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Insights into exosomes role in disease transmission gained using NanoSight from Malvern

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Data measured using the NanoSight NS300 from Malvern Instruments is providing new insights into the role of exosomes in diseases such as cancer, arthritis, Alzheimer's disease and cystic fibrosis, in pioneering research at the University of Alabama - Birmingham (UAB).

"Early research on exosomes, or extracellular vesicles, focused on their role in excreting unwanted waste from cells," said Shawn Williams, facility manager and imaging specialist. "However, we're now starting to understand their wider functionality in intercellular communication and the transmission of disease. The NanoSight system is playing a central role in helping us advance in this new and exciting area of research, by enabling us to size, count and track the movement of these crucial molecules in their native state."



Malvern's NanoSight NS300 provides new insights into the role of exosomes in disease transmission for researchers at the University of Alabama

The NanoSight NS300 system is sited within an analytical service facility for the university, which also extends support to external customers on a contract basis. Around 85% of the analysis being carried out in the lab is associated with disease-related research. The NanoSight system is used by several hundred different researchers, so rapid training and robust measurement protocols are essential. Mr. Williams and his team have developed a series of simple procedures to support new researchers in their use of the instrument, to enable the efficient generation of accurate particle size and count data, and video footage of the exosomes within a sample.

There are very few instruments that can do what the NanoSight does in terms of providing us with statistically significant size and count data in a cost-efficient way," said Mr. Williams.

"The sample preparation required is negligible, which is a major advantage relative to Transmission Electron Microscopy (TEM), and we find that the instrument has a really short learning curve. All our users are able to access the data they need, presented in a great and easy to digest format, with minimal training."

The NanoSight NS300 measures particle size in the range 10 nm to 2000 nm, comfortably spanning the 30 nm – 100 nm size range of primary interest for exosomes. NanoSight software is designed to make it easy for researchers to use the instrument, access the data required and present it in an easily assimilated form.

"I really appreciate the fact that Malvern continues to enhance the functionality of the NanoSight system through software upgrades which add relevant and valuable capabilities. For us it is all about gathering information that will give us new understanding. The more quickly and easily we can measure relevant parameters, the greater our

productivity and the faster we can progress our research. This is crucial as demand for our services increases to meet the growing need to develop new and successful drug products.”

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Company Background

Malvern Instruments is a leading supplier of analytical solutions for particle characterization and rheology applications. Our products help our customers improve product quality, performance, increase productivity and yield. Malvern's employees strive to provide our customers with a truly exceptional experience.