Number **MSQC26**  
Storage Temperature  $-20^{\circ}\text{C}$

### Product Description

SILu™ Lite SigmaMAb Nivolumab is a recombinant monoclonal antibody with a molecular mass of ~150 kDa expressed in CHO cells. SigmaMAb Nivolumab is designed to be used as a standard for optimization of bioanalytical assays of Nivolumab.

Each vial of SigmaMAb Nivolumab contains 500  $\mu\text{g}$  of lyophilized antibody from a solution of phosphate buffered saline. Vial content was determined by measuring  $A_{280}$  and using an extinction coefficient ( $E^{0.1\%}$ ) of 1.4.

### Sequence Information

**SigmaMAb Nivolumab Heavy Chain:**

QVQLVESGGGVVQPGRSLRLDCKASGITFSNSGMHWVRQAP  
GKGLEWVAVIWDGSKRYADSVKGRFTISRDNKNTLFLQ  
MNSLRAEDTAVYYCATNDYWGQGLTVTVSSASTKGPSVFP  
LAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSGALTSGVH  
TFPAVLQSSGLYSLSSVTVPSSSLGTKTYTCNVDPKPSNT  
KVDKRVEISKYGPCCPCPEFLGGPSVFLFPPKPKDTLMI  
SRTPEVTCVVVDVSQEDPEVQFNWYVDGVEVHNAKTKPREE  
QFNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKGLPSSIEKT  
ISKAKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKGFYPSD  
IAVEWESNGQPENNYKTTTPVLDSDGSFFLYSRLTVDKSRW  
QEGNVFSCSVMEALHNHYTQKSLSLGLG

**SigmaMAb Nivolumab Light Chain:**

EIVLTQSPATLSLSPGERATLSCRASQSVSSYLAWYQQKPG  
QAPRLLIYDASNRAITGIPARFSGSGSGTDFTLTISILEPED  
FAVYYCQQSSNWPRTFGQGTKVEIKRTVAAPSVFIFPPSDE  
QLKSGTASVCLLNNFYPREAKVQWKVDNALQSGNSQESVT  
EQDSKDYSLSTLTLSKADYEKHKVYACEVTHQGLSSPV  
TKSFNRGEC

### Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices

### Preparation Instructions

Reconstitute the contents of the vial by adding 500  $\mu\text{L}$  of ultrapure water or phosphate buffer, and mixing vigorously for a 1 mg/mL solution.

If the lyophilized powder does not dissolve completely, make the solution slightly acidic by adding 0.1% formic acid until complete dissolution is achieved. The resulting acidic solution should be neutralized to pH 6–7 by addition of a base or dilution into suitable buffer.

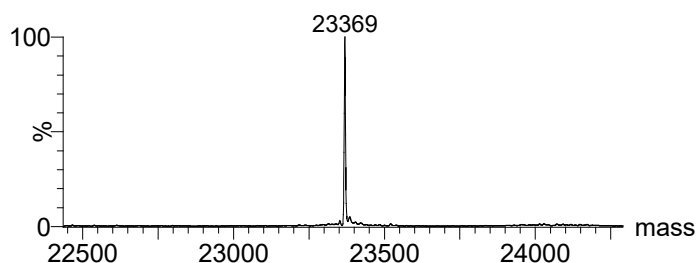
**Note: Avoid PBS for reconstitution.**

### Storage/Stability

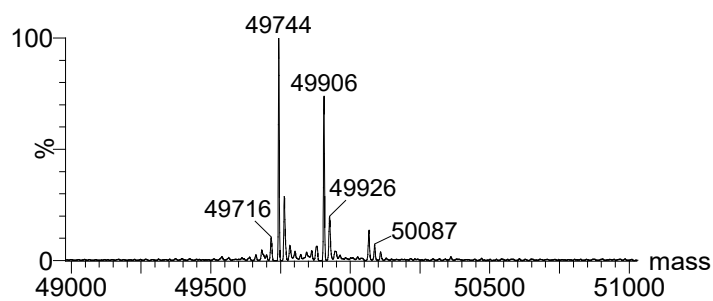
Store the lyophilized product at  $-20^{\circ}\text{C}$ .

SILu is a trademark of Sigma-Aldrich Co. LLC.

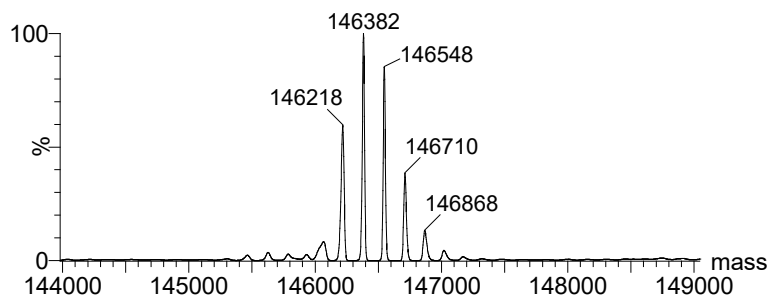
**Appendices**  
**Figure 1.**  
Mass Spectra



(a) Reduced Light Chain



(b) Reduced Heavy Chain



(c) Intact, non-reduced

Deconvoluted mass spectra of partially reduced (a) light chain, (b) heavy chain, and (c) intact SigmaMAb Nivolumab. The reduction was performed in non-denaturing conditions, where the interchain disulfide bonds (which are more susceptible to reduction) will break and produce the light chain and heavy chains, while the intrachain disulfide bonds within each individual domain may remain intact.

**Table 1.**

The calculated molecular mass of light chains, heavy chains of fully reduced, and non-reduced (intact) SigmaMAb Nivolumab with the most abundant glycoforms in this product.

Description	Composition	Modification*	Average Mass (Da)**	Disulfide bond***
Light chain, reduced	C <sub>1027</sub> H <sub>1600</sub> N <sub>280</sub> O <sub>334</sub> S <sub>5</sub>	NA	23373.75	2 intra-chain
Heavy chain, reduced	C <sub>2148</sub> H <sub>3319</sub> N <sub>573</sub> O <sub>664</sub> S <sub>16</sub>	PyroGlu	48306.94	4 intra-chain
	C <sub>2204</sub> H <sub>3411</sub> N <sub>577</sub> O <sub>703</sub> S <sub>16</sub>	G0F, PyroGlu	49752.28	
	C <sub>2210</sub> H <sub>3421</sub> N <sub>577</sub> O <sub>708</sub> S <sub>16</sub>	G1F, PyroGlu	49914.42	
	C <sub>2216</sub> H <sub>3431</sub> N <sub>577</sub> O <sub>713</sub> S <sub>16</sub>	G2F, PyroGlu	50076.56	
Native, intact product, non-reduced	C <sub>6350</sub> H <sub>9806</sub> N <sub>1706</sub> O <sub>1996</sub> S <sub>42</sub>	2PyroGlu	143329.1	16 (12 intra-chain and 4 inter-chain)
	C <sub>6462</sub> H <sub>9990</sub> N <sub>1714</sub> O <sub>2074</sub> S <sub>42</sub>	G0F + G0F, 2PyroGlu	146219.8	
	C <sub>6468</sub> H <sub>10000</sub> N <sub>1714</sub> O <sub>2079</sub> S <sub>42</sub>	G0F + G1F, 2PyroGlu	146381.9	
	C <sub>6474</sub> H <sub>10010</sub> N <sub>1714</sub> O <sub>2084</sub> S <sub>42</sub>	G1F + G1F, 2PyroGlu	146544.1	
	C <sub>6480</sub> H <sub>10020</sub> N <sub>1714</sub> O <sub>2089</sub> S <sub>42</sub>	G1F + G2F, 2PyroGlu	146706.2	
	C <sub>6486</sub> H <sub>10030</sub> N <sub>1714</sub> O <sub>2094</sub> S <sub>42</sub>	G2F + G2F, 2PyroGlu	146868.4	

G0F: GlcNAc<sub>2</sub>Man<sub>3</sub>GlcNAc<sub>2</sub>Fuc

G1F: GlcNAc<sub>2</sub>Man<sub>3</sub>GlcNAc<sub>2</sub>GalFuc

G2F: GlcNAc<sub>2</sub>Man<sub>3</sub>GlcNAc<sub>2</sub>Gal<sub>2</sub>Fuc

\* C-terminal Lys removed from the sequence and accounted in the table

\*\* Masses based on NIST Physical Reference Data

\*\*\* Intra disulfide bonds remain intact after partial reduction

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