

SmartSEC™ Single for EV Isolation

SINGLE COLUMN, CONTAMINANT-TRAPPING SEC-BASED EV ISOLATION

SYSTEMBIO.COM/SMARTSEC-SINGLE

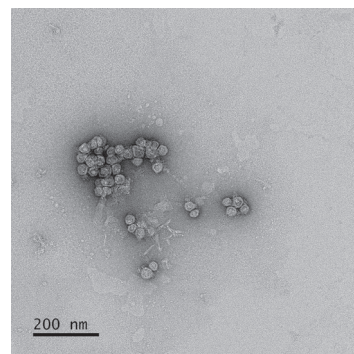
HIGHLIGHTS

- *Quick and easy isolation*
- *Better purity and yield than ultracentrifugation*
- *Higher EV concentration per fraction than a competitor's conventional size exclusion chromatography kits*
- *Validated for human serum, plasma, and CSF as well as Aplysia californica hemolymph*
- *Compatible with most downstream applications such as mass spectrometry, western blotting, nanoparticle tracking analysis (NTA), and transmission electron microscopy (TEM)*

Get high yields of high-purity EVs

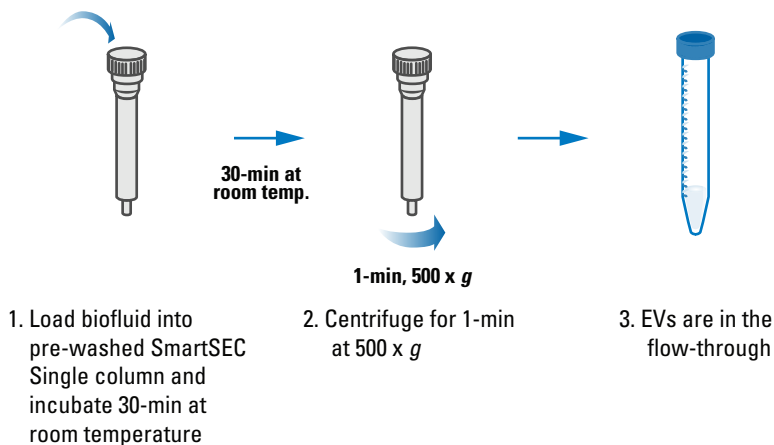
SmartSEC Single uses the same proprietary chromatography-based extracellular vesicle (EV) isolation technology as our popular SmartSEC HT plate and SmartSEC Mini kit but in a single tube format. SmartSEC technology combines all the benefits of size exclusion chromatography (SEC)—purity, yield, reproducibility, and preservation of EV integrity—with a contaminant trapping feature that enhances the capabilities of conventional SEC. The result is best-in-class EV isolation that is fast, easy, and clean (Figure 1).

Figure 1. EVs isolated using SmartSEC Single possess typical EV morphology. Transmission electron microscopy (TEM) of EVs isolated from serum using SmartSEC Single possess typical EV morphology—intact vesicles with double layer membranes—with little visible background debris.



Isolate EVs in as little as 30-minutes

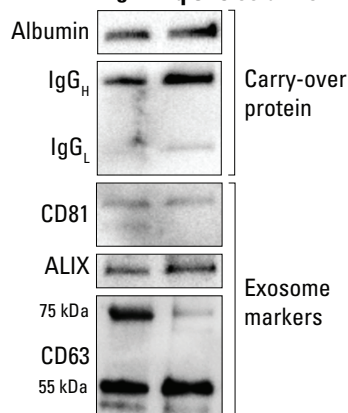
The SmartSEC Single workflow is fast and easy. Simply apply 100 – 250 μ L of cleared serum or plasma with additional column buffer or up to 4 mL of other biofluids directly to the pre-washed column, incubate, and centrifuge to elute the EVs.



System Biosciences
Harnessing innovation to drive discoveries

SmartSEC Single performs better than competitor's q SEC technology

SmartSEC Single q SEC columns



Isolation method	Serum	
	SmartSEC Single	q SEC columns
Concentration (µg/µL)	0.40	0.06
Volume (µL)	750	1,500
Total yield (µg)	300	90

◀ **Figure 2. Western blot analysis shows that SmartSEC Single delivers higher yields of cleaner EVs than a competitor's q SEC columns.** We isolated EVs from 250 µL of human serum using both SmartSEC Single and q SEC columns and analyzed 1 µg of protein equivalent from each isolation method on a western blot. EVs isolated using SmartSEC Single show lower levels of carry-over proteins such as albumin and IgGs and are obtained at ~6-fold higher concentration than the q SEC columns, for overall superior performance.

▶ **Figure 3. Fluorescent nanoparticle tracking analysis (fNTA) shows that SmartSEC Single delivers higher yields of cleaner EVs than a competitor's q SEC column.** We isolated EVs from 250 µL of human serum using both SmartSEC Single and q SEC columns and analyzed each isolation method using fNTA. EVs isolated using SmartSEC Single are present at higher concentration, yield, and purity than a competitor's q SEC columns.

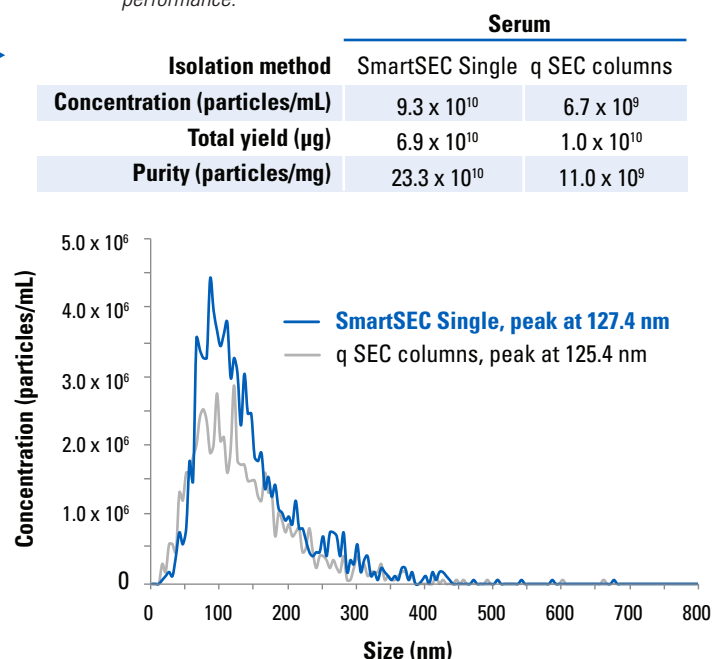


Table 1. SmartSEC Single can be used to isolate EVs for downstream proteomic studies. Mass spec analysis of EVs isolated from the serum of healthy donors and prostate cancer donors.

Accession #	Protein	Peptide count	
		Healthy	Prostate cancer
P04275	von Willebrand factor; vWF; Contains: von Willebrand antigen 2; von Willebrand antigen II; Flags: Precursor;	1	259
A2NUT2	Lambda-chain (AA -20 to 215) {ECO:0000313 EMBL:CAA32725.1}; Flags: ...	209	110
B2RMS9	Inter-alpha (Globulin) inhibitor H4 (Plasma Kallikrein-sensitive ...	25	206

See additional differentially expressed proteins at systembio.com/SmartSEC-Single

Building the tools that speed your research

With an eye on the latest advances, SBI finds promising technology and converts it into easy-to-use tools accessible to any researcher. Our growing exosome product portfolio is just one example. See what other ways SBI can drive your research forward—visit us at systembio.com.

See more data, including isolation of EVs from CSF, and order SmartSEC Single by visiting systembio.com/SmartSEC-Single