



EV-Guard™ EV Storage Buffer

Cat # EXSBA-1, Cat # EXSBA-10

User Manual

Please see individual components for storage conditions

Version 1
5/23/2023

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Product Description

EV-Guard™ EV Storage Buffer (EV-Guard™) is an innovative solution designed to safeguard extracellular vesicles (EVs) and maintain their biological activities during storage. With its advanced formulation, EV-Guard™ effectively preserves the integrity and stability of EV under various storage conditions, including multiple freeze-thaw cycles. Whether stored at 4°C, -20°C or -80°C, EV-Guard™ shields EVs from degradation and ensures their optimal performance.

List of Components

Item	Catalog #	Volume
EV-Guard™ EV storage buffer – 1X	EXSBA-1	40 ml
EV-Guard™ EV storage buffer – 10X concentrated	EXSBA-10	4 ml

Storage

The EV-Guard™ EV Storage Buffer are shipped on blue ice or at ambient temperature and should be stored at +4°C upon receipt. Properly stored kits are stable for 1 year from the date received.

General Information

The buffer has been sterilized by 0.22 µm membrane filter. The buffer is designed in both 1X and 10X concentrated formats to suit the needs for customers who choose to use different exosome isolation methods which result in concentrated EV pellets (e.g. by ultracentrifugation, ExoQuick or other precipitation based methods) or exosome suspensions (e.g. by SmartSEC or other size exclusion based methods).

Protocol: Using the EV-Guard™ EV storage buffer – 1X

1. Resuspend purified EV pellet in 100 ul - 500 ul of 1X EV-Guard™ EV storage buffer.
2. **Optional:** Perform a protein quantitation assay (e.g. BCA or Qubit assay) to determine the amount of protein in your sample.
3. Aliquot EV samples into appropriate volumes for storage.

Protocol: Using the EV-Guard™ EV storage buffer – 10X

1. Add 10X concentrated EV-Guard™ EV storage buffer to purified EV suspension to a final concentration of 1X. Gently pipet to mix.
2. **Optional:** Perform a protein quantitation assay (e.g. BCA or Qubit assay) to determine the amount of protein in your sample.
3. Aliquot EV samples into appropriate volumes for storage

Example Data and Applications

EV-Guard™ EV Storage Buffer prevents loss of EV particles after multiple freeze-thaw cycles.

EVs were isolated from HEK293T cell culture media using SBI's ExoQuick-TC. The samples were stored at -80°C in either PBS or EV-Guard™ before undergoing single and multiple freeze-thaw cycles. The size distribution and concentrations of EV particles were determined by nanoparticle tracking analysis (NTA) (Figure 1A). Compared to the samples stored in PBS, which experienced approximately a 30% loss after five freeze-thaw cycles, the EVs stored in EV-Guard™ exhibited 98% conservation (Figure 1B).

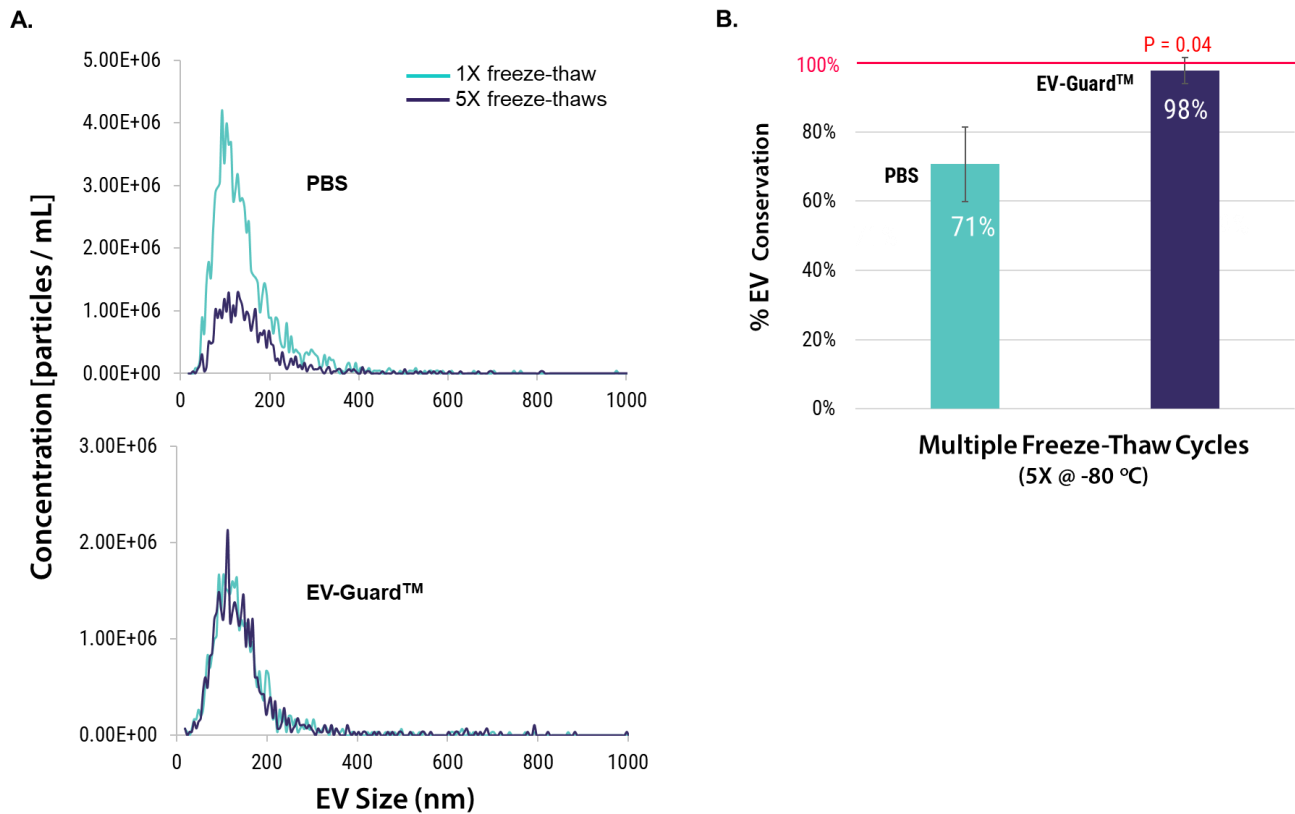


Figure 1. The size distribution (A) and the percentage of EV conservation (B) were assessed by NTA following multiple freeze-thaw cycles in both EV-Guard™ buffer and PBS. The data were derived from five independent experiments (n=5), each compared to a single freeze-thaw cycle.

EV-Guard™ EV Storage Buffer minimizes loss and aggregation of EV particles during long-term storage

EVs from normal human serum were isolated using SBI's ExoQuick and stored at 4°C for intervals of 0 days, 15 days, and 30 days. Subsequent analyses were conducted using fluorescent nanoparticle tracking analysis (fNTA). It was observed that EV samples preserved in EV-Guard™ buffer exhibited a higher percentage of EV conservation than samples preserved in PBS after both 15 and 30 days (Figure 2A). Furthermore, the overall sizes of the EVs were consistently maintained during storage in EV-Guard™, but showed variation when stored in PBS (Figure 2B).

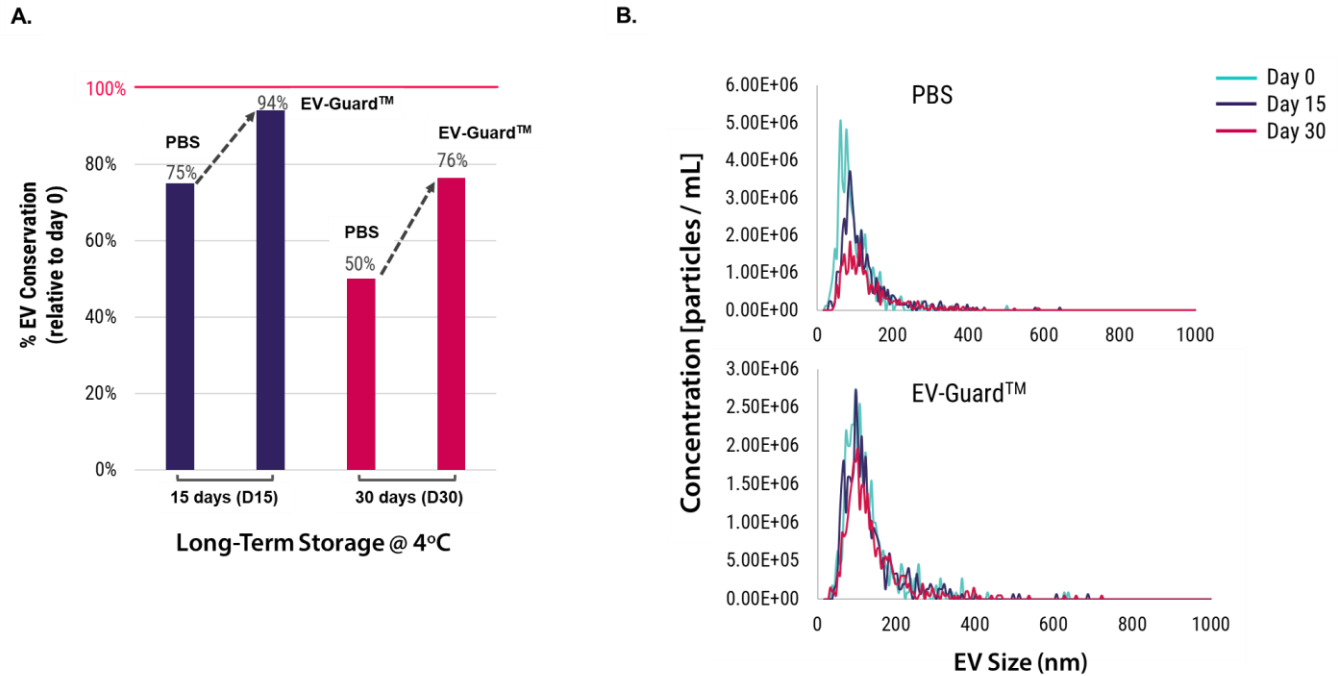


Figure 2. EVs from normal human serum were isolated using SBI's ExoQuick and stored at 4°C for periods of 0, 15, and 30 days. The percentage of EV conservation (A) and EV size distribution (B) were subsequently analyzed using fluorescent nanoparticle tracking analysis (fNTA).

EV-Guard™ EV Storage Buffer preserves EV functionality and integrity after long-term storage

GFP-loaded EVs were isolated from the Xpack CMV-XP-GFP-EF1a-Puro Stable HEK293 Producer Cell Line (Cat. XPAK530CL-1) using SBI's ExoQuick-TC. These EVs were stored in either PBS or EV-Guard™ at -20°C for 1 month before being introduced to HEK293 cells for transfection. After 1 month at -20°C, the GFP-loaded EVs in EV-Guard™ demonstrated higher transfection efficiency (Figure 3, C4) than those stored in PBS (Figure 3, C2). Moreover, the number of GFP+ EVs after 1 month is higher in EV-Guard™ buffer compared to those in PBS, as analyzed by fluorescent NTA (Figure 3 box).

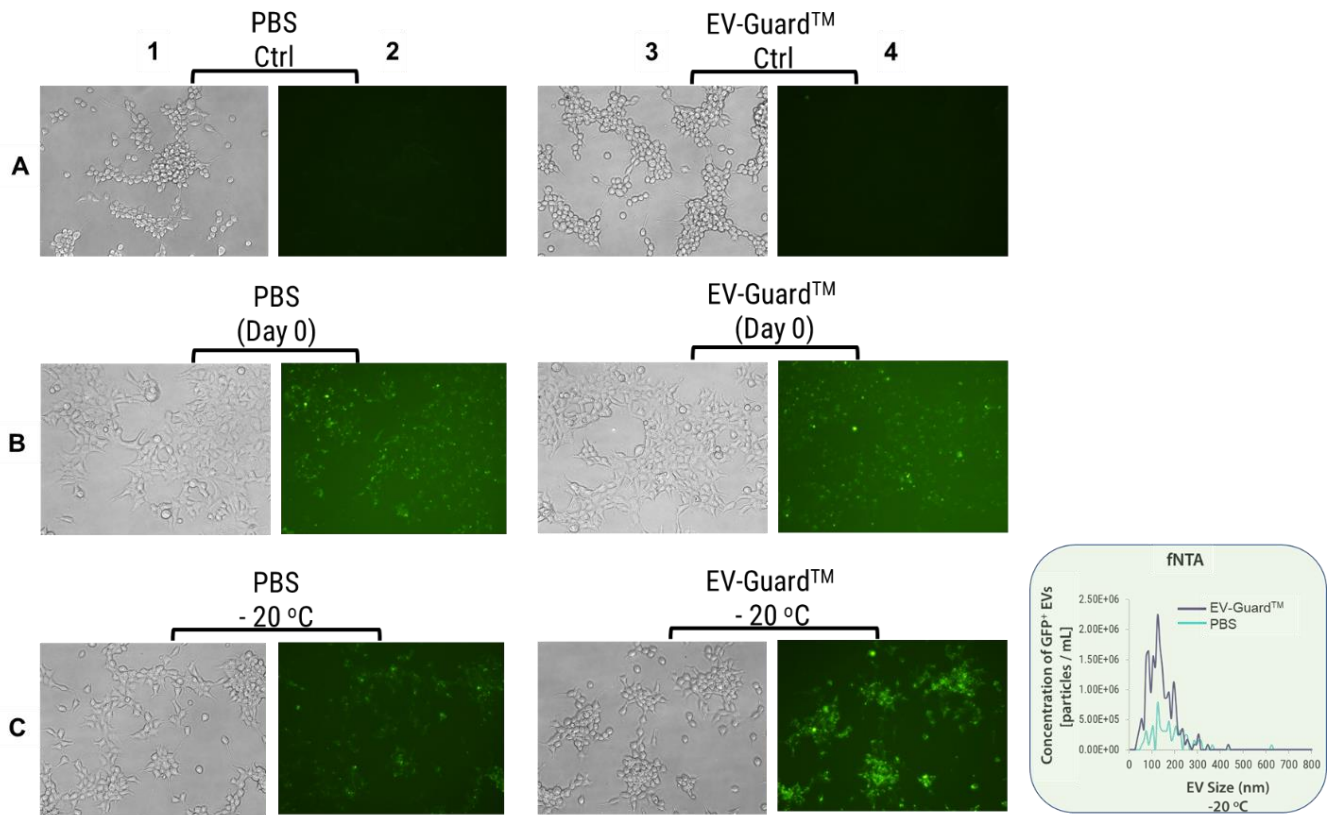


Figure 3. GFP-loaded EVs were stored in either PBS (columns 1 and 2) or EV-Guard™ (columns 3 and 4) at -20°C for 1 month before being introduced to HEK293 cells for transfection (Row C). Row A represents the negative control (no GFP EV), while Row B is the positive control (no storage). After 1 month at -20°C, the number of GFP+ EVs was analyzed using fluorescent NTA (as shown in the box to the right).

Related Products

Exosome/EV Isolation		
High-purity, high-yield SEC-based isolation from a range of biofluids		
High-throughput SEC-based isolation from serum and plasma, 96-well format	SmartSEC™ HT	SSEC096A-1
Single format SEC-based isolation, validated for human serum, plasma, and CSF	SmartSEC™ Single	SSEC200A-1
High purity, polymer-based EV isolation		
Isolation from serum and plasma	ExoQuick® ULTRA	EQUltra-20A-1
Isolation from tissue culture media and other fluids	ExoQuick-TC® ULTRA	EQUltra-20TC-1
General purpose, polymer-based EV isolation		
Isolation from serum and plasma	ExoQuick®	EXOQ20A-1
Isolation from tissue culture media and other fluids	ExoQuick-TC®	EXOTC50A-1
Protein Characterization of Exosomes		
Antibody Arrays	Exo-Check Exosome Antibody Array	EXORAY200B-4 EXORAY210B-8
ELISA	ExoELISA-ULTRA Complete Kits	EXEL-ULTRA-CD63-1 EXEL-ULTRA-CD81-1 EXEL-ULTRA-CD9-1
RNA extraction from Exosomes		
Obtain high yields of total exosome/EV RNA, including small RNAs	EVery EV RNA Isolation Kit	EVery100B-1
Flexible & efficient RNA extraction from exosomes	SeraMir Exosome RNA Column Purification Kit	RA808A-1
cDNA synthesis from EV RNA		
Quick and easy cDNA synthesis optimized for use with the EVery EV RNA Purification System	EVery cDNA Synthesis Kit	EVery200B-1
EV miRNA profiling		
qPCR-based exosomal miRNA profiling plate for human serum and plasma samples	EVery miRNome Profiler for Human Serum and Plasma	EVery500B-1
Synthetic small RNA controls for your RNA isolation and cDNA synthesis steps	EVery miRNA Spike-in Kit	EVery600B-1

Technical Support

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