

CUBOSOMES AS POTENTIAL THERANOSTIC TOOLS

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Application of nanotechnology to medicine offers a versatile approach for the design and the development of new multi-functional drug delivery systems where imaging probes, drugs, and targeting agents can be combined and applied as therapeutic/diagnostic (theranostic) tools. Furthermore, this application requires the development of biocompatible and non-toxic systems with tunable properties.

Here, monoolein-based nanoparticles known as cubosomes are proposed as theranostic platform in nanomedicine. These nanoparticles show high structural stability and, because of their intrinsic nanostructure, can be loaded with hydrophobic cargos. It will be shown that cubosomes can effectively be loaded with anticancer drugs, UV-visible or NIR emitting fluorophores, while simultaneously conjugated with cells-targeting ligands. Their living cells imaging skills, addressing abilities toward HeLa cells, as well as biodistribution in vivo will be also presented.

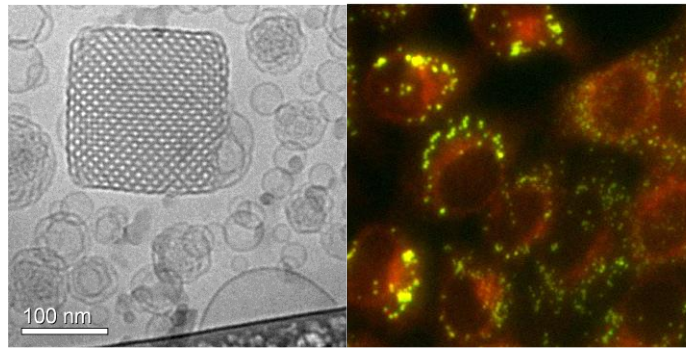


Figure 1 – Cryo-TEM image of a cubosomes (left), and fluorescence microscopy image of HeLa cells incubated with monoolein-based cubosomes (right).