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we know how

Exosome Products For Research and Diagnosis

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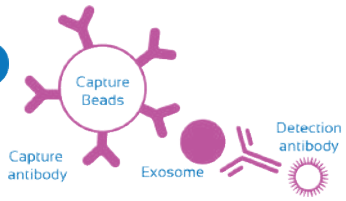
Human Exosome Detection Kits



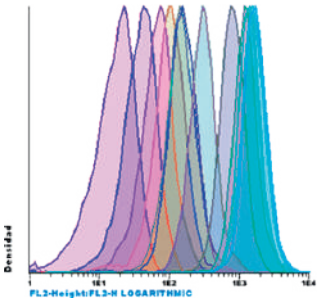
Still Peforming WB and NTA for detection and characterization of exosomes? Discover the most powerful reagents for exosome detection by flow cytometry.

The kit is a simple immunobead assay for isolation/detection of exosome, using a bead-bound capture antibody and a fluorochrome conjugated detection antibody. The kit provides reproducible results and can be run in parallel to exosome immunophenotyping.

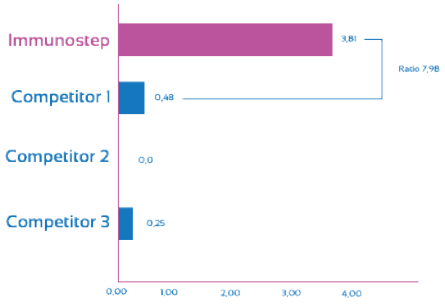
Immunostep's ExoStep[I], is intended for the immunoisolation (immunomagnetic or FACS) and Flow Cytometry analysis of pre-enriched human exosomes from biofluids (plasma, serum, urine) or cell culture media.

Main Characteristics of Exostep

1. Specific and unambiguos detection
2. Quantitative analysis, excellent correlation between fluorescence and the amount of exosomes
3. Direct detection of Exosomes in cell culture supernatant and biological fluids. Without isolation or precipitation
4. Very small amount of sample needed
5. Greater sensitivity, wide dynamic range. Guaranteed detection even with small sample quantities



Exostep cytometric histogram showing the dynamic range (0-128µg) of exosomes from PC3 Cell line using ExoStep.

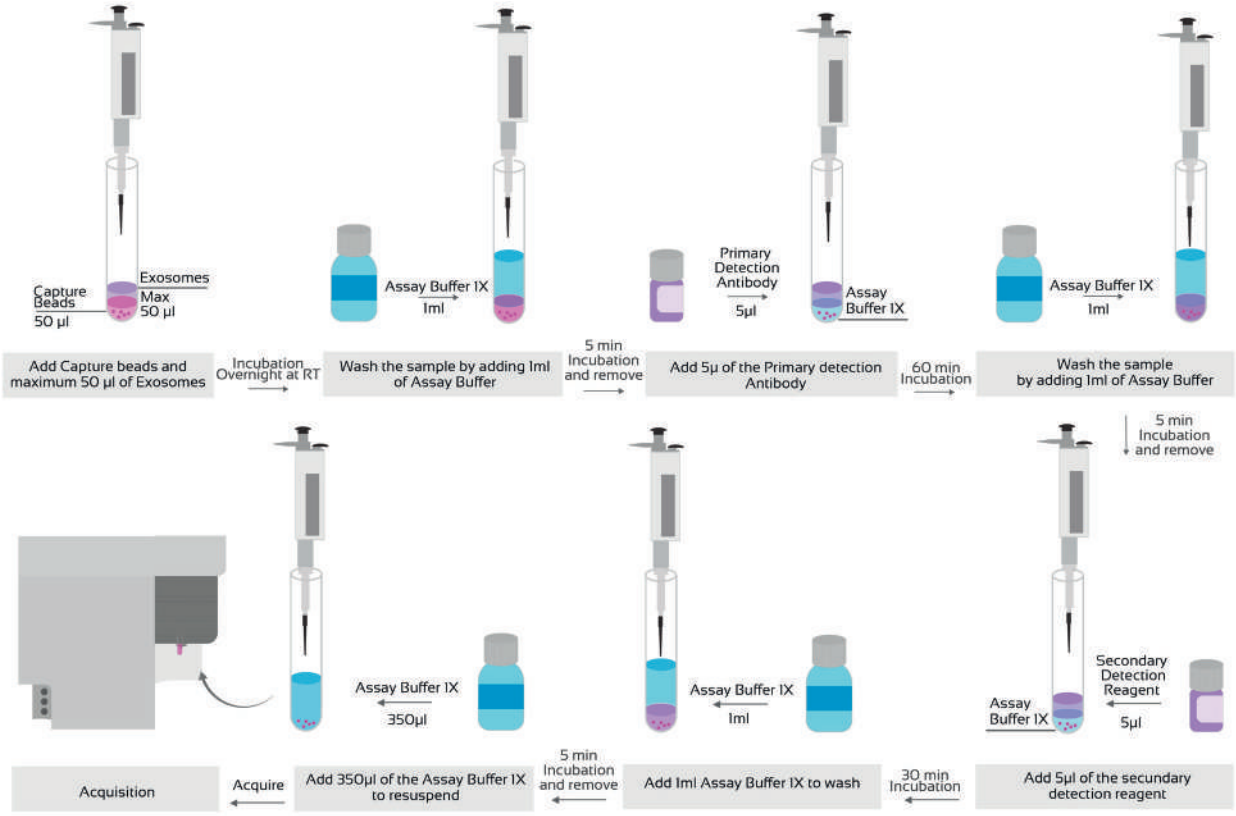


Sensitivity comparing among competitors

6. Reproducible
7. Allowing simultaneous immunophenotyping of exosomes capture population

(I)This kit was developed as part of a collaboration project between Immunostep, National Centre for Biotechnolgy, centre that forms part of the Spanish National Research Council (CNB-CSIC) and Fundación de la Universidad Autonoma de Madrid.

ExoStep Protocol- General Kit



Name	Unit size	Reference	Content of the Kit	Intended Use
Exostep™ Culture	25 tests	ExoS-25-C9	Superparamagnetic Capture Beads (CD63 Capture Beads) Primary detection antibody (CD9 PE) Assay Buffer 10X	This kit is intended for RUO in the detection of human exosomes from cell culture samples
Exostep™ Plasma	25 tests	ExoS-25-P81	Superparamagnetic Capture Beads (CD9 Capture Beads) Primary detection antibody (CD81 PE) Assay Buffer 10X	This kit is intended for RUO in the detection of human exosomes from Plasma samples
Exostep™ Urine	25 tests	ExoS-25-U9	Superparamagnetic Capture Beads (CD63 Capture Beads) Primary detection antibody (CD9 PE) Assay Buffer 10X	This kit is intended for RUO in the detection of human exosomes from Urine samples
Exostep™ Culture + Standard	50 tests	ExoS-50-CST9	Superparamagnetic Capture Beads (CD63 Capture Beads) Primary detection antibody (CD9 PE) Assay Buffer 10X Lyophilized exosomes (1x10^12) from PC-3 Human prostate cancer	This kit is intended for RUO in the detection of human exosomes from Cell Culture samples
Exostep™ Plasma + Standard	50 tests	ExoS-50-PST81	Superparamagnetic Capture Beads (CD9 Capture Beads) Primary detection antibody (CD81 PE) Assay Buffer 10X Lyophilized exosomes (1x10^12) from Human Serum	This kit is intended for RUO in the detection of human exosomes from Plasma samples
Exostep™ General Kit	25 tests	ExoS-25-G9 ExoS-25-G81	Superparamagnetic Capture Beads (CD63 Capture Beads) Primary detection antibody (CD9 Biotin) or (CD81 Biotin) Secondary detection reagent (PE Conjugated) Assay Buffer 10X	This kit is intended for RUO in the detection of human exosomes from cell culture supernatant and biological fluids

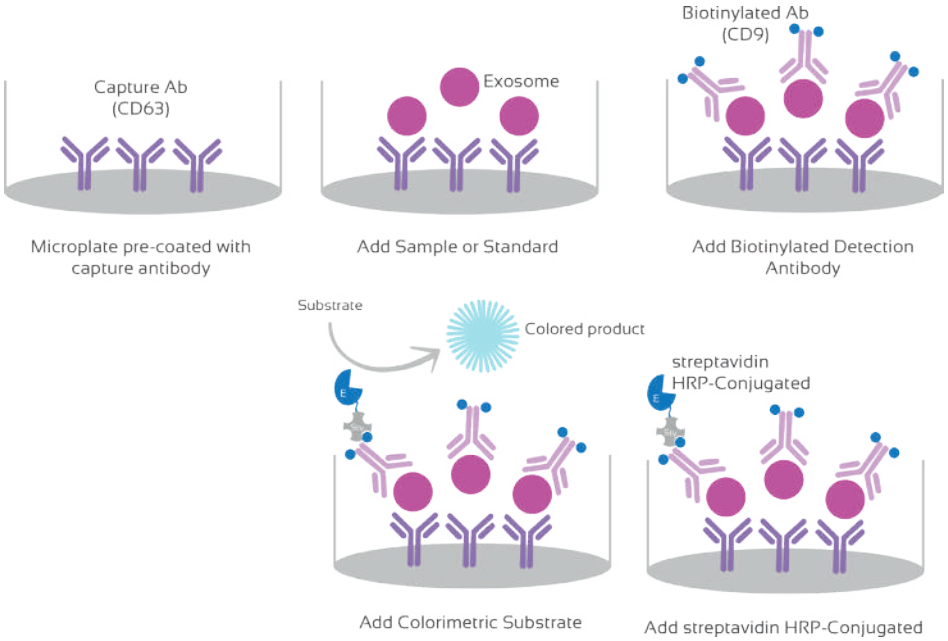
References: 1. Yáñez-Mó M, Siljander P, Andreu Z, Bedina Zavec A, Borràs F, Buzas E et al. Biological properties of extracellular vesicles and their physiological functions. Journal of Extracellular Vesicles. 2015;4(1):27066. 2.Campos S, Suárez H, Jara-Acevedo R, Linares-Espinós E, Martínez-Piñeiro L, Yáñez-Mó M, Valés-Gómez M. High sensitivity detection of extracelular vesicles immune-captured from urine by conventional flow citometry. Sci Rep. 2019; Feb 14;9(1):2042.

ExoELISA-Step Kit

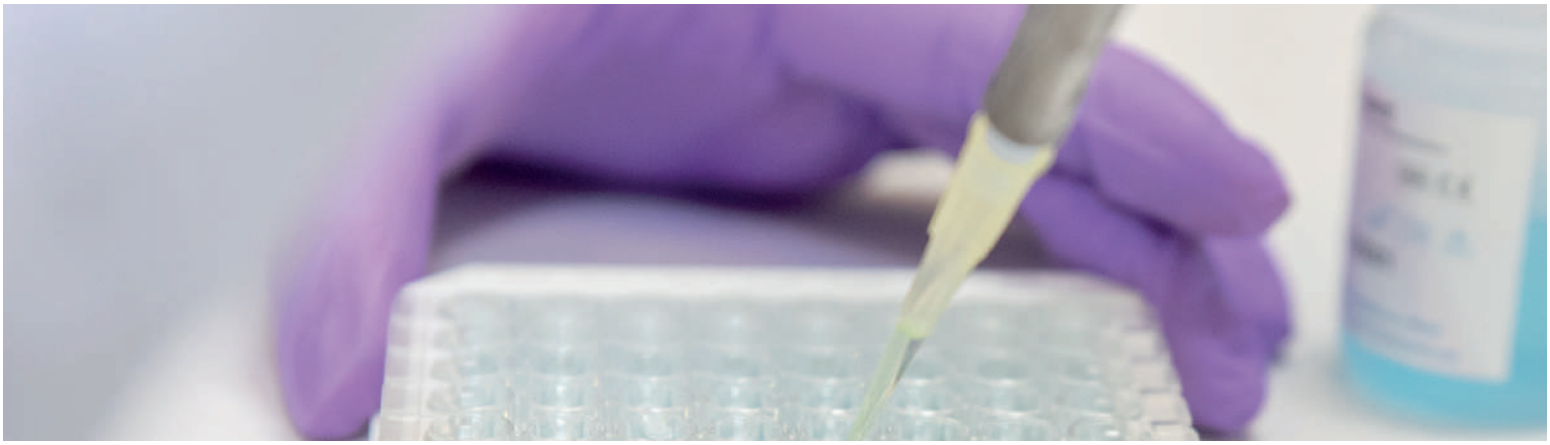
Based on original ExoStep, Immunostep introduces ExoELISA-Step kit. This kit is intended for the detection and quantification of exosomes by ELISA, which is an easy to perform and commonly used method.

Main Characteristics of ExoELISA-step

1. Direct detection of Exosomes in cell culture supernatant and biological fluids
2. Without isolation or precipitation
3. Successfully detecting and quantifying exosomes



Name	Unit size	Reference	Content of the Kit	Intended Use
ExoELISA-Step Serum/Plasma	96 tests	EXO2508	Standard (Serum/plasma) washing buffer, buffer diluent, primary antibod (CD9 biotin) y, HRP-Conjungated, substrate solution, stop solution and immunoplate and sealing film	This kit is intended for RUO in the detection of human exosomes from Plasma samples
ExoELISA-Step Cell Culture	96 tests	EXO2506	Standard for assay calibration (PC3), washing buffer, buffer diluent, primary antibod (CD9 biotin) y, HRP-Conjungated, substrate solution, stop solution and immunoplate and sealing film	This kit is intended for RUO in the detection of human exosomes from cell culture samples



Human Capture Beads

Specific exosomes purification from one cell type or exosome subpopulation characterization remains a challenge. Thanks to our human capture beads, it is possible to isolate specific exosomes among others, from biological fluids (serum, plamas, CSF, saliva, urine, etc.) without previous sample enrichment procedures.

Main Characteristics of Human Capture Beads

1. Allows the detection of isolated exosomes from different isolation techniques, such us differential ultracentrifugation, precipitation solutions or size exclusion chromatography columns
2. Direct detection in the sample without the need for ultracentrifugation
3. Compatible with downstream analysis (WB, mRNA, miRNA, etc.)

Product Description	Reference	Unit Size
Human CD9 Capture Beads for Flow Detection	9CB-25	25 test
Human CD63 Capture Beads for Flow Detection	63CB-25	25 test
Human CD81 Capture Beads for Flow Detection	81CB-25	25 test
Human CD326 (EpCAM) Capture Beads for Flow Detection	326CB-25	25 test
Human CD274 (PD-L1) Capture Beads for Flow Detection	274CB-25	25 test
Human IgG1 Capture Beads (Isotype Control) for Flow Detection	IGG1CB-25	25 test
Human IgG2a Capture Beads (Isotype Control) for Flow Detection	ICIGG2ACB-25	25 test

Mouse Exosome Detection Kits

Based on original ExoStep, Immunostep introduces its rodent ExoStep. This kit is intended for the flow cytometry analysis of pre-enriched CD63+ rodent exosomes from cell culture media and biological fluids.

1. Direct detection of Exosomes in cell culture supernatant and biological fluids
2. Without isolation or precipitation
3. Reproducible greater sensitivity

Name	Unit size	Reference	Content of the Kit	Intended Use
Mouse ExostepTM Culture	25 tests	MO2ExoS-25-C	Superparamagnetic Capture Beads (CD63 Capture Beads) Primary detection antibody (CD9 Biotin) Secondary detection reagent (PE Conjugated) Assay Buffer 10X	This kit is intended for RUO in the detection of mouse exosomes from Cell Culture samples
Anti-Mouse CD9 Antibody	25 tests	MO9BExo-25 MO9FExo-25	Biotin rat anti-mouse CD9 Antibody FITC rat anti-mouse CD9 Antibody	
Mouse CD63 Capture	25 tests	MO63CB-25	Beads for flow detection	

Custom-Made Immunobeads

Immunostep provides custom-made beads for research, academic or industrial needs. Just choose your coating antibody for exosomes capture and we will perfom all the conjugation and validation. Get further details at: https://www.immunostep.com

Human Exosomal Antibody Markers

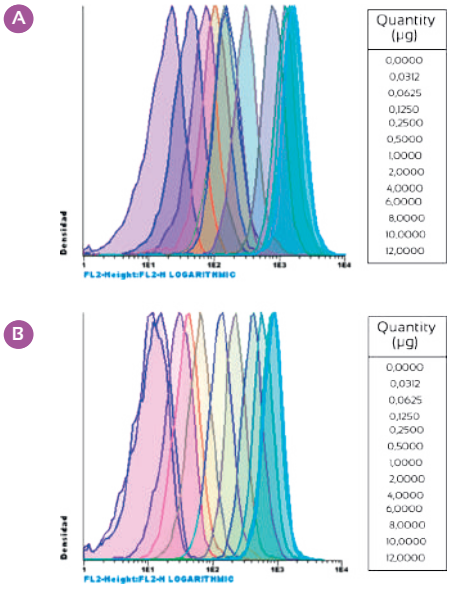
Antibodies are an essential tool for scientists in biomedical and diagnostic research. Antibodies targeted against exosome associated antigens (exosome marker antibodies: CD63, CD9, CD81, etc.) facilitate the characterization and/or quantification of exosomes in cells, tissues or other biological samples.

Immunostep offers a wide range and high quality multi-assay/species validated antibodies for various exosome markers. These antibodies are available in several different conjugated formats, with the right formulation for exosome detection. Besides, these antibodies can be used together with our Exostep Detection kit for exosome subpopulations characterization

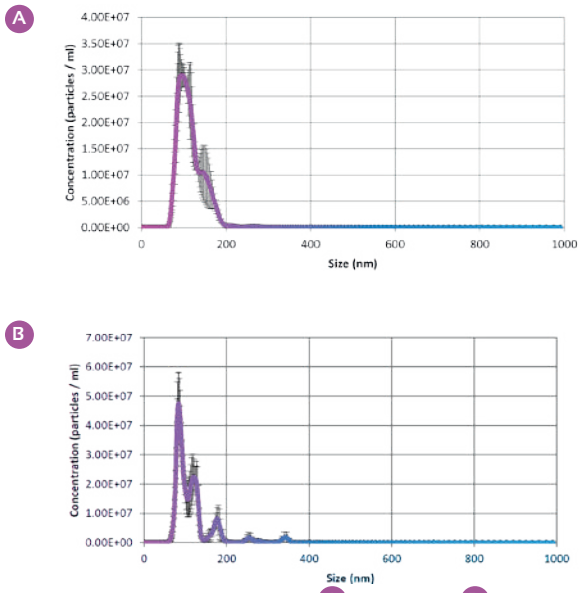
Product Description	Reference	Unit
Biotin Mouse anti-human CD63 Antibody	63BExo-25	25 µg
FITC Mouse anti-human CD63 Antibody	63FExo-25	25 µg
PE Mouse anti-human CD63 Antibody	63PEExo-25	25 µg
CF-Blue Mouse anti-human CD63 Antibody	63CFBEExo-25	25 µg
Biotin mouse anti-human CD9 Antibody	9BExo-25	25 µg
CF-Blue Mouse anti-human CD9 Antibody	9CFExo-25	25 µg
FITC mouse anti-human CD9 Antibody	9FExo-25	25 µg
PE mouse anti-human CD9 Antibody	9PEExo-25	25 µg
PE mouse anti-human CD81 Antibody	81PEExo-25	25 µg
Biotin mouse anti- human CD326 Antibody	326BExo-25	25 µg
FITC mouse anti-human CD326 Antibody	326FExo-25	25 µg
PE mouse anti-human CD326 Antibody	326PEExo-25	25 µg
Biotin mouse anti-human CD81 Antibody	81BExo-25	25 µg
CF-Blue mouse anti-human CD81 Antibody	81CFExo-25	25 µg
FITC mouse anti-human CD81 Antibody	81FExo-25	25 µg

Lyophilized Exosome Standards

The highest pure Lyophilized Exosome Standards from human biofluids (plasma, serum) and different cell culture media. Immunopstep lyophilized standards have been validated by WB and FCM, for overall protein content and particle number by Nanoparticles Tracking Analysis (NTA).



Dynamic range of fresh A and lyophilized B PC3 exosomes analyzed by flow cytometry. Relationship between background noise and specific signal at different exosome concentrations. Exosomes were captured by CD63+ (Clone TEA3/18) capture beads and subsequently detected by Anti-CD9 PE (Clone VJ1/20).



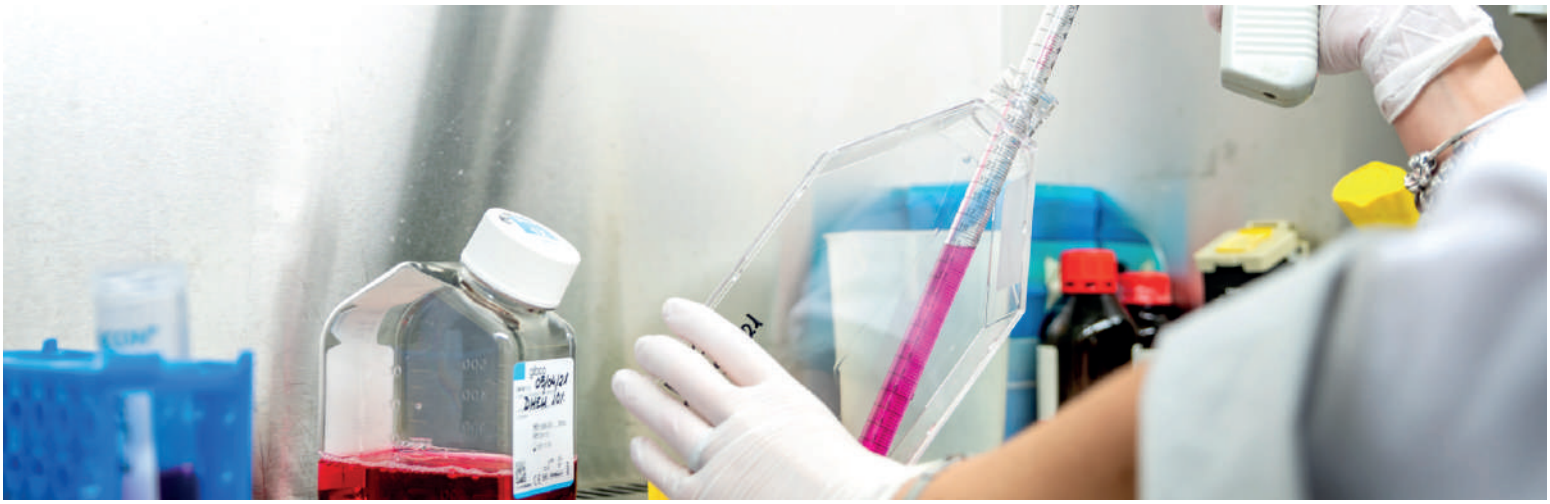
Exosome analysis and comparative of fresh A and lyophilized B plasma exosomes for particle size and concentration by NTA, NanoSight LM10HSB. Analysis was carried out with 1 µl of purified exosomes diluted in 999 µl of HEPES buffer (diution 1:1000). The purified exosomes showed a size distribution profiles, with peak diameters from 50 – 150 nm and concentrations about 1x1010 exosomes/ml.

1. Highly pure exosomes, providing better performance than competitors
2. Guaranteed stability thanks to an exclusive lyophilization procedure
3. Exhaustive validation batch to batch, by WB, NTA, cytometry and functional analysis in vitro
4. Tested in application for Medicine Regenerative, Skin, dermatological and pharma companies
5. miRNA content of our exosome cell lines provided

Product Description	Reference	Unit Size
Exosomes from PC-3, a human metastatic prostate cancer cell line	ExoPC3	100 µg
Exosome from HT-29, a human colon cancer cell line	ExoHT29	100 µg
Exosome from MCF-7, a human breast cancer cell line	ExoMCF7	100 µg
Exosome from Serum, human Serum	ExoSERUM	100 µg
Exosomes from A-375, a human malignant melanoma cell line	ExoA375	100 µg
Adipose-derived Mesenchymal stem/stromal cells (MSCs) derived exosomes	ExoMSC	100 µg
Exosomes from RPMI, a human myeloma cell line	ExoRPMI	100 µg
Exosomes from CaCo2, a human colon cancer cell line	ExoCaCo2	100 µg
Exosomes from A-549, a human lung cancer cell line	ExoA549	100 µg
Exosomes from PANC-1, a human pancreas cancer cell line	ExoPANC1	100 µg

Custom-Made Standards

Immunostep provides custom-made standards for research, academic or industrial. Get further details at: https://www.immunostep.com



MOST POPULAR ISOLATION TECHNIQUES

The biological characterization of exosomes requires in most cases the isolation of intact exosomes. In this sense, a large number of methods have been developed for the isolation of exosomes from biological fluids, among which are ultracentrifugation, chromatography, filtration, immunological separation and polymer-based precipitation. Each one of these methods presents its advantages and disadvantages, being the duration of the method, the need to have specialized equipment, the volume of sample, the purity and the low recovery, some of the disadvantages that these methods present.

IMMUNOSTEP offers two of the most common techniques for exosomes isolation with all the guarantees:

Exosome Precipitation Solution

Immunostep's Exosome Precipitation Solution, is intended for the extracellular vesicles (EVs) and specifically exosomes (~50-150 nm) from cell culture media and biofluids (plasma, serum, urine).

Main Characteristics of Exosome Precipitation Solution

1. Easy & rapid precipitation solution. Ultracentrifugation free method
2. Very clean & better exosomes preparation, reduces carry-over o albumins and immunoglobulins compared to other methods
3. Obtain intact exosome suitable for a great variety of protein-sensitive applications and downstream uses
4. Increase biomarker sensitivity detection

Product Description	Reference	Sample	Unit Size
Exostep Solution	EPStep	Cell Culture Media, Urine	12 ml
Exosome precipitation from plasma and serum	EPStep-PS	Plasma, Serum	5 ml
Exosome precipitation from Plasma + Trombin	EPStep-T	Plasma	5 ml

Exosome Solutions & Buffers

Improve your reseach with our exclusive solutions & buffers.

Product Description	Reference	Information	Unit Size
Exosome Detachment Solution	EDSTEP	Designed to elute the exosomes from the antibody-bead complex and allow downstream analysis without interferences	10 ml
Wash Buffer Solution (10X)	IMS0515	Contains 10 % albumin in 10mM sodium phosphate, 150 mM NaCl, pH 7.4, and KATHON anti-microbial agent	20 ml

Immunostep provides custom-made reagents for research, academic or industrial. Get further details at: https://www.immunostep.com

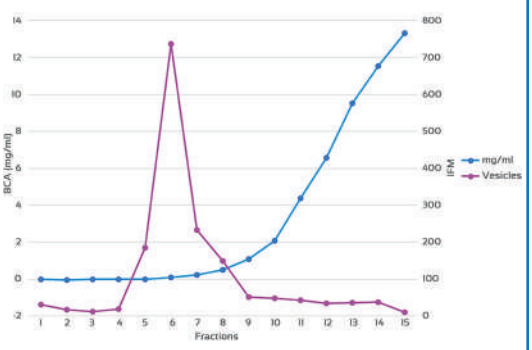
Exosome Isolation Columns

Size exclusion chromatography (SEC) has been described as most efficient method for isolating EVs from complex biological fluids by single-step, with a good recovery and with almost complete removal of contaminants, such as proteins and lipoproteins. Immunostep has developed 70nm and 35nm SEC columns for EVs isolation from complex biological fluids such as: plasma, serum, urine and cerebral spinal fluid.

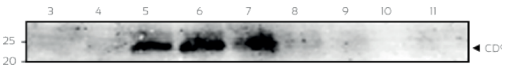
Main Characteristics of Exosome Isolation Columns

1. Save Time: easy, and rapid method
2. High purity: protein removal & HDL purification
3. Excellent recovery: method that maximices recovery (>50%)
4. No aggregation: method that reduces the risk of protein complex formation and vesicle aggregation
5. Indicated for low volumens
6. Standarisable & reproducible
7. Protocol compatible with RNAs extraction and RT-PCR

Elution Profile

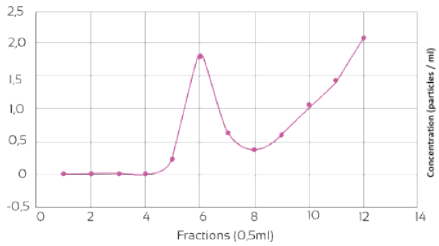


Amount of EVs and protein in each fraction from the column. Comparative of protein (BCA) vs vesicles (FACS CD63+/CD9+) content.

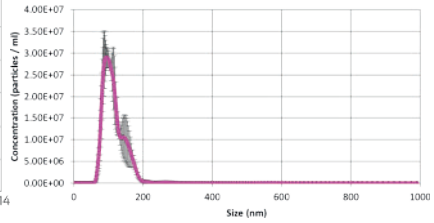


Western Blot. SEC fractions were loaded on SD-PAGE and immunoblotted for CD9 tetraspanin with anti-CD9 (VJ1/20), under no-reducing conditions

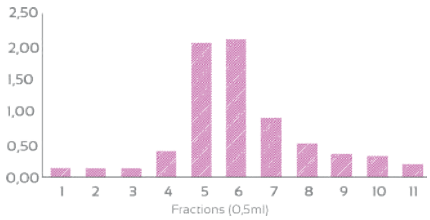
Exosome Plasma isolated by SEC



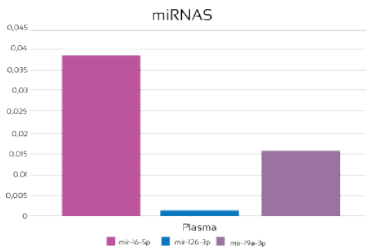
EVs isolation from plasma sample. Elution profile monitored by abs (280).



NanoSight anaylisis of the EVs recovered from Plasma by SEC columns.



Flow cytometric Analysis of elution fractions. Stain Index = (MFI Positive-MFI background 2σ background)



Exosomal miRNA levels by quantitative RT-PCR.

Product Description	Reference	Unit Size
EVs SEC 70nm - 4 pack	SEC7012-4	4 Columns
EVs SEC 70nm - 8 pack	SEC7012-8	8 Columns
EVs SEC 35nm - 4 pack	SEC3512-4	4 Columns
EVs SEC 35nm - 8 pack	SEC3512-8	8 Columns