

Extracellular Vesicles

EVs 攻略



PURE-EVs Columns
TFF-Easy Tangential Flow Filter for EV concentration
Purified Exosomes and Microvesicles



Exo - Flow Capture Kit
ExoFlow - ONE EV Labeling Kit
ExoGlow™ EV Labeling Kit
ExoGlow™- NTA Fluorescent Labeling Kit



ZetaView® Nanoparticle
Tracking Analyzer

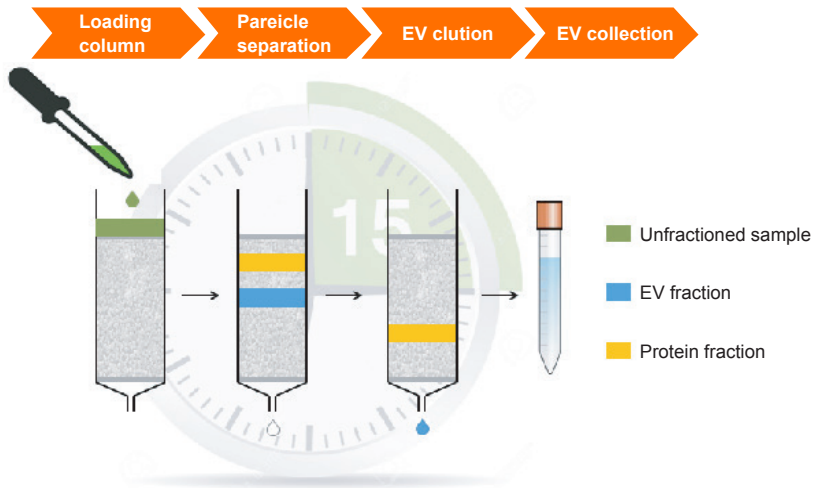


PURE-EVs Columns

粒徑篩析層析法 (Size Exclusion Chromatography : SEC)

SEC 被視為分離和純化 exosomes 及其他 extracellular vesicles (EVs) 最佳的方法之一。HansaBioMed Life Sciences 推出的 SEC 管柱 – Pure-EVs Columns 能有效的將 EVs 從其他分子如蛋白質中純化出來，而且還能完整的保留其形狀及功能。

- 適用於生物性樣本 (plasma, serum, urine) 和 cell culture media
- 快速純化，15 分鐘完成
- 可以重複使用 (最多 5 次)
- 便利性高，4°C 保存及運送
- 分離的 exosomes 後續適用於各類分析，如 NTA, ELISA, FACS, WB, EM, MS, 核酸萃取等



▶ 提供三種不同大小的管柱，適用不同體積的樣本來源 (100 μ l – 20 mL)



miniPURE-EVs



PURE-EVs



maxiPURE-EV

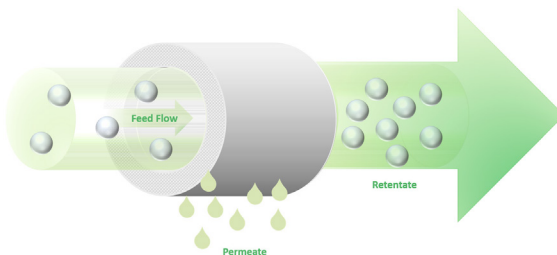
貨號	適用體積	包裝
miniPURE-EV : Size Exclusion Chromatography columns		
HBM-mPEV-1	100 μ l - 500 μ l	1 Column
HBM-mPEV-10	100 μ l - 500 μ l	10 Columns
HBM-mPEV-20	100 μ l - 500 μ l	20 Columns
PURE-EV : Size Exclusion Chromatography columns		
HBM-PEV-1	500 μ l - 2 ml	1 Column
HBM-PEV-5	500 μ l - 2 ml	5 Columns
HBM-PEV-10	500 μ l - 2 ml	10 Columns
maxiPURE-EV : Size Exclusion Chromatography columns		
HBM-mxPEV-1	1 ml - 20 ml	1 Column
HBM-mxPEV-10	1 ml - 20 ml	10 Columns
HBM-mxPEV-20	1 ml - 20 ml	20 Columns

TFF-Easy Tangential Flow Filter for EV concentration

切向流過濾 (Tangential flow filtration ; TFF)

TFF 為一種用於分離及純化生物分子的方法，也可用來濃縮及樣本的脫鹽處理。HansaBioMed 推出的 TFF-Easy，以 polysulfone 合成的中空纖維 (20 nm) 作為濾芯，可以在 EVs 純化前濃縮、去除稀釋樣本 (如細胞培養液、尿液等) 中的小蛋白質和分子。

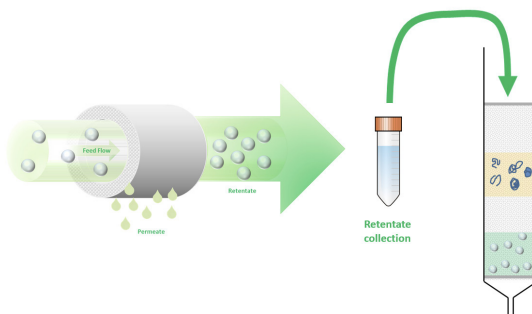
- 樣本體積：5 mL ~ Liters
- 可沖洗並且重複使用多次
- 可用於 EVs 透析和 EVs 脫鹽過程
- 無菌包裝，也可通過 β 輻射進一步滅菌



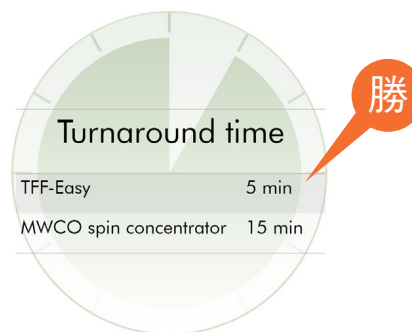
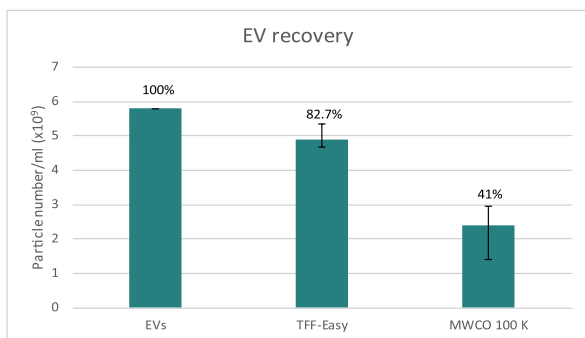
- ▶ TFF-Easy 可與不同尺寸的注射器一起手動使用，也可連接到機械泵上以濃縮大量的液體



- ▶ TFF-Easy 先濃縮樣本，再搭配 PURE-EVs columns 純化 Exosomes，大大提升純度！



- ▶ 比較 TFF-Easy 與 M 牌 concentrator 後續樣本的回收量，TFF-Easy 省時又表現優異！

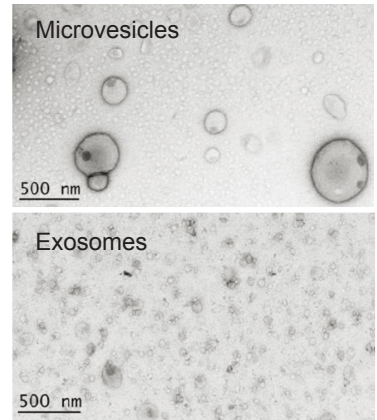


貨號	產品	包裝
HBM-TFF	TFF-Easy - tangential flow filtration concentrator	1 concentrator

Purified Exosomes and Microvesicles

HansaBioMed 提供一系列不同來源的高純度、粉末狀 exosomes 和 microvesicles。產品經由 tangential flow filtration (TFF), size exclusion chromatography (SEC) 和 microfiltration 純化而得，並且通過 Particle Metrix Zetaview 對分離出來的 EVs 進行總蛋白含量、大小分佈和顆粒數的定量及驗證。

- 高品質、高純度 **exosomes** 標準品
- 粉末狀態，4°C 保存和運送，易於回溶
- **36 months** 長期保存依舊穩定
- 多種選擇
 - Lyophilized Exosomes from cell conditioned media
 - Lyophilized Exosomes from MSC
 - Lyophilized Exosomes from human biofluids (plasma, serum, urine and saliva of healthy donor pools)
 - Lyophilized Microvesicles from cell conditioned media
 - Lyophilized Microvesicles from MSC
 - Green fluorescent labeled Exosomes and Microvesicles



► Purified EVs 的應用

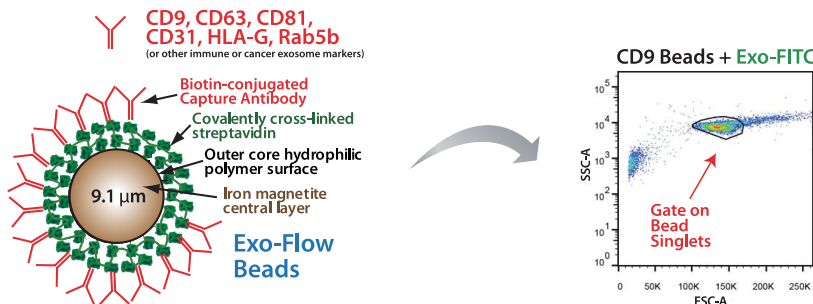
校正分析 / Spike-in control / EV 量化 / 蛋白質標記分析 / 核酸萃取與分析 / 流式細胞術 / 電子顯微鏡

貨號		來源
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-mvHCT	HCT116 cell line (Human colon carcinoma)
HBM-U87	HBM-mvU87	U87 MG cell line (Human glioblastoma astrocytoma)
HBM-SK	HBM-mvSK	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)
HBM-MSC	HBM-mvMSC	Adipose tissue derived MSC (pool of 20 clones)

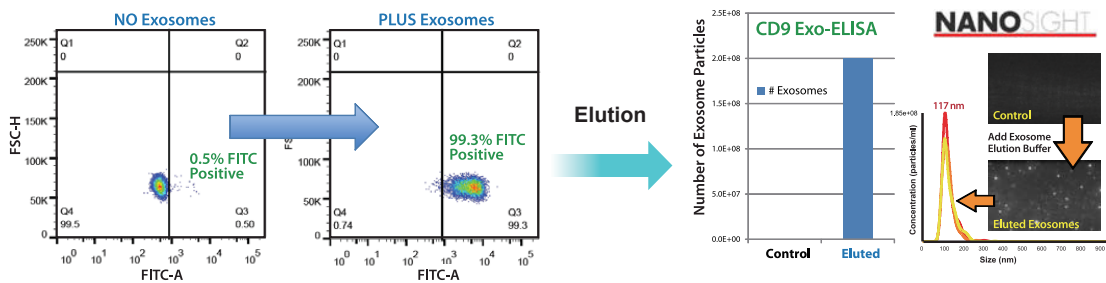
Exo - Flow Capture Kit

- 利用 **Tetraspanins**、**Adhesion**、**Antigen presentation** 或 **Fusion** 等相關的抗體或其他 **biotinylated antibody** 與磁珠結合抓取特定的 **exosomes**
- 大的磁珠表面積 (**9.1um**)，大幅增加抓取 **exosome** 的效率
- 透過 **Exo-FITC stain** 或 **Exo-APC stain**，將純化得到的 **exosomes** "塗上" 螢光，以便進行後續分析。純化的 **Exosomes** 能被完整 **elute** 出來，以便進一步的分析

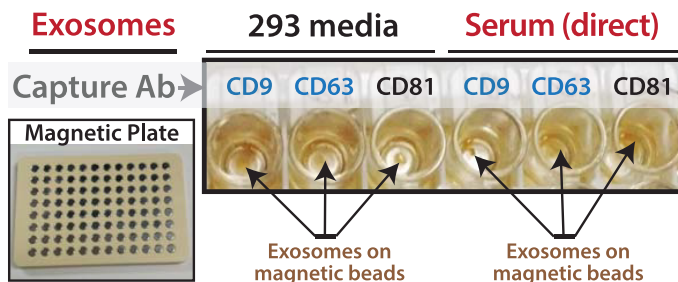
▶ 透過 beads 放大 Exosomes，輕鬆截取 Exosomes 的訊號



▶ Sorting 下來的 exosome 依然可以應用於下游實驗分析



▶ 亦可用磁座直接 IP 您要的 Exosomes

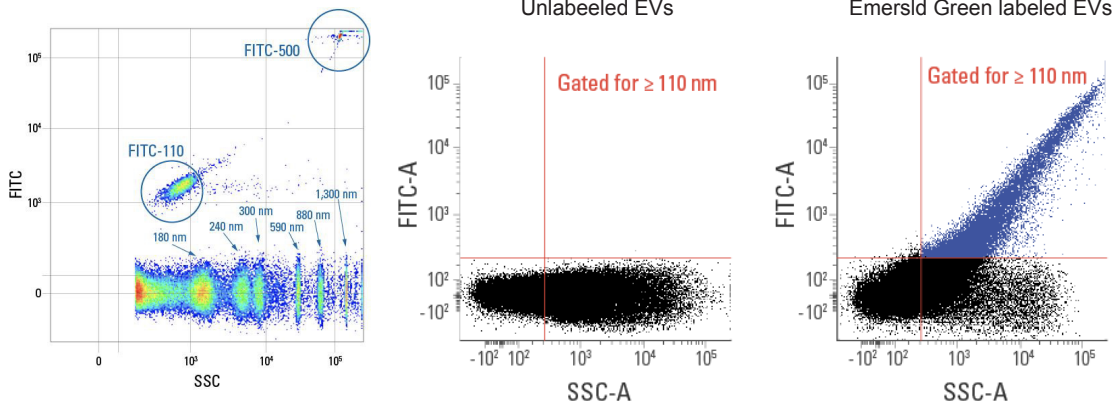


貨號	產品	包裝
EXOFLOW100A-1	CD9 Exo-Flow capture kit (Magnetic streptavidin beads, CD9-biotin capture antibody, Wash and Elution Buffers, Exo-FITC stain)	10 reactions
EXOFLOW150A-1	Tetraspanin Exo-Flow Combo capture kit (Magnetic streptavidin beads, CD9, CD63, and CD81-biotin capture antibodies, Wash and Elution Buffers, Exo-FITC stain)	10 reactions
EXOFLOW200A-1	CD31 Exo-Flow capture kit (Magnetic streptavidin beads, CD31-biotin capture antibody, Wash and Elution Buffers, Exo-FITC stain)	10 reactions
EXOFLOW210A-1	CD44 Exo-Flow capture kit (Magnetic streptavidin beads, CD44-biotin capture antibody, Wash and Elution Buffers, Exo-FITC stain)	10 reactions
EXOFLOW300A-1	CD63 Exo-Flow capture kit (Magnetic streptavidin beads, CD63-biotin capture antibody, Wash and Elution Buffers, Exo-FITC stain)	10 reactions
EXOFLOW400A-1	CD81 Exo-Flow capture kit (Magnetic streptavidin beads, CD81-biotin capture antibody, Wash and Elution Buffers, Exo-FITC stain)	10 reactions
EXOFLOW500A-1	Rab5b Exo-Flow capture kit (Magnetic streptavidin beads, Rab5b-biotin capture antibody, Wash and Elution Buffers, Exo-FITC stain)	10 reactions
EXOFLOW600A-1	HLA-G Exo-Flow capture kit (Magnetic streptavidin beads, HLA-G-biotin capture antibody, Wash and Elution Buffers, Exo-FITC stain)	10 reactions
EXOFLOW610A-1	CD14 Exo-Flow capture kit (Magnetic streptavidin beads, CD14-biotin capture antibody, Wash and Elution Buffers, Exo-FITC stain)	10 reactions
EXOFLOW620A-1	CD68 Exo-Flow capture kit (Magnetic streptavidin beads, CD68-biotin capture antibody, Wash and Elution Buffers, Exo-FITC stain)	10 reactions
EXOFLOW630A-1	EpCAM Exo-Flow capture kit (Magnetic streptavidin beads, EpCAM-biotin capture antibody, Wash and Elution Buffers, Exo-FITC stain)	10 reactions
EXOFLOW650A-1	Alpha-2-Macroglobulin (A2M) Exo-Flow capture kit (Magnetic streptavidin beads, A2M-biotin capture antibody, Wash and Elution Buffers, Exo-FITC stain)	10 reactions
EXOFLOW660A-1	CD73 Exo-Flow capture kit (Magnetic streptavidin beads, CD73-biotin capture antibody, Wash and Elution Buffers, Exo-FITC stain)	10 reactions
EXOFLOW32A-CD63	Exo-Flow32 CD63 IP kit	32 reactions
EXOFLOW32A-CD81	Exo-Flow32 CD81 IP kit	32 reactions
EXOFLOW32A-CD9	Exo-Flow32 CD9 IP kit	32 reactions
EXOFLOW32A-Tetra	Exo-Flow32 Tetra IP kit (CD9, CD63, CD81)	32 reactions
EXOFLOW96A-CD63	Exo-Flow96 CD63 IP kit	96 reactions
EXOFLOW96A-CD81	Exo-Flow96 CD81 IP kit	96 reactions
EXOFLOW96A-CD9	Exo-Flow96 CD9 IP kit	96 reactions
EXOFLOW96A-Tetra	Exo-Flow96 Tetra IP kit (CD9, CD63, CD81)	96 reactions

ExoFlow - ONE EV Labeling Kit

- 利用染劑標定內部 EV 的蛋白質，高量子效率，低背景值，可解析單顆 Vesicles
- 有 5 個顏色可以選擇：Ruby Red, Garnet Far Red, Emerald Green, Topaz Blue, and Citrine Yellow
- 另附 bead size standards (110 nm – 1300 nm)，協助設定參數，截取 ≥ 110 nm EVs 的訊號
- 方便進行多重 markers 分析

► Bead size standards 在 110nm 和 500nm beads 帶有綠螢光，協助設定參數，gate ≥ 110 nm Evs 進行分析。



貨號	產品	包裝	Excitation/Emission wavelength	Recommended laser line
EXOF100A-1	ExoFlow-ONE EV Labeling Kit for Flow Cytometry (Ruby Red)	25 reactions	573/588 nm	561 nm
EXOF200A-1	ExoFlow-ONE EV Labeling Kit for Flow Cytometry (Garnet Far Red)	25 reactions	628/643 nm	633 nm
EXOF300A-1	ExoFlow-ONE EV Labeling Kit for Flow Cytometry (Emerald Green)	25 reactions	511/525 nm	488 nm
EXOF400A-1	ExoFlow-ONE EV Labeling Kit for Flow Cytometry (Topaz Blue)	25 reactions	403/454 nm	405 nm
EXOF500A-1	ExoFlow-ONE EV Labeling Kit for Flow Cytometry (Citrine Yellow)	25 reactions	542/ 556 nm	532 nm

ExoGlow™ EV Labeling Kit

■ For Internal EV Protein Labeling : ExoGlow™- Protein EV Labeling Kit

屬於 Amine reactive dyes，具膜穿透性，穩定期長達 7 天
非螢光狀態的染劑穿透膜進入 EV 之後，與裡面的酵素（蛋白質）反應之後轉換成螢光狀態

■ For Internal EV mRNA Labeling : ExoGlow™- RNA EV Labeling Kit

帶有螢光基團的 poly-T 可以與 exosome 內的 mRNA 結合

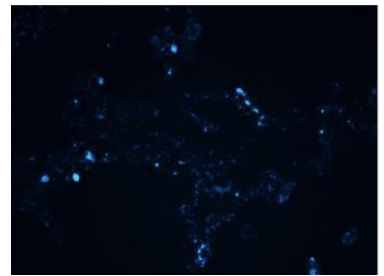
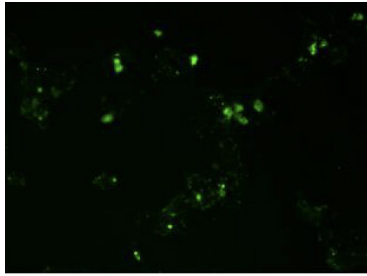
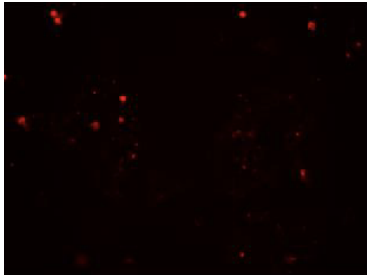
■ For EV Membrane Labeling : ExoGlow™- Membrane EV Labeling Kit

針對 membrane 做結合，完整的 EV 其細胞膜上會帶有膜電位，此電位會使非螢光狀態的染劑轉換成螢光狀態

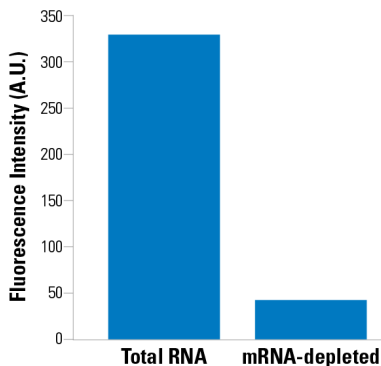
■ For *in vivo* tracking : ExoGlow™- Vivo EV Labeling Kit

高靈敏度，利用近紅外光可追蹤被深層組織吸收的 EVs
高特异性，非親脂性染劑減少了非特异性的背景

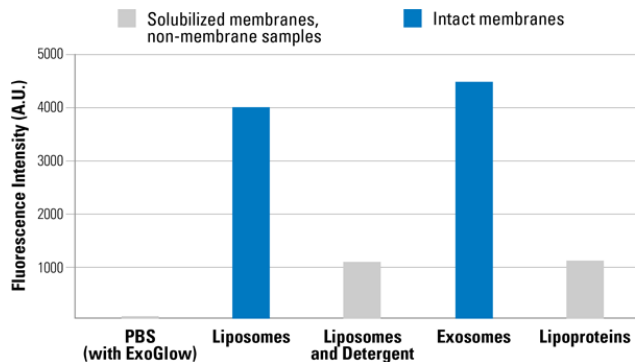
▶ ExoGlow-protein 有 3 種顏色可選，紅、綠、藍。



▶ ExoGlow-RNA，無 mRNA 時，就不會有與 poly T probe 結合。



▶ ExoGlow-membrane，當 liposomes 被破壞時（細胞膜不完整），就無法被染色。

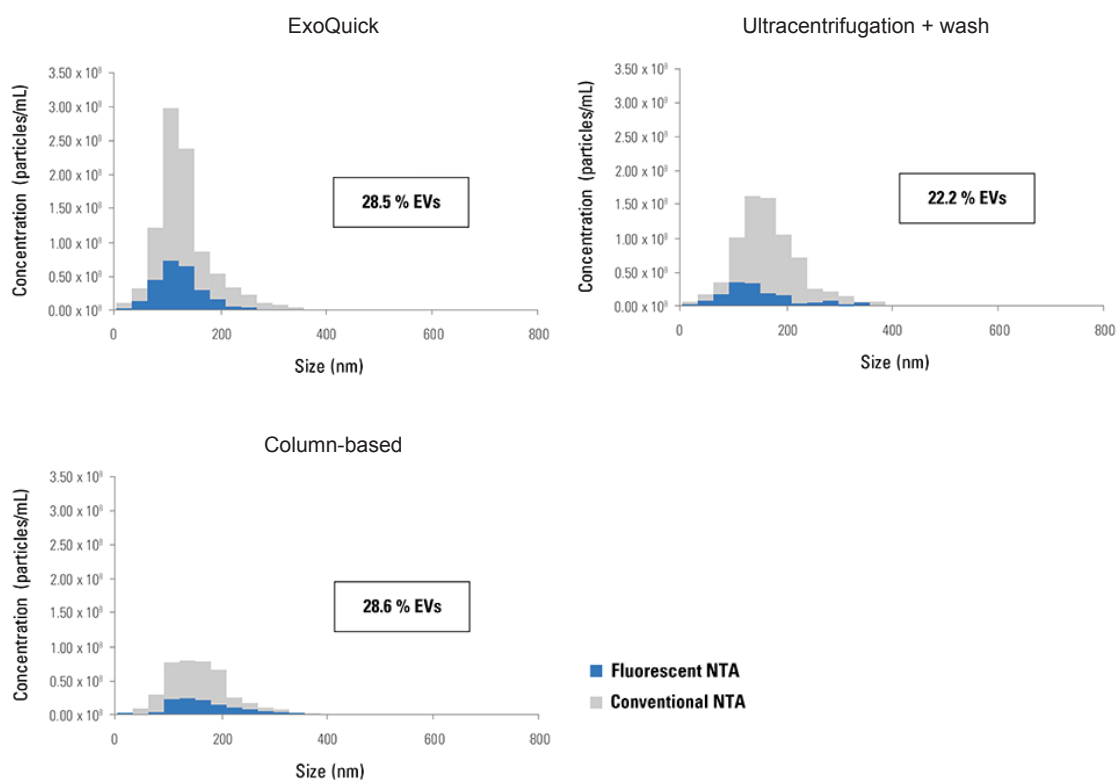


利用染劑的專一性，提高 NTA Data 的可信度

ExoGlow™ - NTA Fluorescent Labeling Kit

- 針對 membrane 做結合，完整的 EV 其細胞膜才會被染色
- 對光的穩定性高，只需 20 分鐘，可應用於 NTA 分析 - Malvern Panalytical NanoSight 或 Particle Metrix ZetaView®

▶ 與傳統的 NTA 相較，透過高專一性的染劑，可獲得具有完整膜的 EVs 百分比



貨號	產品	包裝	Excitation/Emission wavelength	Recommended laser line
EXOGP100A-1	ExoGlow-Protein EV Labeling Kit (Red)	20 reactions	573/588 nm	561 nm
EXOGP300A-1	ExoGlow-Protein EV Labeling Kit (Green)	20 reactions	511/525 nm	488 nm
EXOGP400A-1	ExoGlow-Protein EV Labeling Kit (Blue)	20 reactions	403/454 nm	405 nm
EXOGR800A-1	ExoGlow-RNA EV Labeling Kit	10 reactions	485/537 nm	488 nm
EXOGM600A-1	ExoGlow-Membrane EV Labeling Kit	20 reactions	465/635 nm	488 nm
EXOGV900A-1	ExoGlow-Vivo EV Labeling Kit (Near IR)	12 reactions	784/806 nm	785 nm
EXONTA110A-1	ExoGlow-NTA Fluorescent Labeling Kit (for Particle Metrix ZetaView)	10 reactions	-	520 nm
EXONTA200A-1	ExoGlow-NTA Fluorescent Labeling Kit (for Malvern NanoSight)	10 reactions	-	488 nm

ZetaView[®] NTA

Nanoparticle Tracking Analyzer

- 快速偵測 – 1 分鐘獲得顆粒濃度及大小數據
- 精準數據 – 偵測 11 個位置的數據進行分析
- 自動對焦 – 快速獲得最佳影像
- 偵測極限 – 可偵測最小 10 nm 及濃度 10^5 之顆粒
- 螢光偵測 – 選擇螢光模式偵測染色後的顆粒

Size

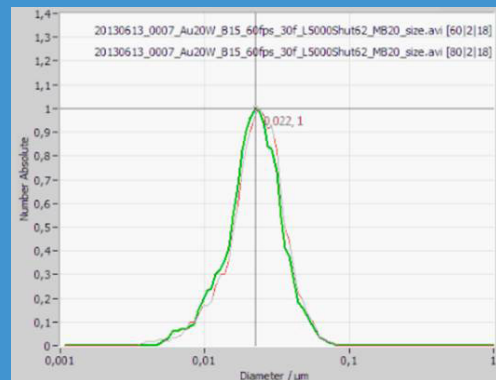
Count

Zeta Potential

Fluorescence



以布朗運動計算顆粒大小，
並有即時影像觀察及錄影功能。



數據呈現顆粒大小 (X 軸) 及濃度 (Y 軸)，
並可重疊不同數據以利分析。