

Synthetic biology meets liposome-based drug delivery

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Propositions

accompanying the dissertation

SYNTHETIC BIOLOGY MEETS LIPOSOME-BASED DRUG DELIVERY

by

ALICIA SOLER CANTÓN

1. Fluorescence imaging of single surface-tethered nanoparticles unveils the compositional heterogeneity of liposomal gene delivery systems (this thesis).
2. Optogenetic tools have great potential for the development of spatiotemporally controlled and precisely distributed drug delivery systems (this thesis).
3. Due to cyclodextrin-induced lipid depletion, the development of successful “drug-in-cyclodextrin-in-liposome” delivery systems demands deeper structural characterization than done to date (this thesis).
4. The terms lipid nanoparticle and liposome should not be used indistinctly in the field of biomedical research.
5. Exosomes are the future of biomarkers in the diagnosis and prognosis of cancer and other diseases, as well as novel therapeutic delivery systems in combination with liposomes as hybrid nanoparticles.
6. Governments should provide public universal healthcare for all citizens and undocumented immigrants, irrespective of age or health status.
7. Equal and mandatory parental leave for both men and women may be a key measure to reduce gender inequality at the workplace and at home.
8. Social and emotional intelligence competencies should be taught in schools and high schools as an important part of education to promote personal and professional well-being.
9. Major urban low-emission zone projects such as “Madrid Central” have demonstrated to be the way forward on the cut of urban pollution, and their positive consequences for public health will show up soon.
10. Increased awareness and preparation regarding food allergies and intolerances is needed in the catering industry.

These propositions are regarded as opposable and defensible, and have been approved as such by the promotor Christophe Danelon.