

Targestar™-SA Targeted Ultrasound Contrast Agent

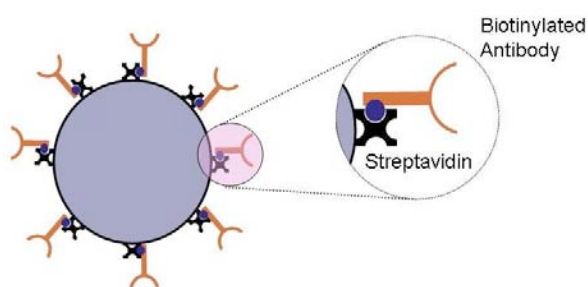
Catalog Number: TS-201

2 x 1.0 ml vials

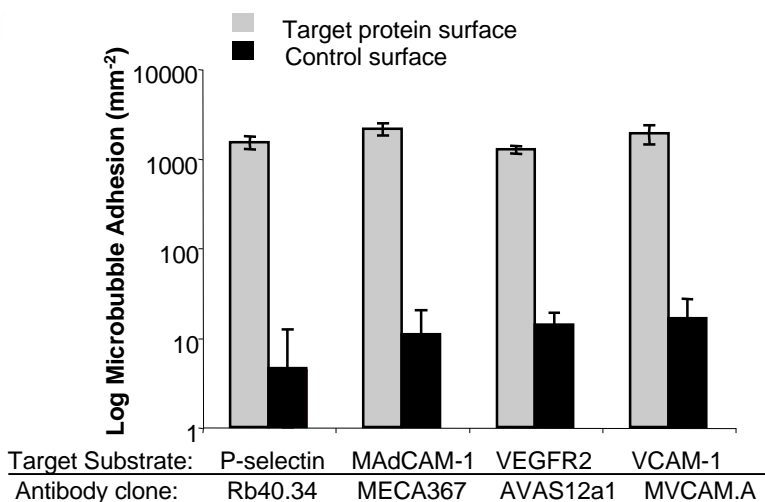
- **Ultrasound molecular imaging applications**
- **Targeting with any biotinylated antibody or peptide ligand**
- **Convenient one-step coupling system**

Applications

Targestar™-SA agents can be used for ultrasound molecular imaging of molecular markers expressed on the vascular endothelium. The Targestar-SA agent is coated with streptavidin, and biotinylated ligands (supplied by the user) such as antibodies and peptides can be conjugated to the agent surface. Targestar-SA echogenicity is optimal at ultrasound frequencies in the 1-20 MHz range, and ultra-high frequency imaging (20-40 MHz) is also possible¹. Contrast imaging settings such as pulse inversion or CPS must be enabled on the ultrasound scanner for optimal contrast sensitivity. Agents remain acoustically active in vivo for 5-15 minutes, depending on the administered dose and scanner settings. Each vial of Targestar-SA yields approximately 10 doses in mouse (25 g); however, dosage should be optimized for each application. Please contact Targeson technical support for protocol assistance.



Biotinylated ligands (antibodies, peptides) are conjugated to the surface of Targestar-SA agent by biotin/streptavidin conjugation chemistry. Right: adhesion of Targestar-SA agents to various target proteins in a parallel plate flow chamber adhesion assay^{2,3}. Targestar-SA were conjugated to the biotinylated antibodies shown, and infused over the substrates of recombinant mouse P-selectin, MAdCAM-1, VEGFR2, or VCAM-1. Surfaces treated with blocker casein served as negative controls.



Preparation

Targestar-SA agents are microbubbles composed of a perfluorocarbon gas core encapsulated by a lipid shell. The agents are further stabilized by a layer of poly(ethylene glycol). The outer shell is derivatized with streptavidin, which binds biotinylated ligands (see Targeson Protocol 2001 for conjugation details). Agents are suspended in aqueous saline at a concentration of approximately 1×10^9 particles per mL, and are packaged in glass vials with a perfluorocarbon gas headspace. The agents have a median diameter of approximately 2.5 μ m.

Storage

Store undiluted at 4° C in sealed vials until ready for application. Concentration is stable in sealed vials for 3 months. Concentration may decrease upon prolonged storage or vial opening. Do not freeze. Once Targestar-SA agents are removed from the vial and conjugated to a ligand, they are stable for approximately 6 hours when kept at 4° C.

References

1. Rychak JJ, J Graba, AM Cheung, BS Mystry, JR Lindner, RS Kerbel, FS Foster. 2007. Mol Imaging 6(5): 289-96
2. Rychak JJ, B Li, ST Acton, A Leppanen, RD Cummings, K Ley, AL Kliibanov. 2006. Mol. Pharm 3(5): 516-24.
3. Takalkar AM, AL Kliibanov, JJ Rychak, JR Lindner, K Ley. 2004. J. Control Release 96(3): 473-82

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