Ultrasmall nanoparticles and cells in droplet based microfluidics

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Ultrasmall NPs (sub-10 nm size), such as silicon NPs and carbon dots, are gaining in importance, especially in the imaging and therapy[1] of e.g. cancer cells. Both types of NPs display unique properties and they offer the possibility to modify their surface in a covalent way with e.g. targeting therapeutic drugs and/or different labels. In droplets based microfluidics/millifluidics, due to the automated continuous monitoring of the fluorescence signal[2], cells can be studied for long times and in a controlled way. This would help to implement the state-of-the-art of cells/NPs interactions by creating a more realistic representation of *in vivo* conditions in 3D isolated environments, such as droplets, with the opportunity to perform many simultaneous experiments and the chance to reduce the number of *in vivo* experiments.

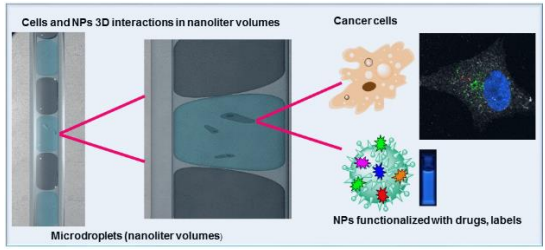

Figure 1: Cells/microorganisms and properly functionalized NPs in microdroplets (nanoliter volumes).

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