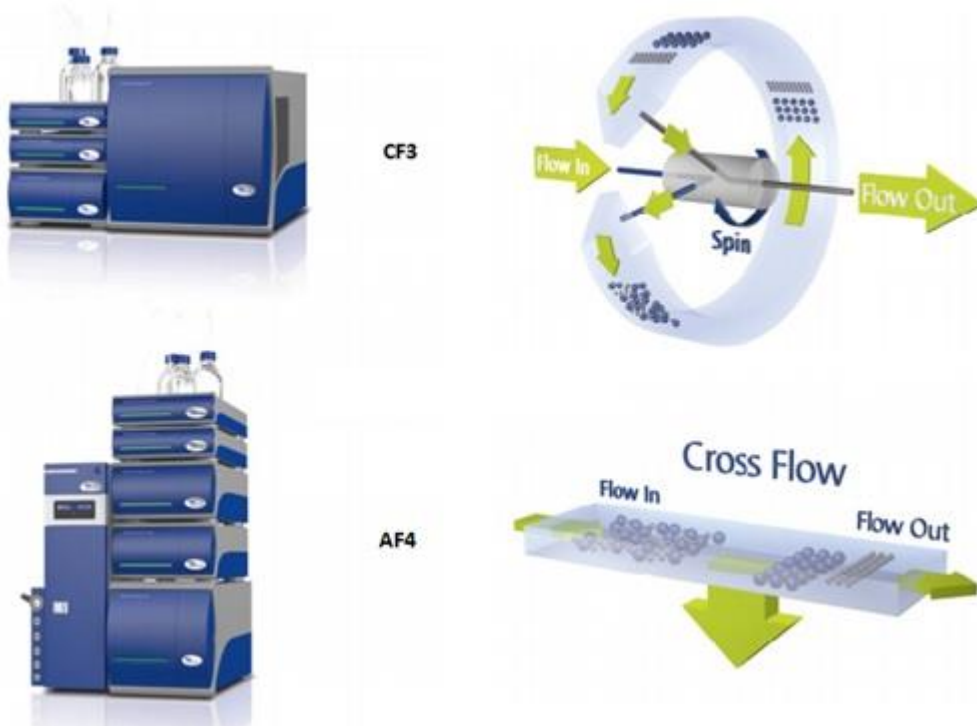# Measurement of Cancer Biomarker Enrichment in Exosomes

Postnova Analytics
reports that researchers from the University of Utah (Salt Lake City, USA) have used a novel combination of Asymmetrical Flow Field-Flow Fractionation and Centrifugal Field-Flow Fractionation to measure cancer biomarker enrichment in exosomes.

**Asymmetrical Flow Field-Flow Fractionation (AF4)**
and Centrifugal Field-Flow Fractionation (CF3) are high resolution separation techniques for fractionation of macromolecules and biological nanoparticles based on their hydrodynamic size (AF4) and mass (CF3).

Exosomes
are small extracellular vesicles containing nucleic acid and proteins that show great promise for use in cancer diagnostics and therapeutic applications. As characterization of exosomes had proven challenging with traditional separation techniques due to their inherent heterogeneity and complexity, the Utah researchers turned to a multiple fractionation approach to solve their application challenge.
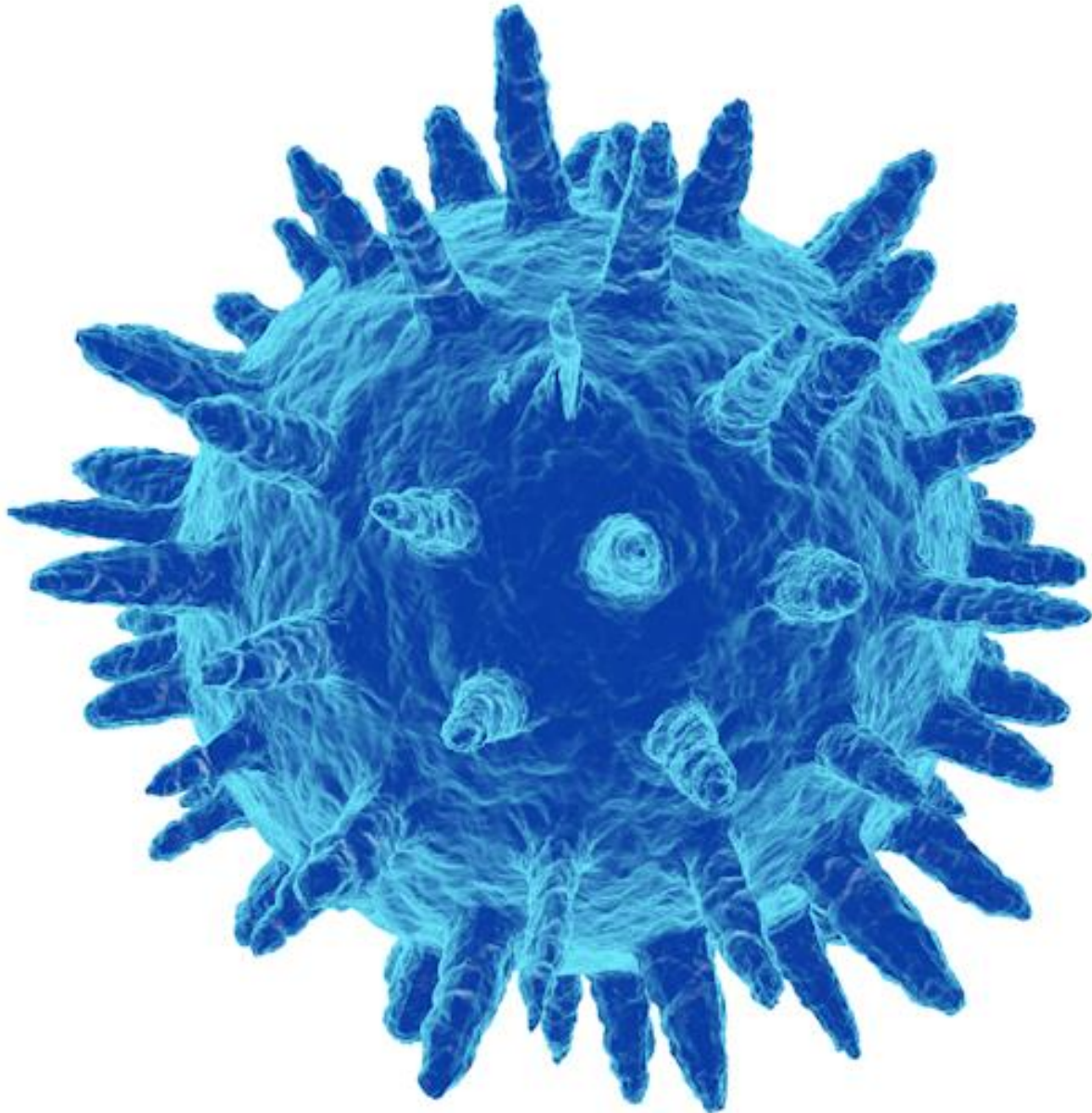
The goal of the research
was to characterize an MCF-7 tumor exosome sample by size using AF4 coupled to multi angle light scattering (MALS), and by mass using CF3. The density of exosomes in CF3 fractions was obtained using hydrodynamic diameter and buoyant mass measured by Nano Tracking Analysis (NTA) and CF3 respectively. Fractions were collected along both size and mass distributions and analyzed by polymerase chain reaction (PCR) for enrichment of the micro-RNA21 (miR21) cancer biomarker.

The heterogenous nature of the exosome
sample under study was observed to make batch dynamic light scattering or NTA measurements prone to error, and highlights the usefulness of Field Flow Fractionation techniques for separation and characterization of these complex biologic samples. The study showed that the enrichment of miR21 cancer biomarker was highest in the tumor exosomes with the smallest size, smallest mass, and lowest density.

For a copy of the application report
describing this research please visit https://bit.ly/3lAu83A. For further information on Asymmetrical Flow Field-Flow Fractionation (AF4) and Centrifugal Field-Flow Fractionation (CF3) used in this research please contact analysed Postnova Analytics on +49-8191-985-6880 / +44-1885-475007 / +1-801-521-2004 or info@postnova.com.

Postnova Analytics
Founded in 1997, Postnova Analytics is the inventor and leading international supplier of Field-Flow Fractionation (FFF) systems for markets including biopharmaceuticals, polymers, materials, nanotechnology and environmental sciences. Leveraging its unique and patented modular FFF - Light Scattering Platform, Postnova has been able to provide high performance solutions to a wide range of applications. Today the company's growing product portfolio also includes Flow FFF, Centrifugal FFF, Thermal FFF, Size Exclusion Chromatography (SEC), MALS and DLS. Postnova (www.postnova.com) is located and headquartered in Landsberg am Lech (Germany) and has subsidiaries in the USA, UK and Finland. These offices, in conjunction with a highly qualified and trained distribution network, provide informed local support to customers worldwide.

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