

# Exosomes

Purification | Detection  
Tracking | NTA Service



Exosome Experts

# Purification

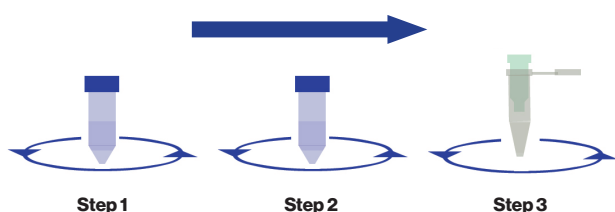
Exo-spin™ Exosome Purification Kit



## An independently validated, flexible system for isolation of exosomes from a variety of sources

- Excellent yields and high levels of purity**  
 Exosomes with ultra-low protein and rRNA contamination.
- No ultracentrifugation required**  
 Protocol provides consistent results every time.
- Simple and reliable**  
 Isolate intact whole exosomes for functional studies.

### Exo-spin™ Exosome Isolation Protocol



**Step 1:** Remove cells and cellular debris.

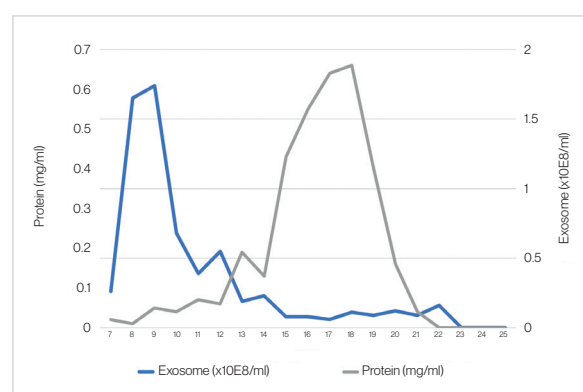
**Step 2:** Use Exo-spin™ Exosome Precipitation Buffer to precipitate exosomes.

**Step 3:** Add the exosome-containing pellet to the Exo-spin™ columns for Size Exclusion Chromatography (SEC) purification.

	Exo-spin™	Precipitation	Ultracentrifugation
<b>Yield</b>	High	Medium	Medium
<b>Purity</b>	High	Low	Medium
<b>Speed</b>	Quick	Quick	Slow
<b>Cost</b>	Low	Medium	Medium

### Exosome Extraction Profiles

Exo-spin™ Midi Columns allow for gravity assisted fractionation, where exosomes are separated from the vast majority of proteins.



Exosomes were isolated using Exo-spin™ Midi Columns (Cat Code EX04) from 60 ml of conditioned medium generated by a human breast carcinoma cell line. Fractions (each of 500  $\mu$ l) were collected and analysed to (1) evaluate particle numbers and (2) measure absorbance at 280 nm to evaluate protein concentration.

Cat code	Product name
EX01	Exo-spin™
EX02	Exo-spin™ blood
EX03	Exo-spin™ mini columns
EX04	Exo-spin™ midi columns

# Detection

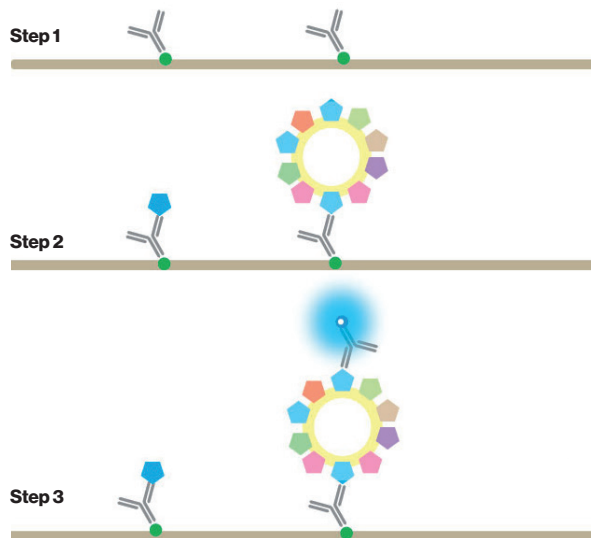
TRIFic™ Exosome Detection Kit



## An exquisitely sensitive Europium Time-Resolved Immunofluorescence assay for exosome markers

- Simplicity**  
 Assay is clear and simple allowing for high reproducibility.
- Sensitivity**  
 Europium-labeled antibodies are used for detection enabling the use of TRF.
- Specificity**  
 Only antigens displayed in multiple copies are detected.

### TRIFic™ Exosome Assay

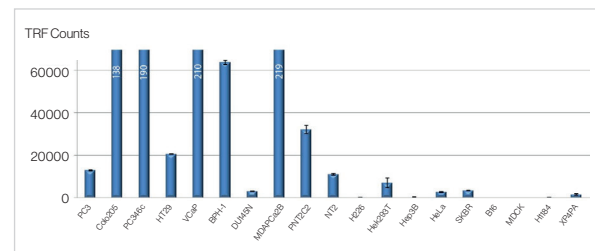


**Step 1:** Biotinylated antibody is bound to streptavidin coated assay plates.

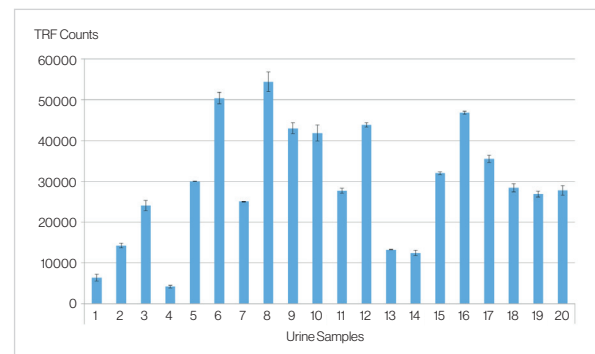
**Step 2:** Biological samples are added. Exosomes and any free antigen are captured by the antibody.

**Step 3:** Europium-labeled antibody of the same clone as the one used in Step 1 is added and binds specifically to exosome antigen. The epitopes of bound monomers are already occupied and not detected. Samples are read on a time-resolved fluorescence plate reader.

### Sample profiling



CD9 TRIFic™ exosome assay performed for 19 different cell lines. Off the scale readings indicated (x1000) on individual bars. Samples generating vastly different signal intensities can be measured due to the broad signal range covered by the assay.



TRIFic™ exosome assay analysis of 20 urine samples shows great variation in CD9 content between samples.

Cat code	Product name
EX101	TRIFic™ CD9 Exosome Assay, 96 wells
EX102	TRIFic™ CD63 Exosome Assay, 96 wells
EX103	TRIFic™ CD81 Exosome Assay, 96 wells
EX-P31	Wash Buffer (Concentrate 25x), 20 ml

# Tracking

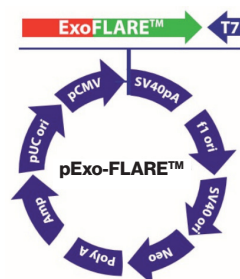
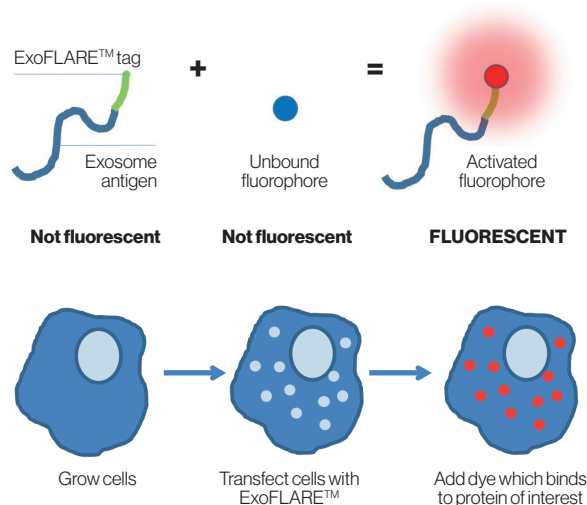
ExoFLARE™ Exosome Tracking Kit



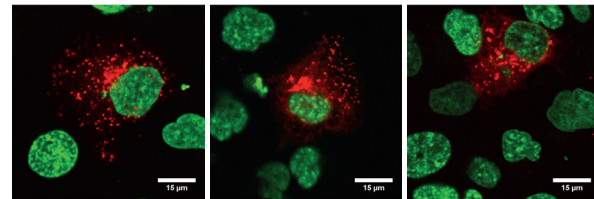
## An exosome tracking system using protein tags that modulate the fluorescence of pro-fluorophores

- High signal intensity**  
 The signal is brighter and longer than for standard fluorescent proteins.
- Low background fluorescence**  
 The rapid turnover of the dye allows for very low photobleaching.
- Non-cytotoxic**  
 Further experiments can be performed with same exosomes.

### ExoFLARE™ Exosome Tracking System



### In vitro exosome imaging



ExoFLARE™ constructs were transiently transfected into DU145N cells. ExoFLARE™ cell permeable dye was added to the media and cells were imaged using a confocal fluorescence microscope.

Red = ExoFLARE™ tagged protein;  
Green = Hoechst.

Cat code	Product name
EX301	ExoFLARE™ CD9 (impermeable dye)
EX302	ExoFLARE™ CD63 (impermeable dye)
EX303	ExoFLARE™ CD81 (impermeable dye)
EX304	ExoFLARE™ CD9 (permeable dye)
EX305	ExoFLARE™ CD63 (permeable dye)
EX306	ExoFLARE™ CD81 (permeable dye)
EX401	EF Red.xc cell impermeable dye
EX402	EF Red.s cell permeable dye

# NTA Profiling

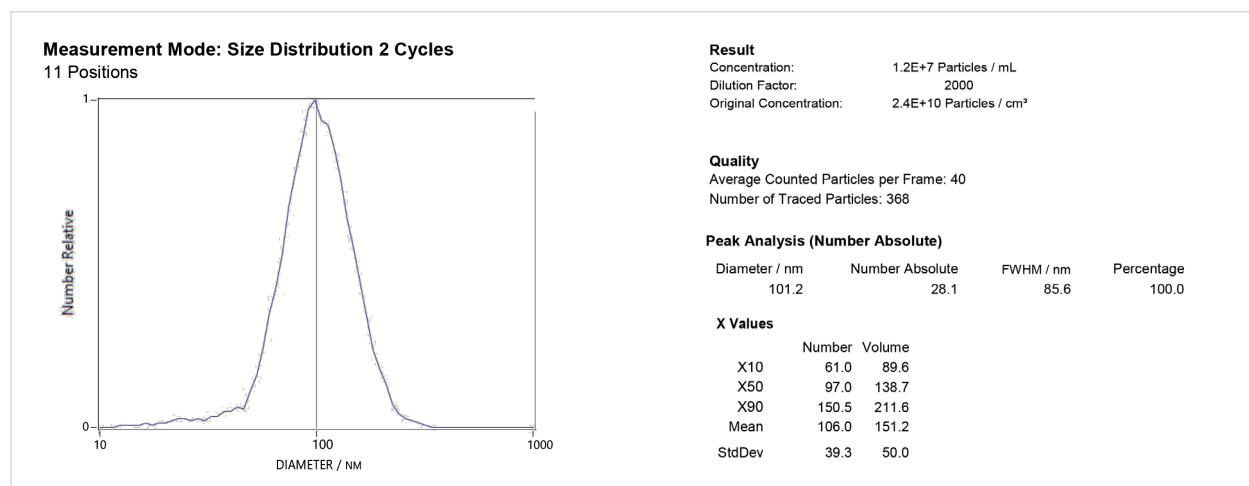
Nanoparticle Tracking Analysis service provided using ZetaView® Instrument



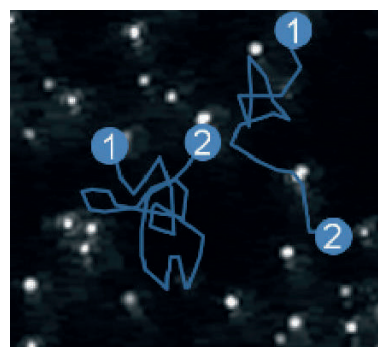
## Exosomes characterization service for analysis of particle size and particle concentration

- High quality**  
 The service is performed in our labs by highly qualified scientists.
- Quick turnaround times**  
 Full reports are e-mailed within 5 to 10 business days.
- Competitive price**  
 Very low price per sample without the need of purchasing the equipment.

Example of an NTA report generated with the Zetaview®.



Zetaview®  
Instrument.



Individual particle movement is tracked and recorded for characterization of exosome samples.

Image provided by Particle Metrix GmbH.

Cat code	Product name
ZV-1	Analysis service set up (purchase one per order)
ZV-12	NTA analysis of a single sample

Cell Guidance Systems' reagents and services enable control, manipulation and monitoring of the cell, both *in vitro* and *in vivo*

**Growth Factors**

- Recombinant
- Sustained Release

**Exosomes**

- Purification
- Detection
- Tracking
- NTA Service

**Small Molecules**

**Cell Counting Reagent**

**Matrix Proteins**

**Cell Culture Media**

- Pluripotent Stem Cells
- Photostable
- *In Vitro* Blastocyst Culture
- ETS-embryo Culture
- Custom Manufacturing Service

**Gene Knock-Up System**

**Cytogenetics Analysis**



General [info@cellgs.com](mailto:info@cellgs.com)

Technical Enquiries [tech@cellgs.com](mailto:tech@cellgs.com)

Quotes [quotes@cellgs.com](mailto:quotes@cellgs.com)

Orders [order@cellgs.com](mailto:order@cellgs.com)

[www.cellgs.com](http://www.cellgs.com)

**EUROPE**

**Cell Guidance Systems Ltd**

Maia Building  
Babraham Bioscience Campus  
Cambridge  
CB22 3AT  
United Kingdom

T +44 (0) 1223 967316

F +44 (0) 1223 750186

**USA**

**Cell Guidance Systems LLC**

Helix Center  
1100 Corporate Square Drive  
St. Louis  
MO 63132  
USA

T 760 450 4304

F 314 485 5424