qEV EXTRACELLULAR VESICLE ISOLATION

IZON

qEV Gen 2 columns remove ~99%* of contaminating soluble proteins and ensure that a high yield of extracellular vesicles (EVs) remain.

*per internal testing

RAPID, HIGH-PRECISION EXTRACELLULAR VESICLE ISOLATION

Rapid, Simple & Reliable Isolation

qEV columns elute intact EVs within 15 minutes and require minimal user intervention.

Standardisable & Reproducible

The qEV isolation platform, which consists of the Automatic Fraction Collector and qEV columns, minimises manual error by providing an element of automation.

Pure, Intact & Functional EV Collection

qEV columns provide highly purified samples of intact EVs, which is particularly important for functional studies.

HOW qEV ISOLATION WORKS

qEV isolation is based on principles of size exclusion chromatography, whereby particles are separated by size as they pass through porous resin in a column. Larger particles elute first, as they cannot enter the small pores. In contrast, particles smaller than the isolation range (35 nm+ or 70 nm+) enter pores in the resin and elute later.

Following qEV isolation, EVs can be studied using a range of techniques such as tunable resistive pulse sensing, electron microscopy, proteome or transcriptome analysis. As the columns in our qEV range are compatible with most physiologically relevant buffers, high yields of EVs can be obtained from a wide range of biological fluids.

qEV GEN 2

HIGH-PERFORMANCE RESIN TAKES SAMPLE PURITY TO NEW HEIGHTS

The new range of qEV columns are made with a customised, agarose resin, which delivers a more purified EV-containing eluate. The release of Gen 2 qEV columns is in line with the need to support the rapidly growing areas of EV research and applications, where sample purity has a huge impact on results downstream.

Remove More Protein Than Before

The resin used in Gen 2 columns enables a greater proportion of protein to be removed from loaded samples (~99%) as shown in Figure 1:
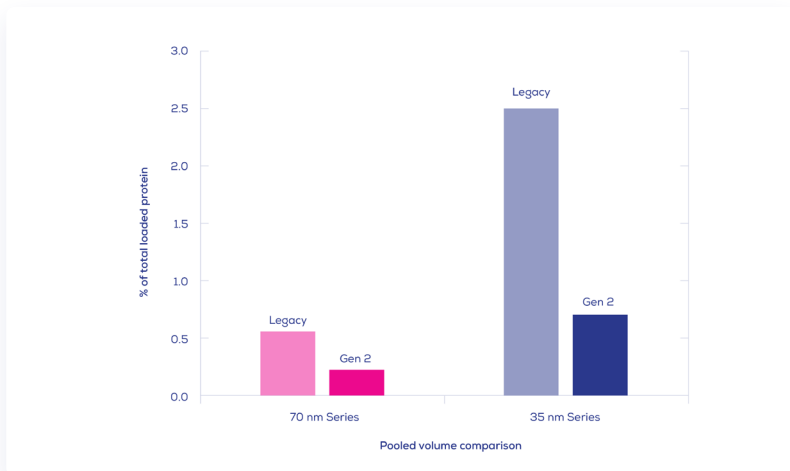

Figure 1. Protein present in pooled volumes (2 mL) of a human plasma sample isolated with Izon's Automatic Fraction Collector, shown as a percentage of the total loaded protein. Protein was measured by bicinchoninic acid (BCA) assay. Data shown for the qEVoriginal Legacy column and the qEVoriginal Gen 2 column column in the 70 nm Series and 35 nm Series (0.5 mL loading volume).
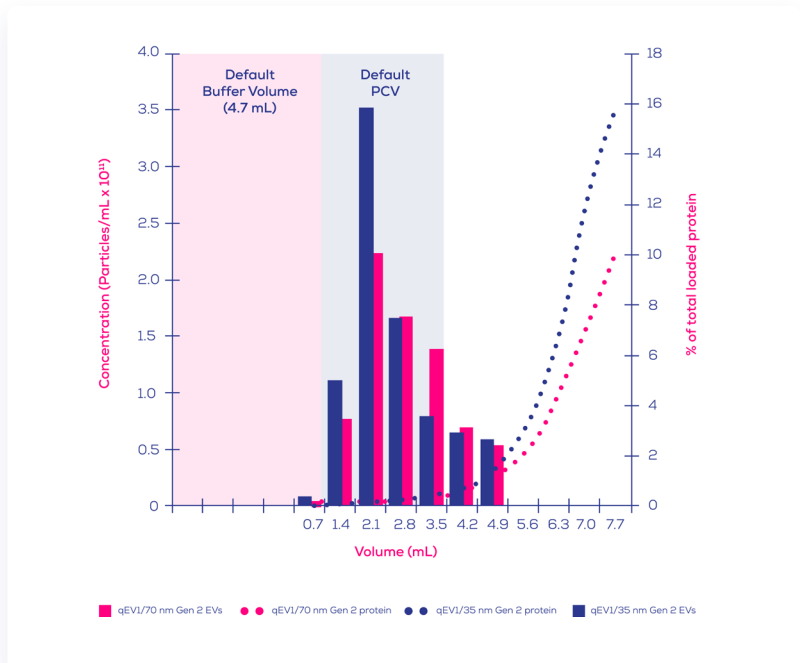
qEV1 Elution Profile: A Gen 2 Column

Figure 2. Elution profile of a human plasma sample (1 mL loading volume) separated on a qEV1/35 nm and qEV1/70 nm column. Bars represent extracellular vesicles (EVs) and similarly sized particles ›60 nm measured using an Exoid; dotted lines represent protein concentration measured by bicinchoninic acid (BCA) assay. Faded bars represent concentrations calculated from pooled sample measurements. Volumes are labelled in 0.7 mL increments; i.e., '0.7' refers to the volume from 0.0–0.7 mL after the buffer volume; '1.4' refers to the volume from 0.7-1.4 mL after the buffer volume, etc.

Flexibility of the qEV Isolation platform

Working with qEV columns and the AFC?

Default buffer volumes and purified collection volumes (PCVs) have been defined for each column, using studies of human plasma elution profiles, the Exoid and protein measurements via bicinchoninic acid (BCA) assay. However, you do have the flexibility to set your own adjusted buffer volume and PCV, to suit your sample type, application, or analytical method used downstream. In this way, you can prioritise:
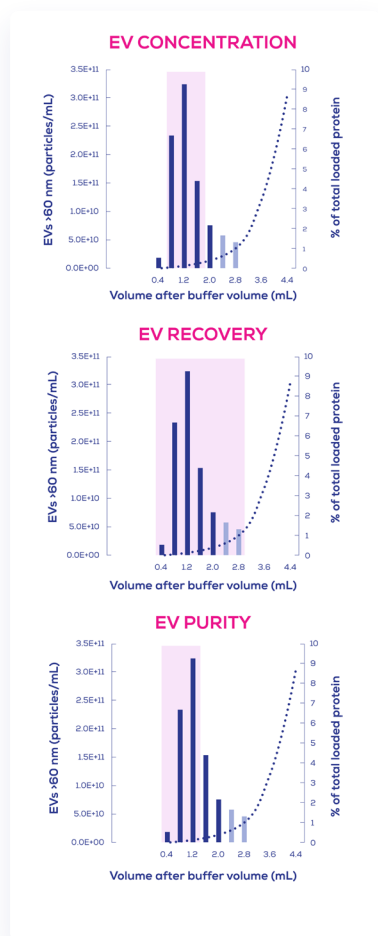

Figure 3. Elution profiles of a human plasma sample separated using a qEVoriginal/35 nm Gen 2 column and Automatic Fraction Collector (AFC). Particle concentration was measured on the Exoid, protein was measured via bicinchoninic acid (BCA) assay. Faded bars represent estimated extracellular vesicle (EV) concentration based on calculations and comparisons from various pooled volumes. Different purified collection volumes (PCVs) can be pooled to optimise the sample, depending on the application or analytical method used downstream. Different PCVs can be pooled to prioritise EV concentration, EV recovery, or EV purity. The recommended default setting on the AFC prioritises a balance of EV recovery and purity.

CHOOSE A qEV ISOLATION COLUMN OPTIMISED FOR YOUR RESEARCH

To meet your research needs, we have a range of qEV Isolation Columns suited to different particle size isolation ranges and sample volumes.

When selecting a qEV column, consider the ideal purified collection volume (PCV) you require for downstream analysis, the sample loading volume, and how much contaminating protein overlap is acceptable.

To select the most appropriate column for your research follow these two steps:

STEP 1 – CHOOSE YOUR COLUMN SIZE

Column size selection is based on the sample loading volume required. Each column has a sample loading volume recommended for highest purity. If you are unsure of which column is right for you, please contact the Izon team at www.izon.com/contact

qEVsingle

150 μL

Sample loading (recommended for highest purity)

- **Ideal for small biological samples**

Optimised for small samples

- **Single use**

No RNA carryover

qEVoriginal

500 μL

Sample loading (recommended for highest purity)

- **Ideal for high-throughput studies**

The most popular qEV column

- **Reusable**

Up to 5 times

qEV1

1 mL

Sample loading (recommended for highest purity)

- **Ideal for high-throughput studies and EV-RNA preparation**

Exclusive to the Gen 2 range

- **Reusable**

Up to 5 times

qEV2

2 mL

Sample loading
(recommended for
highest purity)

- **Ideal for samples used in clinical and fundamental research**

  Includes Leur Lock fitting

- **Reusable**

  Up to 5 times

qEV10

10 mL

Sample loading
(recommended for
highest purity)

- **Ideal for large volume cell culture supernatant**

  Includes Leur Lock fitting

- **Reusable**

  Up to 5 times

qEV100

100 mL

Sample loading
(recommended for
highest purity)

- **Ideal for industrial volumes of cell culture supernatant**

  Includes Leur Lock fitting

- **Reusable**

  Up to 5 times

STEP 2 – CHOOSE YOUR ISOLATION RANGE

All column sizes are available in two ranges: the 35 nm and 70 nm Series. The popular 70 nm Series provides less protein overlap with EVs, while the 35 nm Series offers a higher recovery of EVs < 110 nm.

qEV / 35 nm

- **35 nm - 350 nm**

  Optimum recovery range

- **<110 nm**

  Higher recovery of EVs smaller than 110 nm

- **More lipoprotein overlap**

  When working with blood plasma

qEV / 70 nm

- **70 nm - 1000 nm**

  Optimum recovery range

- **>110 nm**

  Higher recovery of EVs larger than 110 nm

- **Less lipoprotein overlap**

  When working with blood plasma

Learn more at

www.izon.com/qev

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