

CHARACTERIZATION OF VIRUS-LIKE PARTICLES

Andrzej Citkowicz, Brent Larsen, Harald Petry

The production process of Virus-Like Particles involves three steps: 1) recombinant VLP isolation from cell culture, 2) dissociation of the virus into pentamers with removal of all DNA, 3) introduction of the DNA of interest and packaging into a newly formed VLP. The Eclipse, an Asymmetric-Flow Field Flow Fractionation apparatus (Wyatt Technologies), in line with a set of detectors, can provide simultaneous characterization of key traits of VLP.

Shown below is data determining the molar mass, radius, and DNA/protein ratio of VLP at the three steps in its processing. Each detector has a specific purpose. The Eclipse provides separation, the diode array detector determines UV spectrum of points across real time. The composition of the VLP, e.i. a DNA-protein complex, complicated the measurement of its concentration. We implemented a fluorescence detector to determine the concentration of the protein portion. The rEX, an RI detector (Wyatt Technologies), responds to both, the protein and the DNA. These two detectors in combination with the miniDAWN, a Multiple Angle Light Scattering Detector (Wyatt Technologies), provide molar mass and the radius of the VLP.

