ExoBacteria[™] OMV Isolation Kit for Gram Negative Bacteria

STREAMLINED ISOLATION OF BACTERIAL OUTER MEMBRANE VESICLES

SYSTEMBIO.COM/EXOBACTERIA-OMV

HIGHLIGHTS

- One-of-a-kind—the only dedicated system for isolating bacterial OMVs
- Fast—go from cultured bacterial media to purified OMV in less than 1-hour, twice as fast as ultracentrifugation
- Simple—easy-to-set-up, affinity-based column system
- Better—get significantly higher yields and purity compared to ultracentrifugation-based approaches

Streamline your OMV preps even more by turning to SBI's Exosome Services. your reliable source for purified OMVs. Learn more by contacting us at systembio.com/contact-us

System Biosciences

The only kit for easy isolation of bacterial outer membrane vesicles (OMVs)

Expanding our exosome expertise to bacteria, SBI now offers the ExoBacteria[™] OMV Isolation Kit. The first and only kit designed to streamline isolation of bacterial outer membrane vesicles (OMVs), the ExoBacteria OMV Isolation Kit uses an innovative, affinity-based column system to harvest OMVs from bacterial culture medium. Putting isolated OMVs into your hands in less than 1-hour and delivering a purity and yield rivaling ultracentrifugation-based approaches, the ExoBacteria OMV Isolation Kit is a great way to accelerate your studies on bacterial communication and pathogenesis¹, cancer therapy², bacterial modulation of the host immune response³, and bacterial OMV engineering for use as vaccines⁴.

Demystifying OMV Isolation: A newer, faster, simpler method with high yields and purity

Isolating bacterial OMVs with the ExoBacteria OMV Isolation Kit is an easy four-step process:

- 1. Clarify up to 30 ml of bacteria culture media
- 2. Pour supernatant into ExoBacteria OMV isolation column
- 3. Wash column with the provided buffer
- 4. Elute bacterial OMVs with the provided elution buffer

Isolated bacterial OMVs are similar in appearance to OMVs purified using ultracentrifugation (Figure 1), and are present in a narrower size-distribution, higher yields, and with less carryover protein than OMVs purified using ultracentrifugation (figures 2-3). The enhanced quality of isolated OMVs results in more comprehensive identification of OMV proteins (Figure 4).

Figure 1. OMVs isolated using the ExoBacteria OMV Isolation Kit are similar in appearance to OMVs isolated via

ultracentrifugation. Comparison of transmission electron micrographs (TEM) of E. coli-derived OMVs isolated using (A) the ExoBacteria OMV Isolation Kit or (B) ultracentrifugation show potential OMVs (light blue arrows) in both samples. The ultracentrifugation-prepared isolate contains visible unwanted protein aggregates (red arrow).



ExoBacteria OMV Isolation Kit

Ultracentrifugation

Harnessing innovation to drive discoveries



Figure 2. The ExoBacteria OMV Isolation Kit delivers higher yields than

ultracentrifugation-based isolation. Comparison of fluorescent NTA analysis of E. coli-derived bacterial OMVs isolated using either the ExoBacteria OMV Isolation Kit or ultracentrifugation shows that the total OMV yield is 20-fold higher with the ExoBacteria OMV Isolation Kit (1.38 x 10[°] particles/µg of protein) compared to ultracentrifugation (6.57 x10[°] particles/µg of protein).



Figure 3. Get higher OMV yields and less carry-over protein with the ExoBacteria OMV

Isolation Kit. Western blot analyses of E. coli-derived OMVs isolated using either the ExoBacteria OMV Isolation Kit or ultracentrifugation show that (A) the ExoBacteria OMV Isolation Kit delivers higher yields of OMVs than ultracentrifugation—compare the amounts of GroEL in each lane—and (B) the ExoBacteria OMV Isolation Kit preps have less carry-over protein than the ultracentrifugation preps—note the lower amounts of flagellin. Each lane is loaded with 5 µg of total protein.



Figure 4. Identify more OMV proteins with OMVs isolated using the ExoBacteria OMV

Isolation Kit. (A) Comparison of the total number of proteins identified via mass spectrometry from OMV samples isolated using either the ExoBacteria OMV Isolation Kit or ultracentrifugation shows a wider range of proteins identified from OMVs isolated with the ExoBacteria OMV Isolation Kit. All but 7 of the proteins identified in the OMVs isolated using ultracentrifugation were also found in the OMVs isolated using the ExoBacteria kit, suggesting that the higher yields and higher purities delivered by the ExoBacteria OMV Isolation Kit expand your ability to derive insights from OMVs. (B) More of the proteins from the ExoBacteria OMV kit-isolated OMVs were found in the EV-Pedia database than from OMVs isolated using ultracentrifugation, demonstrating the increased specificity of the ExoBacteria OMV Isolation Kit.

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References

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