USER MANUAL

EXOQUICK® ULTRAPURE EV ISOLATION KIT

FOR SERUM AND PLASMA

Store Kits at +4°C - +30°C upon receipt

Cat # EQ UltraPure

System Biosciences

FUELING YOUR INNOVATION

Version 1
9/24/2025

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PRODUCT DESCRIPTION

Why choose between yield and purity?

With **SBI's ExoQuick® UltraPure**, you get both. This next-generation hybrid EV isolation kit combines gentle precipitation with advanced spin-column technology to deliver **maximum yields of pure, apoB-free, intact EVs in just 20 minutes** - no ultracentrifuge required. Compared to size-exclusion chromatography (SEC) and other polymer-based methods, ExoQuick® UltraPure (or EQ UltraPure) achieves **lower albumin carry-over and higher purity**, making it the smarter choice for reliable EV isolation.

- **Dual-Action Innovation** – integrates SBI's proprietary ExoQuick® gentle precipitation with advanced mixed-mode affinity spin columns for unmatched purity and yield
- **Small Sample Compatibility** – efficient EV isolation from as little as 100 µL to 250 µL of serum or plasma
- **ExoQuick® UltraPure: Unmatched Quality, Backed by Data** - the only kit delivering high yield, high purity, concentrated EVs with superior protein, total RNA, and cleaner samples

ExoQuick® UltraPure vs. SEC and Ultracentrifugation

Key Metric	EQ-UltraPure	SEC (company Q)	Ultracentrifugation (UC)	Key Takeaway
Yield (particles / mL serum or plasma)	(1.5×10^{12}) ~26× higher than SEC method; ~3,500× higher than UC	(5.7×10^{10}); Highly varied	(4.2×10^{8}); Lowest recovery	Best in class; Great for any downstream applications
Purity (particles / mg protein)	Leads the group (3.0×10^{11})	(1.8×10^{11})	(1.2×10^{11})	Highest in class; Good for in-vitro/in-vivo studies, cargo loading for therapeutics; functional assays
EV Particle Concentration per Prep. (particles / mL)	(8.2×10^{11}) 30× higher than SEC method; 120× higher than UC	(2.8×10^{10}); Highly inconsistent	(6.8×10^{9})	Most Convenient (Save time and frustration)
EV Protein Yield (µg / mL serum or plasma)	(4887)	(310)	(3.5); Lowest	Best for Downstream Analysis (Proteomics, Biomarker Discovery, Functional Assays)
Total RNA (ng / mL serum or plasma)	(18-20 ng)	n/a	n/a	Based on BioAnalyzer; Great for RNA-Seq.
Lipoprotein Removal	> 90% apoB depletion	~ 20 % apoB dep.	~ 15% apoB dep.	Cleaner Sample (less contaminants to worry)

The ExoQuick® UltraPure workflow can be completed in as little as 1 hour with less than 20 minutes of hands-on time.

Simply add ExoQuick solution to serum or plasma samples (free of cellular debris), centrifuge to collect the EV pellet, resuspend, and apply directly to the EQ UltraPure purification column. Incubate, then spin to collect EVs in the flow-through.

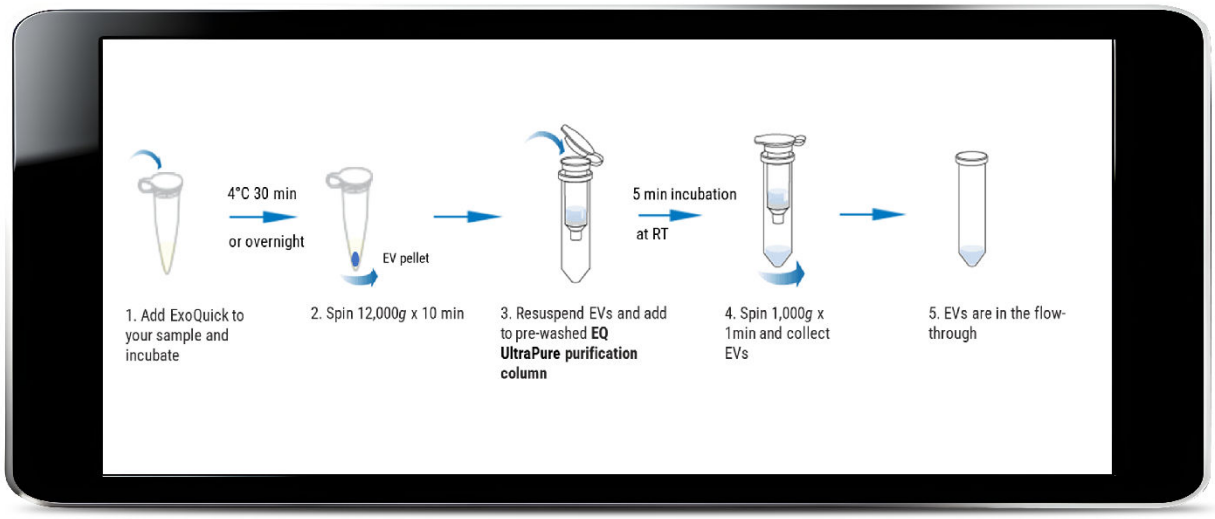

FIGURE 1. EXOQUICK® ULTRAPURE WORKFLOW

KIT CONTENTS

Component	Volume / Qty	Storage Temperature
ExoQuick®	1 mL, Sterile	+4°C to +30°C
UltraPure Purification Column	10 columns	
Column Buffer	25 mL	
Collection Tubes	10	
2 mL Eppendorf Tubes	10	

***1 reaction is defined as 250ul of serum/plasma precipitated using ExoQuick.**

The kit is shipped at +4°C to +30°C and should be stored at +4°C - +30°C. Properly stored kits are stable for 6 months from the date received.

Component not included in the kit: Sterile 1xPBS

PROTOCOL

GENERAL INFORMATION

NOTE: For plasma samples, the addition of thrombin (Cat #TMEXO-1) to generate a serum-like fraction is an optional step - especially for sensitive applications such as mass spectrometry, where added proteins may interfere with the detection of low-abundance targets.

A. ExoQuick Precipitation

1. Collect the biofluid and centrifuge it at 3,000 × g at room temperature for 15 minutes to remove cellular debris.

2. Transfer the supernatant to a new tube.

> ! **OPTIONAL: If additional debris remains detectable, centrifuge the supernatant for an additional 10 minutes at 12,000 x g then transfer the supernatant to a new tube.**

3. Add the appropriate volume of ExoQuick to the clarified biofluid, as shown in the table.

Biofluid	Sample Volume	ExoQuick Volume	Incubation Time
Serum/plasma	250 ul	63 ul	30 min or O/N at 4°C

4. Mix thoroughly by inverting or shaking the tube, then incubate at 4°C for 30 minutes or overnight. Rotation during incubation is not required.

NOTE: To achieve a higher yield of EVs, overnight incubation at 4°C is recommended.

5. Centrifuge the ExoQuick/biofluid mixture at 12,000 × g for 10 minutes. Centrifugation can be performed at either room temperature or 4°C with comparable results. After centrifugation, EVs may appear as a beige or white pellet at the bottom of the tube.

6. Carefully aspirate the supernatant. If residual fluid remains, centrifuge briefly and remove all traces by aspiration, taking care not to disturb the EV pellet.

7. The EV pellet may be sticky; please resuspend it gently and patiently in 500 µL of sterile 1× PBS.

B. Purification of Isolated EVs

1. Take the **UltraPure purification column** (containing resin in storage buffer) and remove both the cap and the bottom closure.

2. Place the column into an empty **collection tube** and loosely screw the cap onto the top of the column.

3. Centrifuge at 1000 x g for 1 min to remove the storage buffer.

4. Discard the flow-through and return the column to the collection tube.
5. To wash the column, remove the cap and apply 500 µl of **Column buffer** onto the resin. Loosely screw the cap back onto the top of the column.
6. Centrifuge at 1,000 x g for 1 min. Discard the flow-through.
7. Repeat the wash step once more.
8. Discard the collection tube.
9. The column is now ready for sample application.
10. Insert the stopper to plug the bottom of the column.
11. Add the entire EV sample from step A-7 to the resin. Secure the screw cap **tightly** on top of the column.
12. Mix EV sample thoroughly with the resin by inverting and flicking the column at room temperature (RT). Then place the column on a rotating shaker for 5-7minutes.

C. Sample Elution

1. Prepare a **2ml Eppendorf tube** to collect the EV sample.
2. Remove the bottom closure, immediately place the column into the **2ml Eppendorf tube,** and loosen the cap halfway.

! **CAUTION:** Once the bottom closure is removed, the sample will begin to flow out of the column. We strongly recommend keeping the cap loosely inserted, as residual liquid may still be present in the cap.

3. Centrifuge at 1000 x g for 1 min to collect the EVs.

4. Store the isolated EVs:

a) **For immediate use**: Store at +4°C for up to one week

b) **For long-term storage**: Store at -20°C or -80°C

Please Note: To preserve structural and functional integrity, we recommend adding 1/10 volume of EV-Guard™ EV Storage Buffer – 10X concentrated (EXSBA-10) for long term storage.

EXAMPLE DATA AND APPLICATIONS

ExoQuick® UltraPure delivers superior EV purity with higher yields

Western blot of serum-derived EVs shows EQ UltraPure retains key EV markers (CD9, CD81, TSG101) while reducing albumin contamination compared to ExoQuick®, ExoQuick® Ultra, and SmartSEC™ Single (Figure 2).

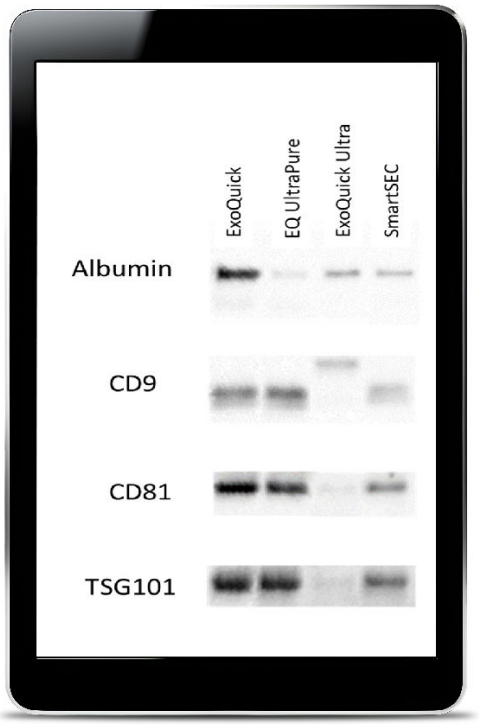

FIGURE 2. EXOQUICK® ULTRAPURE DELIVERS HIGHER YIELDS OF PURE EVS.

ExoQuick® UltraPure Sets a New Benchmark in EV Isolation Performance

EVs were isolated from serum using EQ UltraPure, SEC, and ultracentrifugation. EQ UltraPure shows the strongest EV marker signals (CD9, TSG101), the lowest albumin contamination, and delivers the highest EV yields by protein and fNTA compared to SEC and ultracentrifugation (Figure 3).

(A) Western blot analysis. Each lane was loaded with an equal amount of EV protein. **(B)** Total EV protein yield per mL of serum. EV protein concentration was measured using a NanoDrop spectrophotometer.

(C) Fluorescent nanoparticle tracking analysis (fNTA) demonstrates the superior EV yields obtained with EQ UltraPure compared to SEC and ultracentrifugation.

(D–E) Comparative analysis of EV isolation methods based on yield per input serum volume (D, per mL) and per input EV protein (E, per mg).

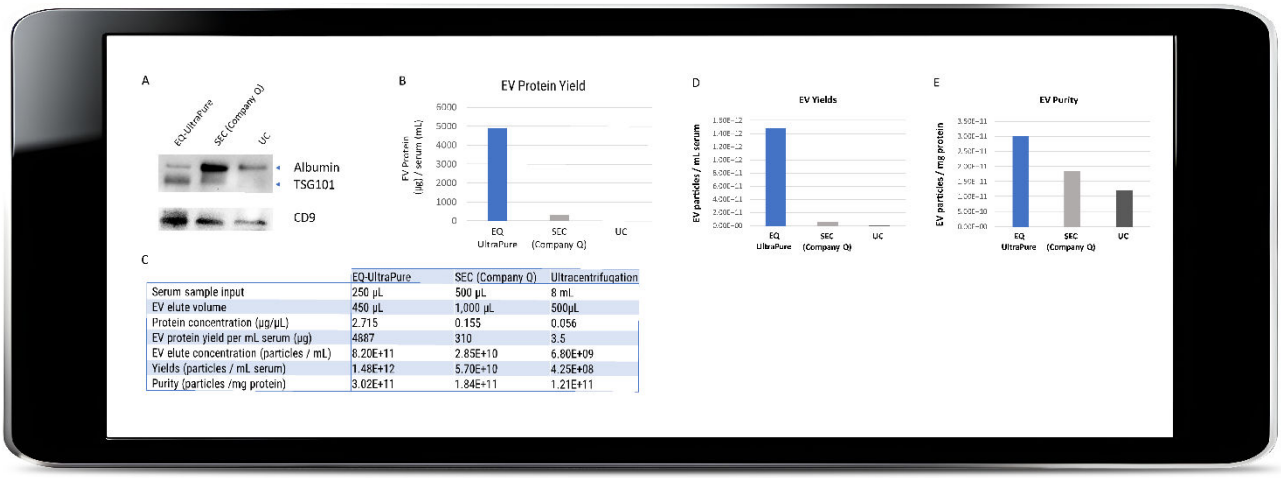

FIGURE 3. EXOQUICK® ULTRAPURE OUTPERFORMS TRADITIONAL EV ISOLATION METHODS

ExoQuick® UltraPure = Cleaner Intact EVs, Fewer Lipoproteins

ELISA analysis shows EQ UltraPure removes ~96% of ApoB from serum, yielding the lowest lipoprotein contamination. In contrast, SEC and ultracentrifugation preparations contain 3–4× higher ApoB levels (Figure 4).

(A) ApoB lipoprotein levels measured by ELISA.

(B) EQ UltraPure removes ~ 96% of ApoB from serum.

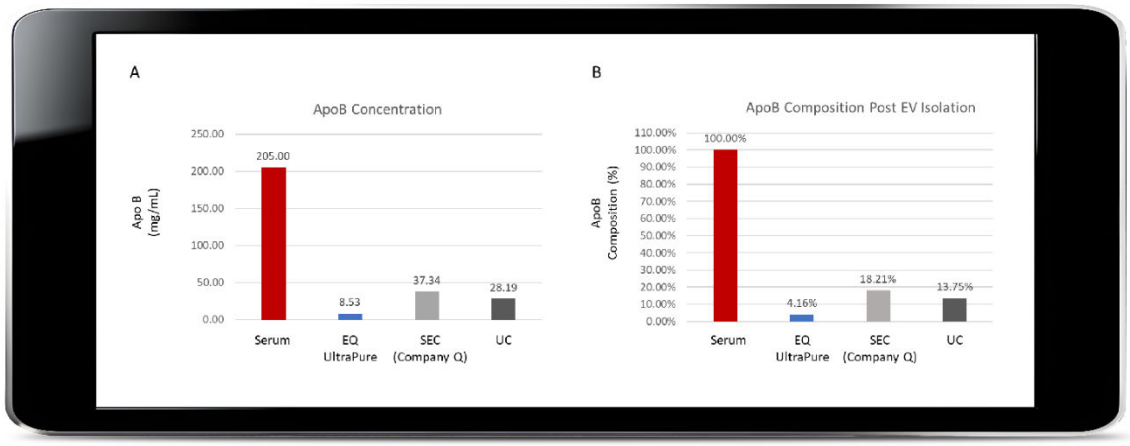

FIGURE 4. EXOQUICK® ULTRAPURE ENABLES EFFICIENT LIPOPROTEIN REMOVAL.

High-Quality EV RNA, Every Time.

EV RNA isolated with EQ UltraPure and the EVery EV RNA Kit (Cat# Every100B-1) shows high quality by Agilent Bioanalyzer electropherogram and gel analysis (Figure 5).

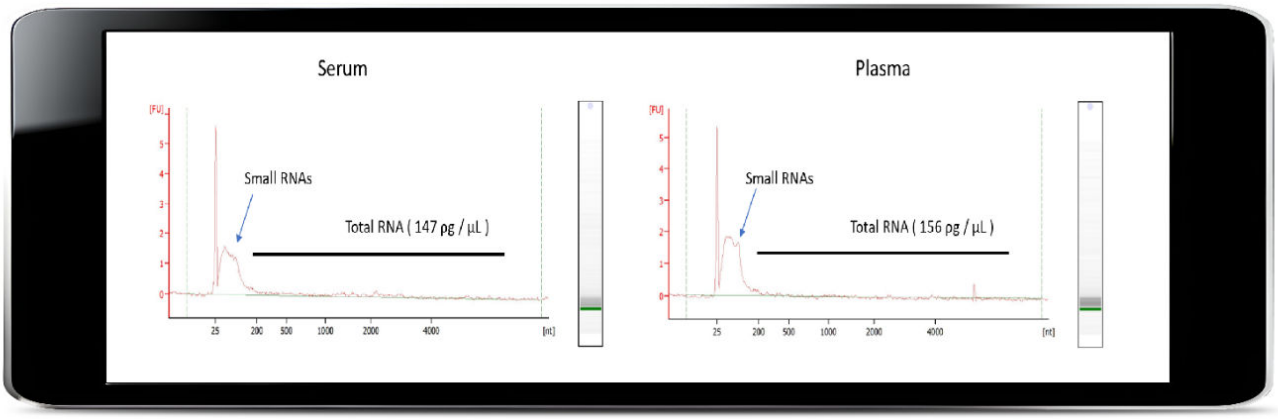

FIGURE 5. EV RNA QUALITY ASSESSMENT BY BIOANALYZER.

TECHNICAL SUPPORT

For more information about SBI products and to download manuals in PDF format, please visit our web site: **http://www.systembio.com**

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LICENSING AND WARRANTY STATEMENT

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