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Centrifugal Field Flow Fractionation Improves Characterization of Drug Delivery Systems

Postnova Analytics reports that its CF2000 Centrifugal Field Flow Fractionation system is delivering exciting new data to scientists developing drug delivery systems.



Soheyl Tadjiki,

Managing Director of Postnova Analytics Inc. commented "One of the grand challenges of characterization of any drug delivery system is the determination of cargo mass per delivery vesicle. Size characterization techniques are inherently inadequate to provide such information. By comparison we have found that our CF2000 Centrifugal Field-Flow Fractionation (CF3) system, a mass-based, high resolution separation instrument, is capable of measuring the cargo mass per vesicle to a limit of quantification of 12 attogram ($12 \times 10^{-18} \text{ g}$)".

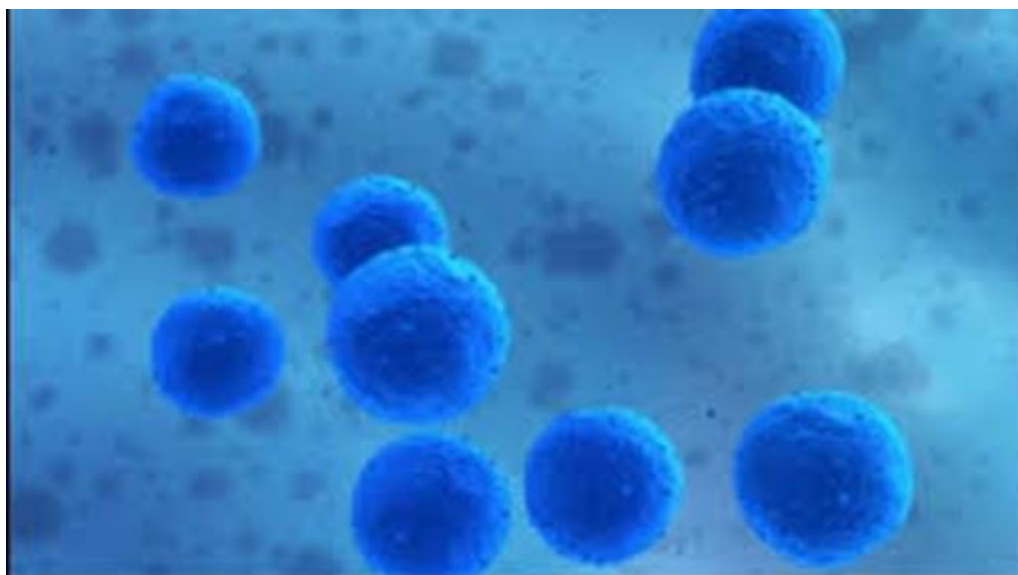
In Centrifugal Field-Flow Fractionation (CF3)

the separation force is established by a centrifugal field, which is generated by spinning the complete circular channel at a high rate. The bigger and denser particles are forced more in the direction of the outer wall than the smaller particles. As a consequence, bigger particles are eluted later from the CF3 channel as they are located in slower streamlines in the channel than the smaller particles which are located in faster stream lines.



Based on the CF3 principle,

the Postnova CF2000 employs a centrifugal field as the driving force for separations. Particles affected by this field are separated by dynamic diffusion on the basis of both particle size and density. This unique feature of the CF2000 allows the separation of different particulate materials having the same particle size. Separations on the CF2000 can be further optimized by using different eluents and temperature programs. As a consequence, the CF2000 system is proving an ideal tool for the separation and characterization of complex particulate samples in areas including agriculture, cosmetics, nanomaterials and pharmaceutical drug delivery systems.



In contrast to traditional particle sizing techniques

which work in the batch mode, the CF3 technique physically separates each particle fraction prior to sizing. This avoids numerous disadvantages of these batch techniques such as, low size resolution, discrimination and under estimation of smaller compared to larger particles. Using Postnova CF3 technology no special sample preparation is necessary as they can be injected directly without filtration, allowing the characterization of even complex particulate materials without alteration and damage.

For further information

on the Postnova CF2000 system please

visit <https://www.postnova.com/product/systems/cf2000-centri-fff.html>.

To learn more about how the CF3 technique can help characterize your drug delivery systems contact Postnova Analytics on +49-8191-985-6880 / +44-1885-475007 / +1-801-521-2004 or info@postnova.com.



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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