

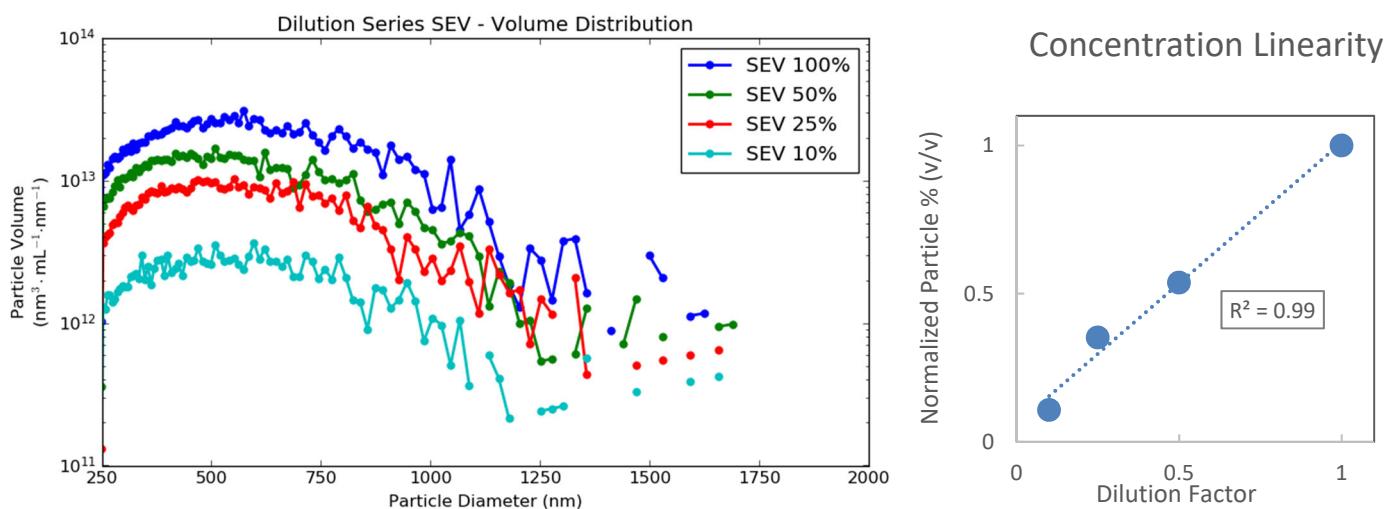


Spectradyne's nCS1 – Fast & Accurate Quantification of Extracellular Vesicles

As Extracellular Vesicle (EV) research matures the standards for scientific rigor in the field continue to increase. Scientists now understand that accurate quantification is a critical first step in discovering the biological roles of EVs and assessing their potency in nature or as therapeutics.

Historically, standard benchmark values for assessing the quality of EV preparations (e.g., total protein per particle, or average particle size) have relied on particle quantification methods such as Nanoparticle Tracking Analysis (NTA). It is now broadly recognized, however, that light scattering-based techniques such as NTA fail to accurately count particles below about 150 nm diameter in EV samples and dramatically underreport EV concentration—often by multiple orders of magnitude.

Spectradyne's nCS1 is rapidly being adopted as a more accurate and practical technique that uses an electrical method, Microfluidic Resistive Pulse Sensing (MRPS), for counting and sizing EVs one by one in a sample. The technology is fast and easy to use, and instrument operation does not suffer from the clogging issues inherent in older, more simplistic implementations of Resistive Pulse Sensing. Analysis cartridges are factory-calibrated, and reliable measurements are typically obtained in a few minutes per sample.



EVs derived from cell-free human serum were purified by Sepharose CL-2B gravity column chromatography, diluted in PBS and analyzed by Spectradyne's nCS1. The concentration accuracy of the MRPS method is demonstrated by the exceptional linearity of the response. Data courtesy of Dr. Z. Varga, Hungarian Academy of Sciences.

The figures show nCS1 measurements of human serum-derived EVs serially diluted in PBS. The prominent and reproducible peak in each distribution implies that most EV contents are carried by particles around 500 nm diameter. Each measurement took only a few minutes and consumed just 3 microliters of the sample, and the exceptionally linear response of the measurements highlights the accuracy of the technique.

Contact us today to learn how Spectradyne's nCS1 can help advance your EV science.