

# Lyophilized Exosomes and Microvesicles

The best standards for EV research

Highly pure lyophilized Exosomes or Microvesicles from human biofluids (plasma, serum, urine, saliva and different cell culture media).

## Save time and get pure EVs for your research

HBM-LS lyophilized Exosomes and Microvesicles are isolated through a combination of TFF and size exclusion chromatography. Vesicles are subsequently quantified and validated for overall protein content and particle number by Nanoparticles Tracking Analysis (NTA, Zetaview). Lyophilization does not alter the stability of exosome proteins and nucleic acids, in comparison to other storage methods, including storage of fresh EVs at -20°C. Lyophilized EVs are easy to ship and stable for long term storage (up to 36 months).

## Lyophilized EVs from Mesenchymal Stem Cells

HBM-LS offers Exosomes and Microvesicles (see pag 10) isolated from adipose-tissue derived MSC (pool of 20 different clones).

The product is FOR RESEARCH USE ONLY.

Lyophilized Exosome and Microvesicles from MSC		
Exosomes	Microvesicles	Cell origin
HBM-MSC	HBM-mvMSC	Adipose tissue derived MSC (pool of 20 clones)

**NEW  
PRODUCT**

Cat Code		Source
Lyophilized Exosome Standards from Human Biofluids		
HBM-PEP	Lyophilized Exosome from Human Plasma of healthy donors	
HBM-PES	Lyophilized Exosome from Human Serum of healthy donors	
HBM-PEU	Lyophilized Exosome from Human Urine of healthy donors	
HBM-PESL	Lyophilized Exosome from Human Saliva of healthy donors	
Lyophilized Exosome and Microvesicles from Cell Culture Media		
Exosomes (40 - 120 nm)	Microvesicles (> 100 nm)	Cell origin
HBM-COLO1	HBM-mvCOLO	COLO1 cell line (Human colon carcinoma)
HBM-MM1	HBM-mvMM1	MM1 cell line (Human melanoma)
HBM-BLCL	HBM-mvBLCL	BLCL21 cell line (EBV transformed lymphoblastoid B cells)
HBM-HCT	HBM-mvU87	HCT116 cell line (Human colon carcinoma)
HBM-U87	HBM-mvSK	U87 MG cell line (Human glioblastoma astrocytoma)
HBM-SK	HBM-mvHCT	SK-N-SH cell line (Human neuroblastoma)
HBM-PC3	HBM-mvPC3	PC3 cell line (Human Prostate adenocarcinoma grade IV)
HBM-BPH	HBM-mvBPH	BPH-1 cell line (Human being prostatic hyperplasia)
HBM-DAUDI	HBM-mvDAUDI	DAUDI cell line (Human Burkitt Lymphoma)
HBM-A549	HBM-mvA549	A549 cell line (Lung carcinoma)
HBM-K562	HBM-mvK562	K-562 cell line (Leukemia chronic myelogenous)
HBM-HEK293	HBM-mvHEK293	HEK293 cell line (Human embryonic kidney)
HBM-B16F10	HBM-mvB16	B16F10 mouse cell line (mouse melanoma cell line)
Lyophilized Exosome Standards are sold in vials containing 100 µg or 30 µg of total protein (Particles/ml > 1x10 <sup>10</sup> ). Microvesicles are sold in vials containing 50 µg of total protein content. HBM-LS can provide, upon request, Exosome Standards and Cell Lysates from more than 100 different tumor cell lines. Contact us at <a href="mailto:info@hansabiomed.eu">info@hansabiomed.eu</a>		

## Applications

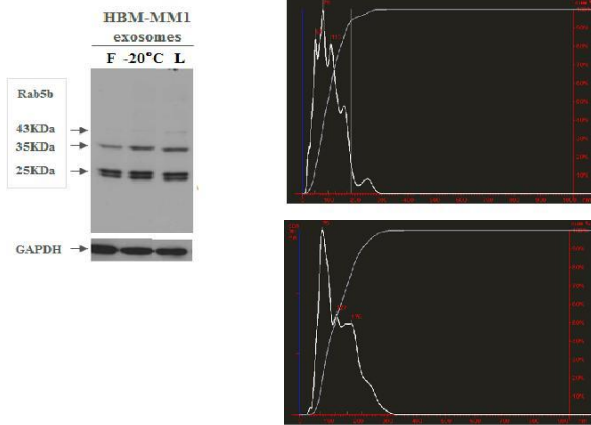
- Assay calibration
- Control (spike-in) for EV quantification.
- Protein marker analysis using different techniques
- Extraction and analysis of nucleic acids
- Flow cytometry
- Electron microscopy

## Advantages

- High quality purified exosomes
- Intact shape of exosomes
- Easy to reconstitute
- Easy to ship and store (+4°C)
- Long term storage stability (36 months)
- Exosomes available from a large cell line bank (over 100 cell lines).

## Lyophilization is the ideal method for preparing and preserving EV stability for long-term storage at +4°C

Comparison of the effect of lyophilization vs freezing at -20°C. No difference in protein expression at WB and exosome integrity at NanoSight respectively.

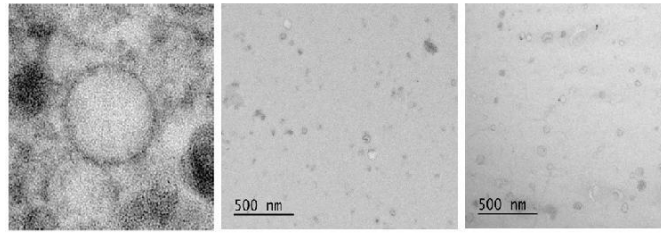


1. Western Blot comparison of exosome markers on fresh (F), frozen (-20°C) and lyophilized exosomes (L)

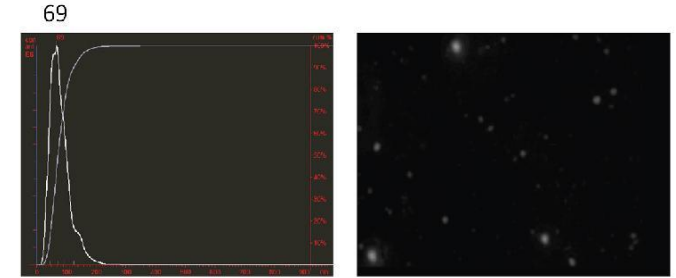
2. Comparative NanoSight analysis of fresh-ly purified (upper panel) and lyophilized plasma exosomes (lower panel).

## HBM-LS Exosome are suitable for multiple applications in extracellular vesicle research

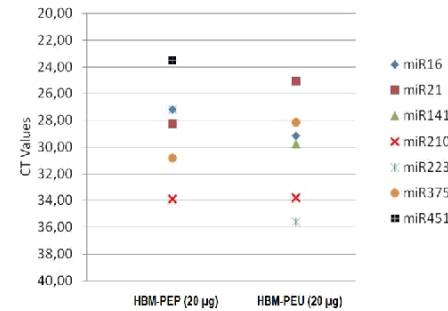
### Electron Microscopy



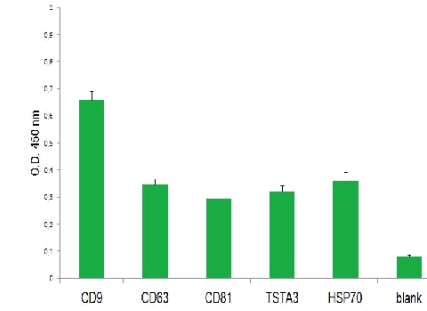
### Nano Tracking Analysis (NTA)



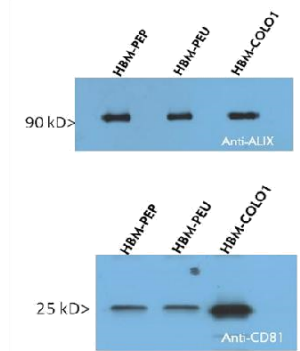
### miRNA profiling



### ELISA profiling



### Western Blotting



## References

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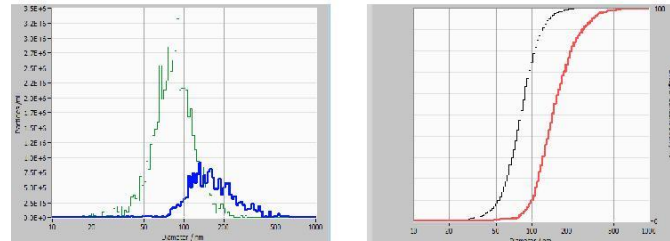
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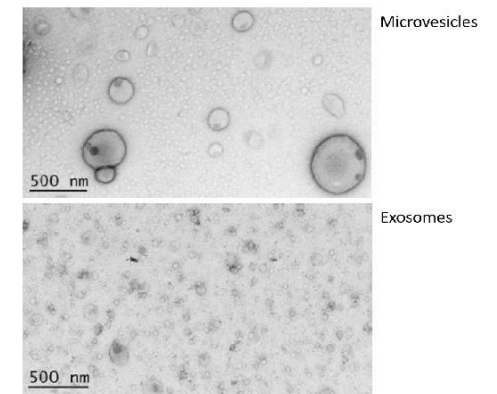
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## HBM-LS Microvesicles are suitable for size distribution, EM and biomarker studies

Lyophilized Microvesicles have the same versatility of lyophilized exosomes, being suitable for multiple applications and techniques. Compared to the Exosomes, MV show bigger dimensions and different size distribution, as revealed by NTA analysis and electron microscopy (Fig 3 and 4).



3. Size distribution of Exosomes (green line left panel, black line right panel) vs microvesicles (blue line left panel, red line right panel), performed by the Zetaview (Particle Metrixx).



4. Electron microscopy images of the Lyophilized Exosomes and lyophilized Microvesicles.