

Biophysical toolbox for nanotherapeutics characterization

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Nanotechnology has been fruitfully allied to medicine and pharmaceutical development; however many doubts persist regarding the efficacy and safety of nanotherapies (NTs). One of the concerns with NTs is that these innovative systems present increased surfaces and consequently are subject to greater interactions in our organism. In this context, one of the main challenges of Nanomedicine for the next 15 years is the development of methods that allow, using simple models, to predict the biological behaviour of NT [1]. *In vitro* assays may be interesting solutions in response to this challenge, since they allow the understanding of NT properties at the molecular level. Furthermore, under controlled conditions, the use of mimetic models of biological interfaces can help to rationalize and predict NT behaviours and their interactions *in vivo*.

This communication aims to present some routines developed within our research and entrepreneurship project [2,3] based in biophysical methods with spectroscopic detection units common to most research laboratories (fluorescence; UV-Vis spectroscopy). The routine assays presented constitute a helpful toolbox (Figure 1) for developers offering the possibility to study different interactions between therapeutic compounds and nanocarriers, as well as,

accessing the interactions of the NTs developed with biointerfaces (membranes and proteins), as this is paramount in foreseeing NTs therapeutic and off target effects.

Figures

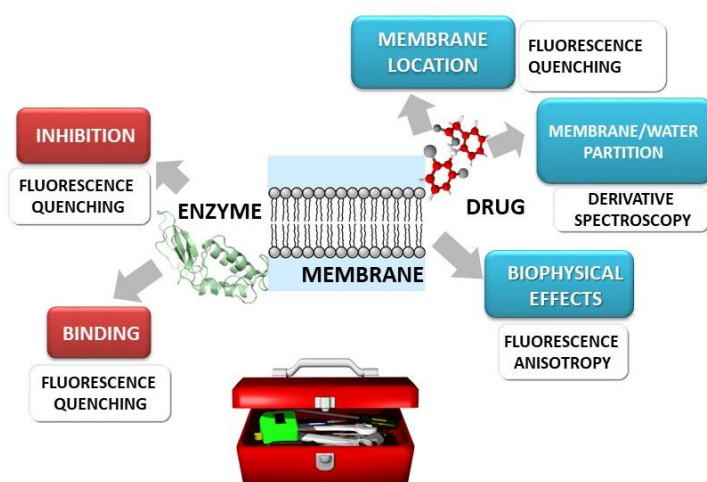


Figure 1: Biophysical toolbox for nanotherapeutics characterization

References

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