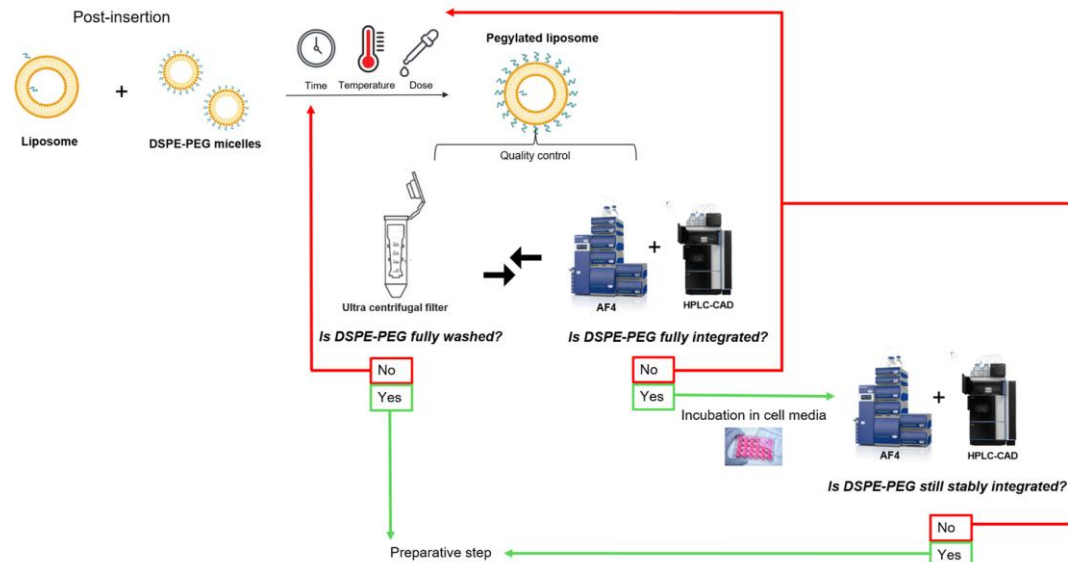


Utilizing AF4 to Enable Accurate HPLC-CAD Composition Analysis of PEGylated Liposomes

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Introduction: there is an urgent need for strategies that enable **reliable and simultaneous characterization** of **key quality attributes of lipid-based nanomedicines**.

Methods: Asymmetric-Flow Field-Flow Fractionation (**AF4**) in tandem with a Charged Aerosol Detector connected to High-Performance Liquid Chromatography (**HPLC-CAD**) for the simultaneous analysis of PEGylated liposomes' **size distribution** and **precise composition**, aimed at optimizing PEG coating conditions and validating purification methods.



Conclusions and scientific relevance

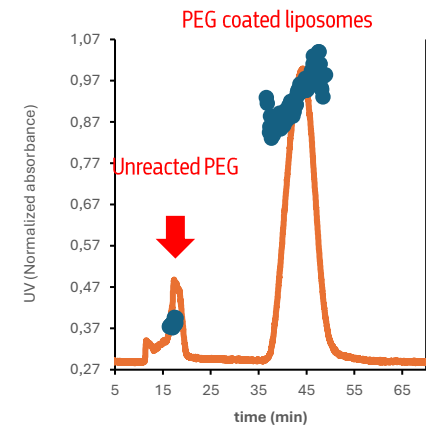
- Reproducible, simple, and accessible technology.
- Promising solution for **routine quality control** and **formulation design** in liposome development.
- Application potential for the development of other AF4-compatible lipid nanoparticles.



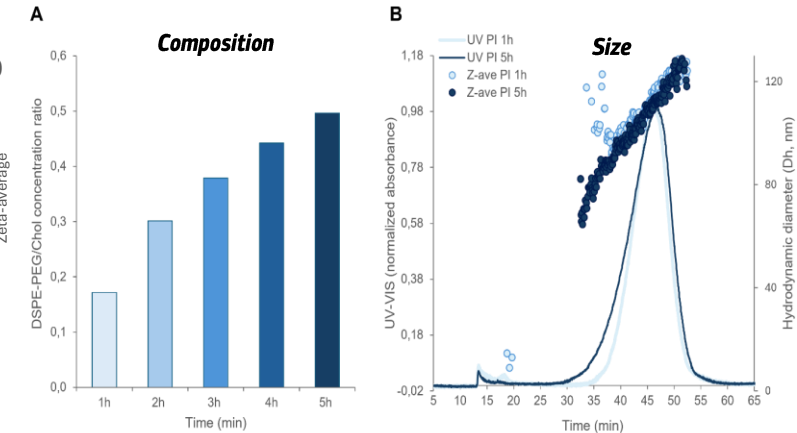
Objective: to develop a formulation and analytical approach for PEGylated liposomes that is **reproducible, high-quality, and accessible**, aiming to become a valuable reference for nanomedicine developers, control laboratories, and regulatory bodies.

Results:

AF4 separation



PEG-coating monitoring



PEG-coating stability in fetal bovine serum

