Medical Nanoparticles II*: driving new pharmaceutical substances into the medical praxis

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The majority of drugs are small molecules coming from nature. Then there are subtle varitatiosn of them to alter they pharmacokinetics and indications. New pharmaceutical substances are large biomolecules, such as proteins and antibodies, which are totally biological. This means that introducing xenobiotic substances into the medical praxis is going to be challenging. Fortunately we have a precedent sucess with high energy physics, which has made its place in radiology for diagnostics and therapeutics. Medical Nanoparticles, MedNPs, is the term here used to describe the features that nanoparticles may have in order to make actual clinical work for the benefit of the patient, framed in the innovation, production, and regulation limits of our societies. This means that the proposed MedNPs have to be able to be transferred to society: that they can be produced as stable and reliable products and that they can enter the regulatory process which determines which substances can be applied in humans. This means that in another context, where there was more funding available to develop in-depth new ideas, with an industry (more) capable of mass (and competitive) production of nanomaterials, and a regulatory framework designed to accompany development of nanodrugs (and not small or biomolecules) will inevitably bring a brighter and sooner future for nanomedicine. But as far as we are concerned, if today, we want to develop medical nanoparticles (not just the mere exploration of the interactions of inorganic matter with biological systems at the nanoscale) in order to improve life quality and span of patients, we should adapt/subordinate our nanotechnology knowledge, tools, and abilities to the current medical practice and practitioners. These considerations have consequences in which materials are used to treat which disease and in which form.