

Supporting Information

Single-domain antibody C7b for address delivery of nanoparticles to HER2-positive cancers

Yuri A. Vorotnikov,^a Evgeniya D. Novikova,^a Anastasiya O. Solovieva,^b Daniil V. Shanshin,^c Alphiya R. Tsygankova,^a Dmitrii N. Shcherbakov,^c Olga A. Efremova^{b,d} and Michael A. Shestopalov^{a*}*

^a*Nikolaev Institute of Inorganic Chemistry SB RAS, 3 Acad. Lavrentiev Ave., 630090 Novosibirsk, Russian Federation*

^b*Research Institute of Clinical and Experimental Lymphology – branch of ICG SB RAS, 2 Timakova str., 630060 Novosibirsk, Russian Federation*

^c*State Research Center of Virology and Biotechnology VECTOR, 630559 Koltsovo, Russian Federation*

^d*The Federal Research Center of Fundamental and Translational Medicine, 2 Timakova st., 630117 Novosibirsk, Russian Federation*

***Olga A. Efremova**

Tel.: +44 7583012446.

E-mail address: olgaa.efremova@gmail.com

***Michael A. Shestopalov**

Tel.: +7-383-330-9253; Fax: +7-383-330-9489.

E-mail address: shtopy@niic.nsc.ru

Content

TEM images	S3
Nucleotide sequences before and after codon optimisation	S4
Plasmid maps	S5
Confocal microscopic images	S6

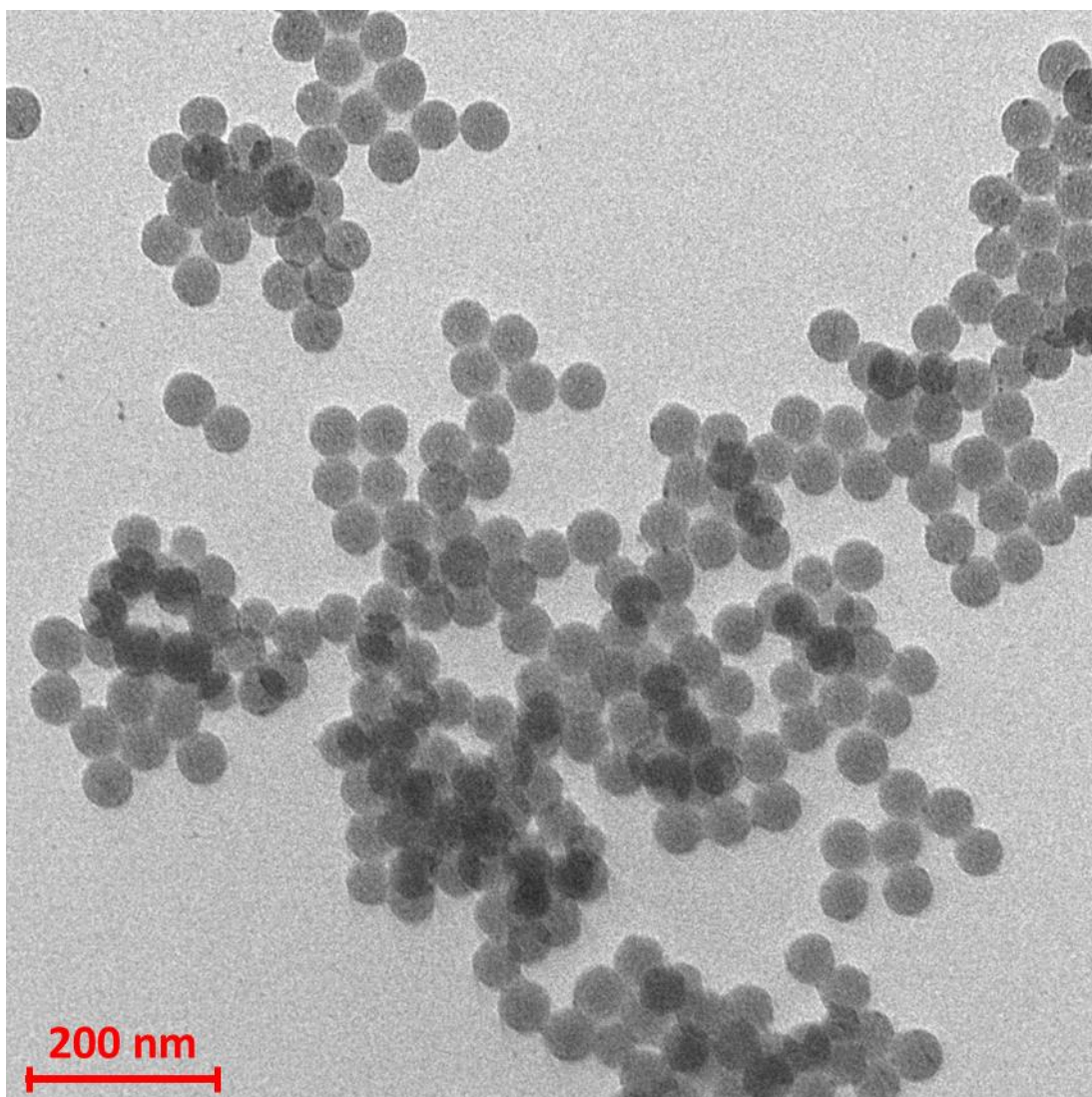


Figure S1. TEM images of $\{\text{Mo}_6\text{I}_8\}@ \text{SiO}_2$ nanoparticles.

```

          10         20         30         40         50
C7b      .....|.....|.....|.....|.....|.....|.....|.....|
C7b-CO   ATGCAGGTTTCAGCTGGTTCAGAGCGGTGGTGGTCTGGTTCAGGCAGGCGG

          60         70         80         90        100
C7b      .....|.....|.....|.....|.....|.....|.....|.....|
C7b-CO   TAGCCTGCGTCTGAGCTGTGCAGCAAGCGGTCGTACCTTTAGCAGCTATG

          110        120        130        140        150
C7b      .....|.....|.....|.....|.....|.....|.....|.....|
C7b-CO   CAATGGCATGGTTTCGTCAGGCACCGGGTAAAGAACGTGAATTTGTTGCA

          160        170        180        190        200
C7b      .....|.....|.....|.....|.....|.....|.....|.....|
C7b-CO   GCAATTAGCTGGTTCAGGTGCCAACATTTATGTTGCAGATAGCGTTAAAGG

          210        220        230        240        250
C7b      .....|.....|.....|.....|.....|.....|.....|.....|
C7b-CO   TCGCTTTACCATTAGCCGTGATAATGCAAAAGATACCGTTTACCTGCAGA

          260        270        280        290        300
C7b      .....|.....|.....|.....|.....|.....|.....|.....|
C7b-CO   TGAATAGCCTGAAACCGGAAGATACCGCAGTGTATTATTGTGCAGTTAAA

          310        320        330        340        350
C7b      .....|.....|.....|.....|.....|.....|.....|.....|
C7b-CO   CTGGGTTTTGCAACCGGTGGAAGAACGTCAGTATGATTATTGGGGTCAGGG

          360        370        380        390        400
C7b      .....|.....|.....|.....|.....|.....|.....|.....|
C7b-CO   CACCCAGGTTACCGTTAGCAGCGGTAGCGGTAGTGGTGTGATCATCATC

          410        420        430        440        450
C7b      .....|.....|.....|.....|.....|.....|.....|.....|
C7b-CO   ACCATCATCATGGTAGCGGTTTCAGGTCTGAAATGATATTTTTGAAAGCCCAG

          460
C7b      .....|.....|.....|.....|.....|.....|.....|.....|
C7b-CO   AAAATCGAATGGCACGAA

```

Figure S2. Nucleotide sequences before (C7b) and after (C7b-CO) codon optimisation.

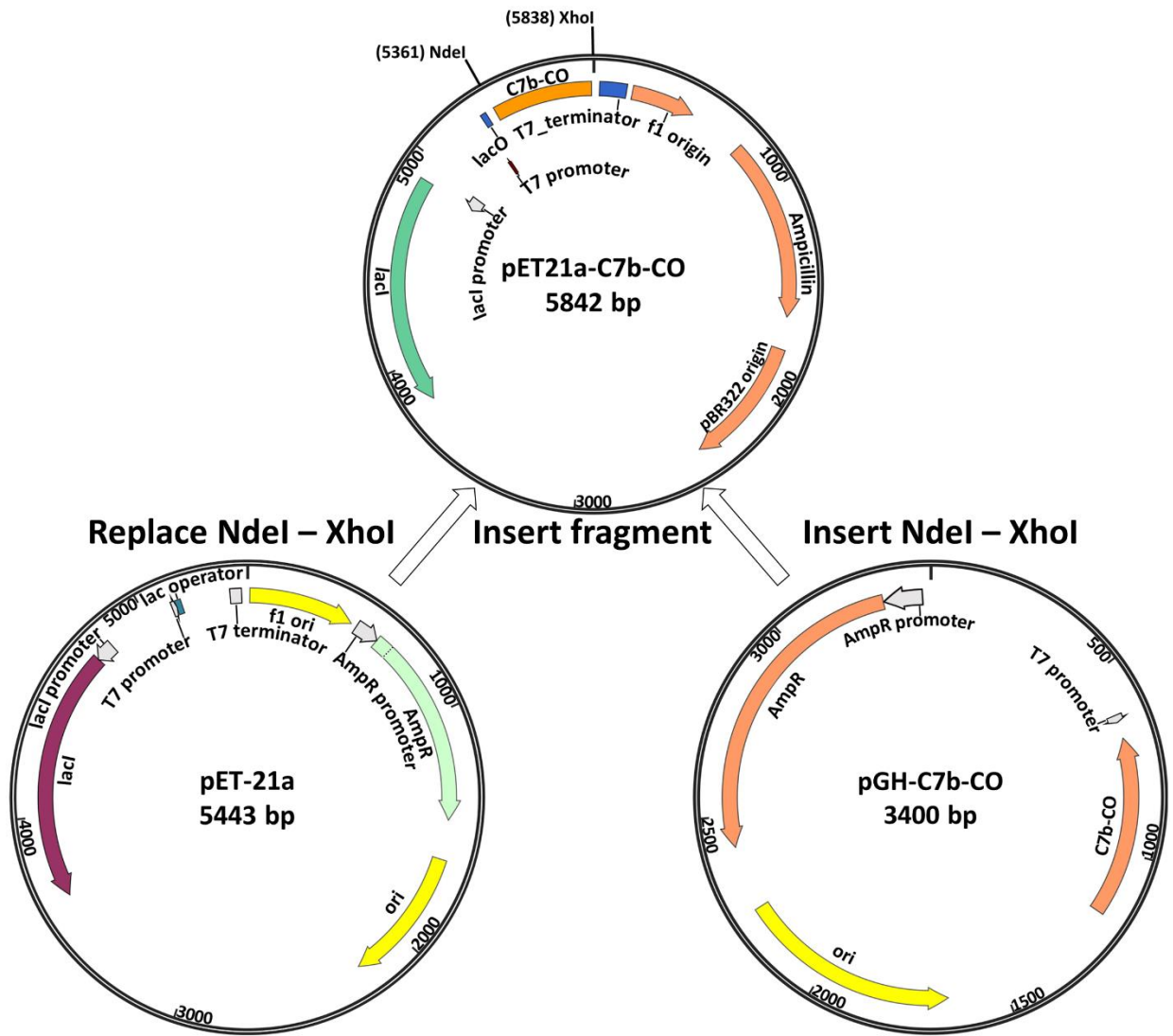


Figure S3. Stages of embedding the optimised nucleotide sequence of a sdAb C7b (C7b-CO) in the expression vector pET-21a.

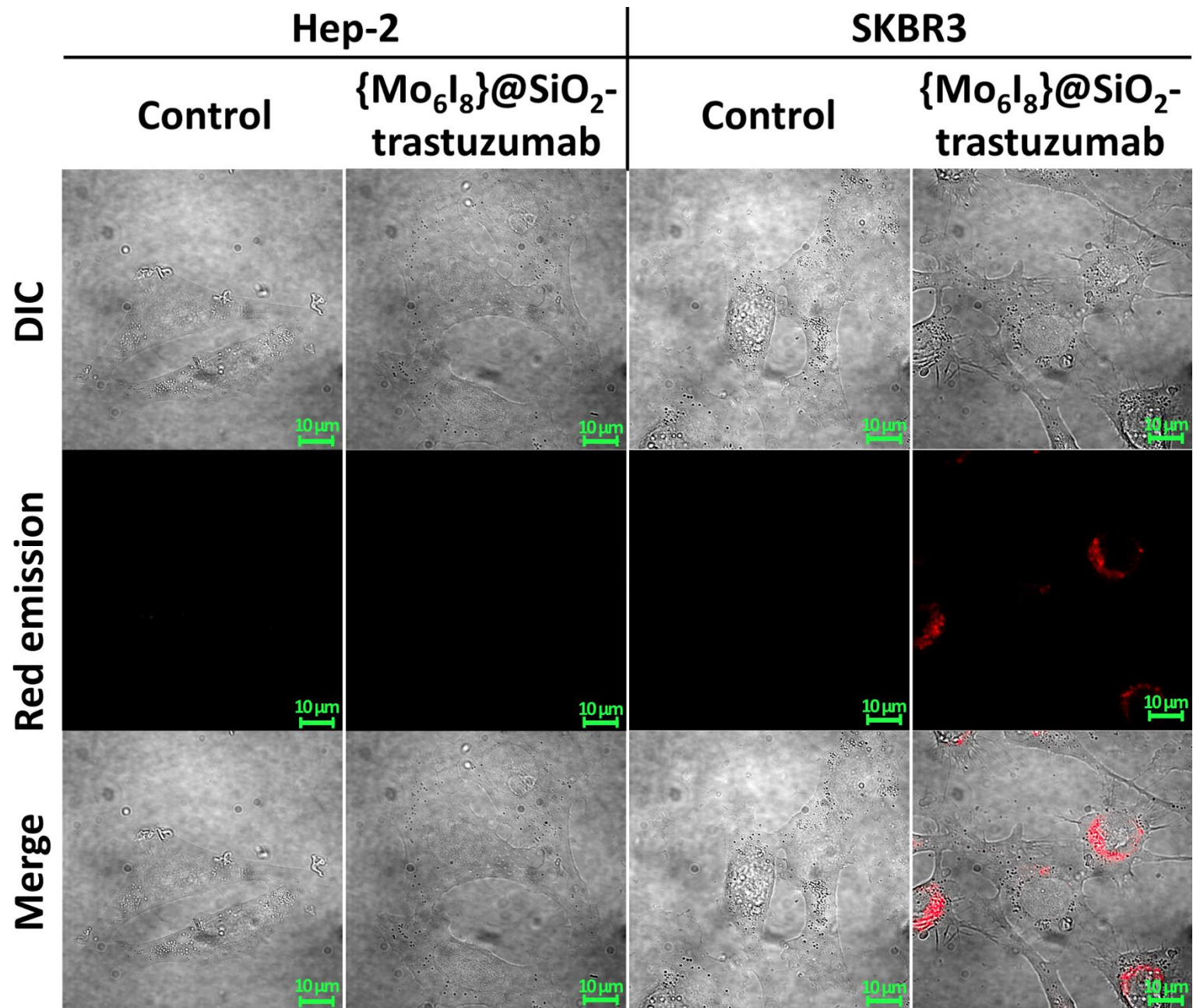


Figure S4. Confocal microscopic images of control Hep-2 and SKBR3 cells and cells incubated with {Mo₆I₈}@SiO₂-trastuzumab for 15 min.

