

EXOSOMES

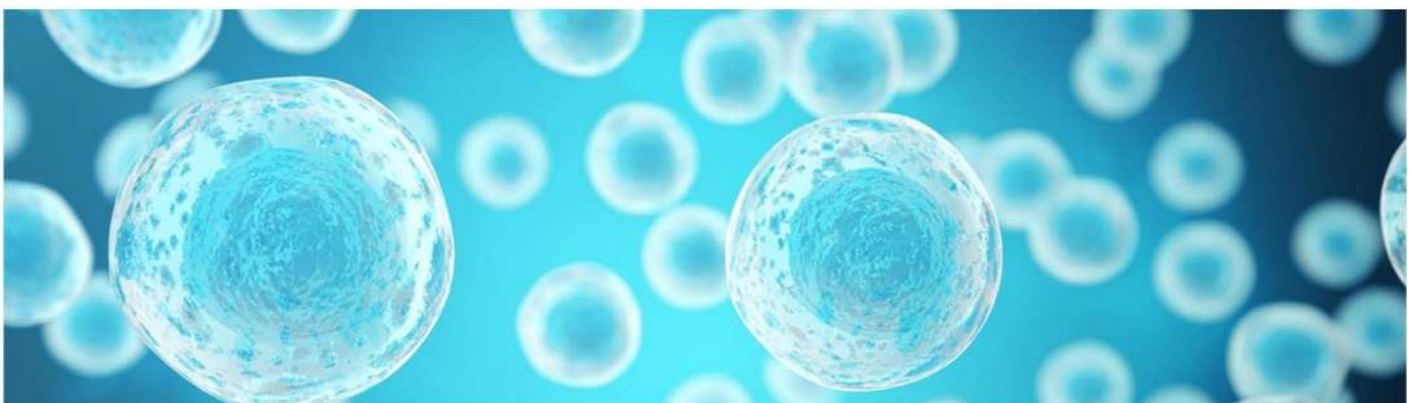
Kosheeka understand that imprecise molecular standards confound efforts to create diagnostic tests for disease-related biomarkers. That's why we are dedicated to providing scientists with novel tools such as exosomes. Exosomes are cell-derived extracellular vesicles that are submicron in size and released through fusion of the multivesicular body with the plasma membrane. Because of their ability to harbor and deliver biological cargo such as nucleic acids to recipient cells, exosomes are currently being examined as next-generation agents for diagnostics and therapeutics.

Kosheeka offers exosomes isolated from various well-characterized cancer cell lines and mesenchymal stem cells. Features and benefits include:

- Ideal reference standards in cancer research & liquid biopsy development
- Novel isolation method to ensure purity
- Consistent size range of 50 – 200 nm; verified by Nanoparticle Tracking Analysis
- Exosomal protein markers confirmed
- Functional performance data available

Table 1: Well-characterized Exosomes

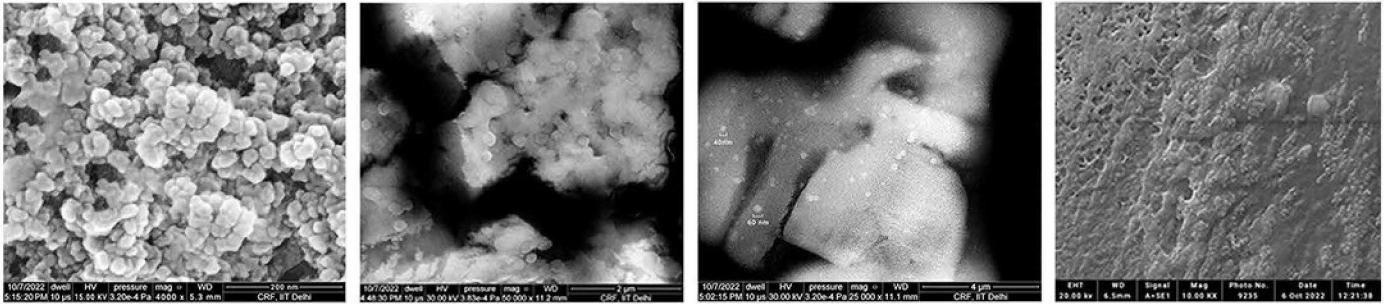
Product	Origin
Human Mesenchymal Stem cell-derived Exosomes	Human
Human Plasma Derived Exosomes	Human
Human Adipose Stem Cell-derived Exosomes	Human
Human Bone Marrow-Derived Exosomes	Human
Human Skin Fibroblasts Derived Exosomes	Human



SAFETY AND FEASIBILITY EVALUATION

A. Identification & Characterization of hUC-MSC-EVs

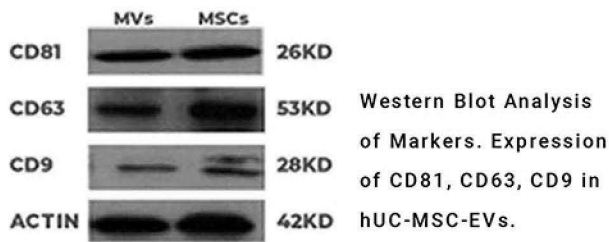
Cat. No. hEXO10101



Random Captures of hUC-MSC-EVs using Scanning Electron Microscopy at different magnifications.

- i. Small vesicles of approximately 40-60 nm were noted. magnification, 400,000X, scale bar 200 nm.
- ii. Magnification, 50,000X, scale bar 2 micrometer.
- iii. Magnification, 25,000X, scale bar 4 micrometer.
- iv. Magnification, 10,000X.

B. Western Blot Analysis

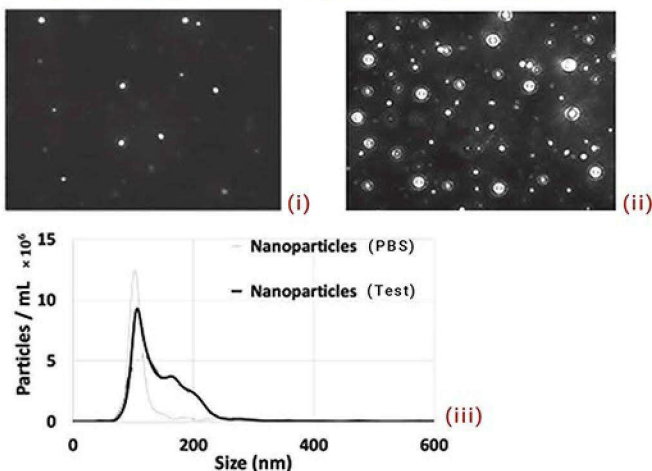


C. CLIA Analysis

Sample Name	Concentration	Absorbance
Blank	0	0.001
Std 1	1.5	0.978
Std 2	3.125	1.0234
Std 3	6.25	1.1528
Std 4	12.5	1.3142
Std 5	25	1.8414
Std 6	50	2.1236
Blank	0	0.001
Exo 1		1.9254
Exo 2		1.9536
Exo 3		2.0356

The approximate total concentration of exosomes is 30-35 microgram/ml

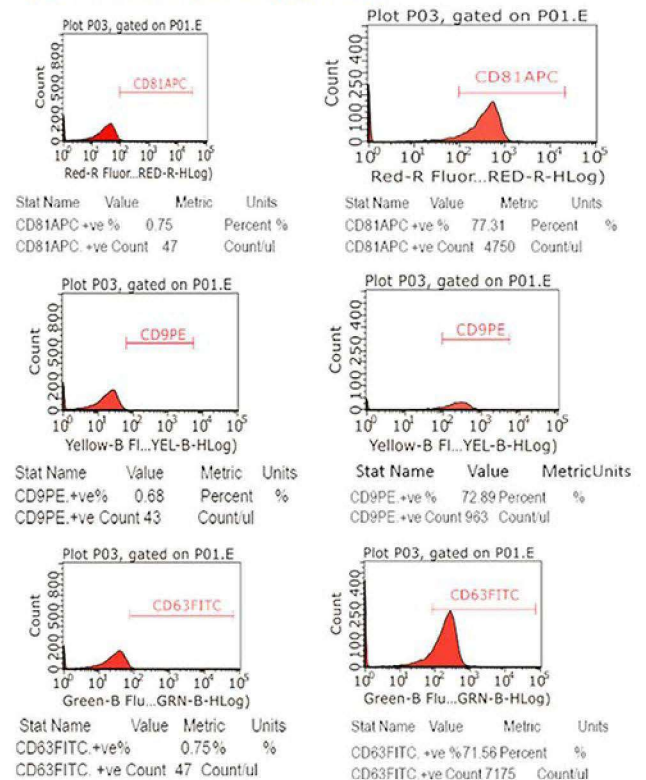
D. Systemic Evaluation of the size of hUC-MSC-EVs by Nanoparticle Tracking Analysis (NTA)



2	Dilution (1:500)	100 KD pass filtrate
	Mode	142 nm
	Concentration/ ml	1130x10s
Target Exosomes	Particle range (30-200nm) concentration/ ml	804x10s
	Total Exosomes in 15ml (30-200nm)	12060x10s

- i. NTA video frame of PBS passed through a 0.1-micron filter as a control.
- ii. NTA video frame of exosomes in validation concentrate.
- iii. The size distribution of EVs from test and control samples, while the average size of the EVs derived from MSCs was observed to be 142 nm, during analysis.

E. Flowcytometric Analysis of hUC-MSC-EVs protein surface expression.



1. Expression of CD81 APC was observed to be 77.31%, expression of CD9 PE was observed to be 72.89% and that of CD63 FITC was observed to be 71.75%.