



OPA quantification of amino groups at the surface of Lipidic NanoCapsules (LNCs) for ligand coupling improvement

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Lipidic NanoCapsules (LNCs) were prepared via an emulsion phase inversion method. Nanoparticles with hydrodynamic diameter of 25, 50 and 100nm were easily obtained. Their surfaces are covered with short PEG chains (PEG 660) which are not bearing any chemical reactivities. Thus, in order to overcome this handicap towards post-functionalization possibilities, post-insertion of DSPE-PEG2000 amino (DSPA) can be employed. In order to characterize the insertion step, we have developed a chemical assay for the quantification of amino group inside the PEG shell of LNCs. Subsequently, the post-insertion yield was found to be comprised between 60 and 90% whatever the hydrodynamic diameter of the LNCs is. By means of simple calculations, the density of amino group is estimated to be closed to 0.2 and 1.2 molecules/nm². The formulation of LNCs and their controlled functionalization represent an interesting system for the development of bionanoconjugates in a short and effective process.

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