

Liposome Characterization by DLS

Liposomes, containing 48% Brain PC, 20% Brain PE, 12% Brain PS and 20% cholesterol, were prepared by the extrusion method. Briefly, the lipid mixture in chloroform was evaporated using a nitrogen stream and then thoroughly dried with a vacuum pump for two hours to remove residual organic solvent. The dried lipid film was then hydrated with 25 mM Hepes buffer (pH 7.5) to form large multilamellar vesicles (LMV). The LMV suspension was disrupted by five freeze/thaw cycles. The lipid suspension was then forced through a polycarbonate filter with 80 nm pore size for twenty-one times.

Dynamic light scattering was performed with a DynaPro-MSXTC dynamic light scattering instrument using a 10 sec acquisition time at 37°C.

The liposomes, containing 50 μ M lipid, were spun at 13,000 rpm for 10 min with a micro benchtop centrifuge before subjected to DLS measurement. The laser power was adjusted to keep the intensity between 500,000 counts and 2,000,000 counts. The results were then processed with the DYNAMICS software program. The radii and the size distribution were calculated with the regularization algorithm provided by this software.

The results show that the extrusion method typically yields homogeneous liposomes with a mean diameter of 80 nm (see table below). Electron microscopy studies yielded similarly consistent results, although the size dispersion appears to be larger than indicated by the DLS measurements.

Table 1.

R(nm)	%Pd	MW-R R(KDa)	%Int	%Mass
43.9	19.9	23487	100.0	100.0

DLS analysis showing the radii and the size distribution of the liposome

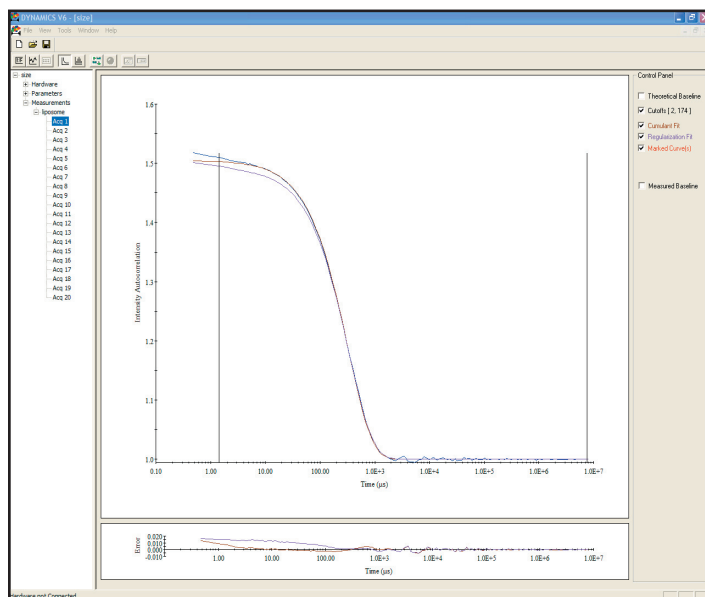


Figure 1: Cumulant fit (brown) and Regularization fit (purple).

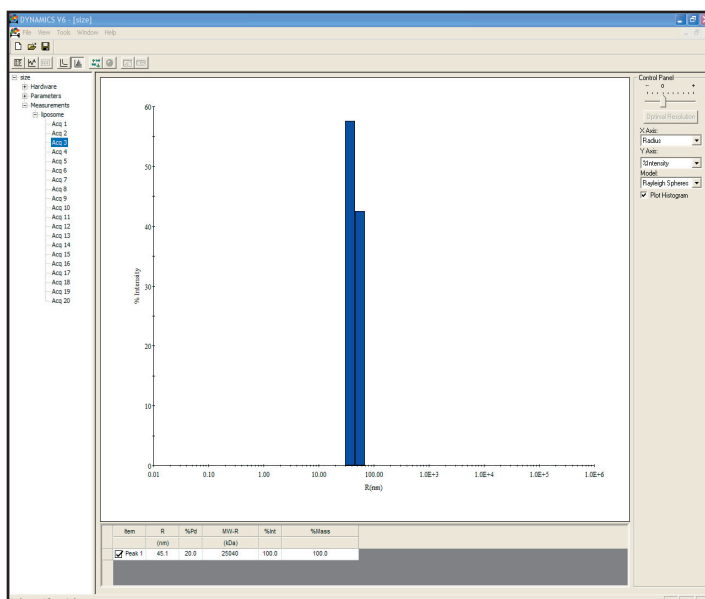
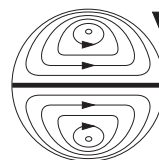


Figure 2. The same data as in Figure 1, expressed as a bar graph.

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