

### **Scheda Tecnica Nanosight PRO prodotto dalla Malvern Panalytical.**

Lo strumento Nanosight PRO si basa sulla tecnica Nanoparticles Tracking Analysis e permette la misura delle dimensioni e concentrazione di vescicole extracellulari (EV) estratte da qualsiasi fluido biologico.

Può discriminare fenomeni luminosi di scattering di particelle anomale da quelli di fluorescenza delle EV opportunamente marcate.

Permette la movimentazione continua del campione durante l'acquisizione del video.

È possibile acquisire il segnale di più di 1000 particelle in circa 1 minuto di osservazione.

Tutti i video acquisiti possono essere validati dall'operatore osservando la fase di tracking in tempo reale.

Può analizzare anche soli 100microL di campione.

Lo strumento misura la dimensione delle particelle in un range che va da 10nm a 2000nm.

Tutta la fluidica può essere smontata e pulita sotto cappa garantendo la massima sicurezza per l'operatore.

Caratteristiche specifiche:

Lo strumento Nanosight PRO presenta le seguenti caratteristiche tecniche:

1. Visualizza e misura le particelle da 10nm a 2000nm.
2. Può analizzare un volume minimo del campione di 100microL
3. Può eseguire analisi in fluorescenza
4. Sono disponibili 4 differenti laser opzionali per eccitare fluorofori di diversa natura.
5. La cella di misura può ospitare un volume minimo di 100microL di campione.
6. Lo strumento è dotato di un sistema di riscaldamento e raffreddamento del campione di tipo Peltier, in grado di raffreddare fino a 5 gradiC sotto la temperatura ambiente e riscaldare fino a oltre 50 gradiC.
7. Lo strumento è dotato di una pompa a siringa in grado di muovere costantemente il campione durante l'acquisizione.
8. Il laser e la videocamera sono sincronizzati tramite una connessione trigger per minimizzare l'esposizione del campione alla luce.
9. Lo strumento ha una lente di ingrandimento 20X
10. Il software permette di visualizzare in tempo reale il tracking delle particelle.
11. La cella a flusso dello strumento può essere smontata e aperta facilmente, rendendo semplice la pulizia diretta con un panno adeguato.

12. La cross contaminazione è <0,1%

13. Un singolo campione può essere analizzato in meno di 10 minuti.

14. Lo strumento ha un peso di circa 30kg largo 40cm alto 60cm profondo 50cm.

15. Il software è incluso nella fornitura.

16. Interfaccia del software semplice e intuitivo.

17. Il software può rilevare il movimento omogeneo delle particelle in qualsiasi direzione ed elaborare questo dato per ricavarsi il movimento browniano provo dell'effetto "derapata" legato al movimento del campione tramite pompa e/o movimenti legati a gradienti termici.

18. Lo strumento è fornito con tutti i componenti utili al suo utilizzo.

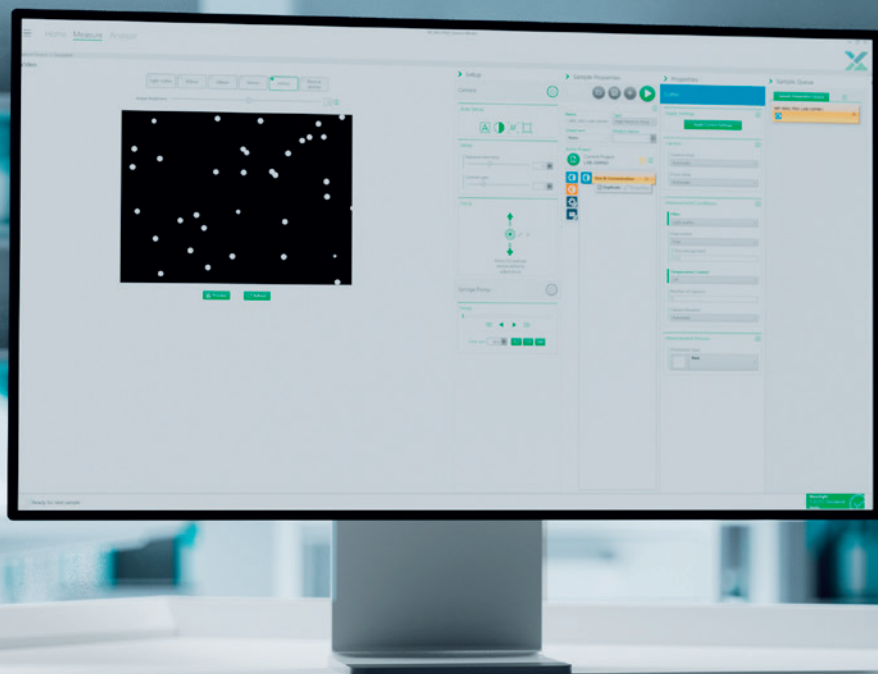
19. Il dato grezzo viene analizzato e elaborato da un software integrato con intelligenza artificiale, inoltre questa aiuta l'operatore nel setting delle impostazioni di misura.

Per ulteriori informazioni si allega il dépliant del produttore.



# NanoSight Pro

Quickest, Easiest & Most Accurate NTA Solution



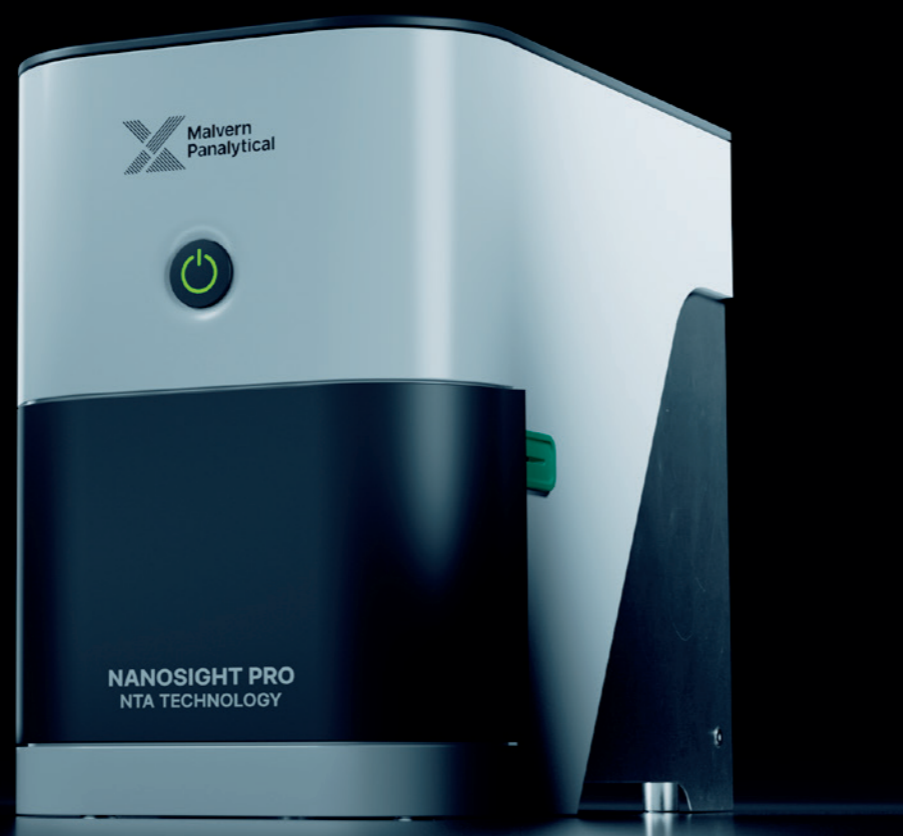
# Characterization of Nano- and BioMaterials like you have never seen before

With the introduction of the Malvern Panalytical NanoSight Pro we provide the quickest, most accurate, easy to use and install, Nanoparticle Tracking Analysis (NTA) instrument.

The advanced engineering has been enclosed in an elegant and compact design and delivers superior quality and robust data in minutes. Powered by machine learning, NS Explorer software enables automated measurements, removes subjectivity and provides the highest quality size and concentration data for both the light scatter and fluorescence analysis.

The fluorescence detection sensitivity unlocks new possibilities of getting greater insides into sample subpopulations and specificity so you can get to know your particles better!

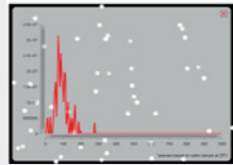
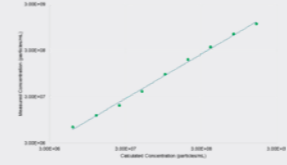
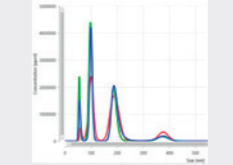
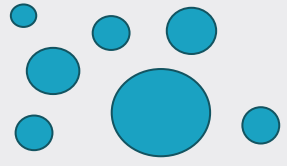
This cutting-edge technology powered by a blend of smart features, brings a powerful solution for decoding the nature of complex systems and brings new discoveries to light. The NanoSight Pro also includes Interchangeable lasers and access to Smart Manager technology, which assures robustness, continuous high-quality measurements and maximum uptime.



# Why use Nanoparticle Tracking Analysis?

NanoSight NTA (Nanoparticle Tracking Analysis) is a well-established, quick, and simple technique for an accurate characterization of bio and nanoparticles to better understand the nanoworld. By capturing the light scattered from particles undergoing Brownian motion, NTA provides particle-by-particle tracking for high-resolution size and concentration data – all in matter of minutes with minimal sample preparation.

NTA sizing technique is absolute and so no calibration is required. Each particle is sized independently and measured simultaneously, enabling a deep understanding of even very complex samples. Accuracy and sensitivity are invaluable when considering nanoparticle batch purity and process consistency, as well as the physicochemical properties of the material, which are intrinsically linked to their size at the nanoscale.





Size	Concentration	Resolution	Heterogeneity
			
<p>Highly accurate particle size data is provided confirming the system purity as well as the complexity. The smallest change in particle size is detected precisely, to give rapid information on events such as aggregation within the population up to 70°C.</p>	<p>The concentration measurement takes the variables from sample properties and user setting inputs into account to provide reliable and highly reproducible particle concentration data.</p>	<p>Thanks to particle-by-particle tracking, the most detailed information about the size distribution is presented immediately. For mixtures of various particle sizes our FTLA algorithm will look for peak resolution at the highest level.</p>	<p>Working with complex and polydispersed systems is easier with NanoSight Pro. Sample heterogeneity is confirmed visually and the raw data distribution represents the true nature of the system.</p>

“It is the easiest bit of equipment I have ever installed in the lab. The Nanosight Pro is a nice, modern looking system, aesthetically pleasing. Especially getting optical elements into machine – fantastic!”

**Oliver Huseyin**  
 Research scientist  
 MIP Diagnostics Limited

# Why Nanosight Pro?

With the introduction of the Nanosight Pro, we are bringing you some exciting new features, to enable you to do the quickest, most accurate, characterization of nano- and biomaterials in the easiest possible way.





Practical & Ergonomic	Quick & Simple	Accurate & Precise	Heterogeneity
			
Updated system interior and ergonomic grip handle makes laser insertion easier and more comfortable for every hand size.	With minimal setup, smart installation and a user-friendly interface, NanoSight Pro can be used by every user in every lab.	Highly engineered optical setup delivers precise and consistent alignment assuring accurate measurement position, greater detection sensitivity and high data repeatability.	Flow system allows continuous analysis of the same sample types and when necessary, the flow cell is very accessible and easy to clean to effectively eliminate/remove any cross-contamination and impurities from the system.

“I love the system. The software interface is logical and user friendly, even for a first time user.”

**Rebecca Dragovic**  
Teaching Fellow & Research Scientist  
Nuffield Department of Women’s & Reproductive Health,  
University of Oxford

# New Features available with the latest NS Xplorer software

The Nanosight Pro comes with the most recent software: NS Xplorer. The new NS Xplorer software has a modern & intuitive interface with defined workflow and user guidance.

Practical & Ergonomic	Quick & Simple	Accurate & Precise	Heterogeneity
			
The NS Xplorer software guides the user from setting up the measurement conditions, through to data view and reporting. Automated features save users time and provide optimum measurement conditions for analysis.	Powered by machine learning and packed with a powerful blend of smart features, NanoSight Pro takes Nanoparticle Tracking Analysis (NTA) to the next level by automated, superior particle identification and tracking to eliminate human error to deliver consistently accurate data.	Even novice users can be confident in their results thanks to advanced data quality guidance, which provides instant feedback on your data. Trends and outliers are identified with size and particle-per-frame graphs for quick, in-depth insight.	Seeing is believing - Video and track playback gives direct insights into particle tracking - providing assurance, confidence, and visual confirmation.

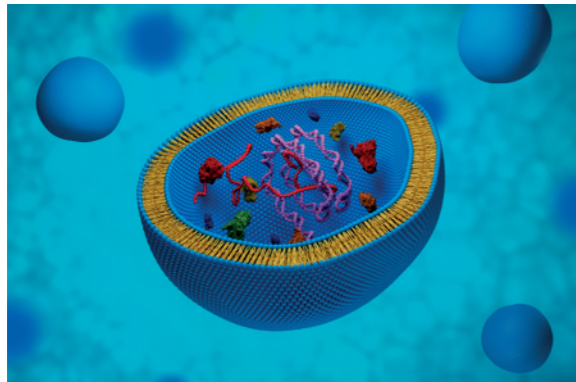




## Power of fluorescence

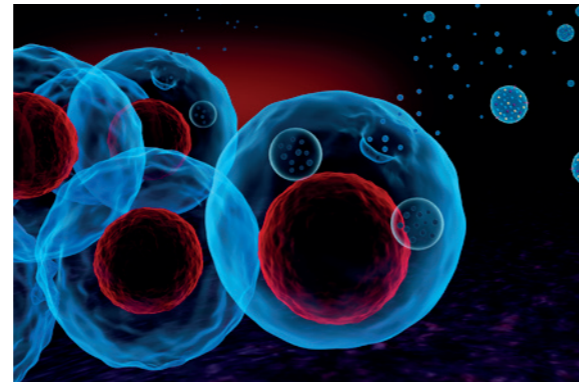
Capability of fluorescence signal detection allows you to get further insight into your sample. Fluorescence measurement is desired for identifying subpopulations within your sample, confirming the presence of biomarkers or internal cargo, or for discriminating between your primary material and contaminants that may be present.

Exosomes cross section



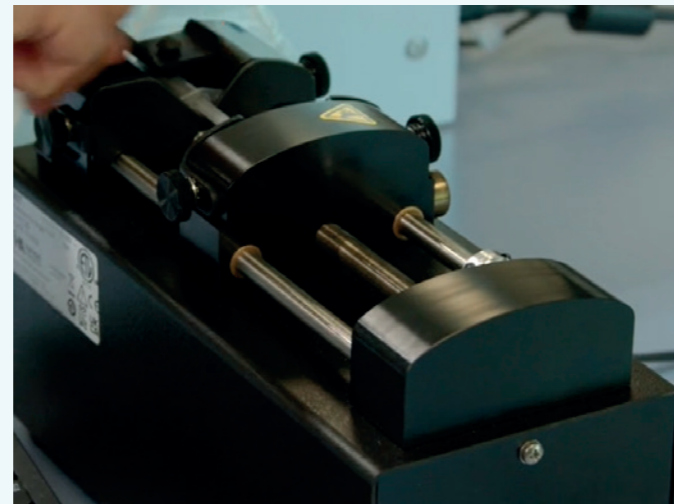
NanoSight Pro features a brand-new fluorescence mode, which combines light scatter and fluorescence detection and enables the effective measurement of particles tagged with **even** photobleaching probes giving immediate and automatic data comparison and efficiency calculation.

Secreting exosomes



## NanoSight syringe pump

The NanoSight Pro Syringe pump provides a continuous flow of new particles into the sample chamber when operating in Fluorescence Mode, removing particles that have experienced photobleaching. When used in Light Scatter mode, data are more robust, due to improved sampling statistics.



## NanoSight Pro Technical Specifications

NanoSight Pro	
Technology	Nanoparticle Tracking Analysis
Size range (diameter) <sup>1</sup>	10 nm – 1000 nm
Particle concentration <sup>2</sup>	10 <sup>6</sup> – 10 <sup>9</sup> particles/mL
Advanced Concentration Algorithm	Concentration Upgrade
Minimum Sample volume	250 µL
System	
Product compliance	<ul style="list-style-type: none"> <li>Product Laser Class 1 (BS EN 60825-1:2014)</li> <li>EMC Directive (EN IEC61326-1:2021)</li> <li>Low Voltage Directive (IEC 61010-1:2010, IEC 61010-1:2010/AMD 1:2016)</li> </ul>
Camera – High sensitivity sCMOS	USB-3
Laser information – Beam wavelength (maximum power output)	405 nm, max power <70 mW 488nm, max power <55 mW 532nm, max power <60 mW 642nm, max power <50 mW
Temperature control range	5°C below ambient up to 70°C
Temperature readout	Automatic
Syringe pump	Continuous sample flow with 1 mL syringes
Dimensions (H*W*D)	34 × 35 × 25 cm
Weight of instrument	11 kg
Weight of laser module	1.6 kg
Power requirements	AC 110 – 240 V, 50-60Hz, 4.0A
Ambient operating conditions	Up to 80% rH at 31°C then decreasing linearly to 50% at 40°C
Additional options	
Fluorescence – automatic selection <sup>3</sup>	For up to 5 filters

### Notes:

<sup>1</sup> Dependent on sample and instrument configuration

<sup>2</sup> Sample dependent

<sup>3</sup> Optional functionality. Long-pass filters available for each laser wavelength



## About Malvern Panalytical

We draw on the power of our analytical instruments and services to make the invisible visible and the impossible possible.

Through the chemical, physical and structural analysis of materials, our high precision analytical systems and top-notch services support our customers in creating a better world. We help them improve everything from the energies that power us and the materials we build with, to the medicines that cure us and the foods we enjoy.

We partner with many of the world's biggest companies, universities and research organizations. They value us not only for the power of our solutions, but also for the depth of our expertise, collaboration and integrity.

We are committed to Net Zero in our own operations by 2030 and in our total value chain by 2040. This is woven into the fabric of our business, and we help our employees and customers think about their part in creating a healthier, cleaner, and more productive world.

With over 2300 employees, we serve the world, and we are part of Spectris plc, the world-leading precision measurement group.

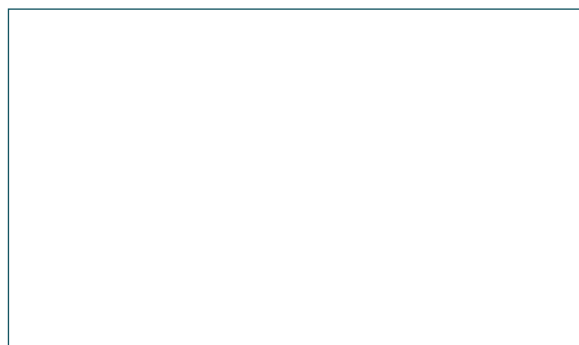
**Malvern Panalytical. We're BIG on small™**

## Service & Support

Malvern Panalytical provides the global training, service and support you need to continuously drive your analytical processes at the highest level. We help you increase the return on your investment with us, and ensure that as your laboratory and analytical needs grow, we are there to support you.

Our worldwide team of specialists adds value to your business processes by ensuring applications expertise, rapid response and maximum instrument uptime.

- Local and remote support
- Full and flexible range of support agreements
- Compliance and validation support
- Onsite or classroom-based training courses
- e-Learning training courses and web seminars
- Sample and application consultancy



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