PURELY INORGANIC NANOMATERIALS: NEW OPPORTUNITIES OF BORON CLUSTERS IN MEDICINE

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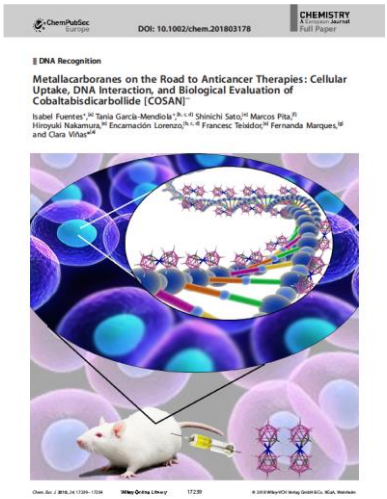
Relative to carbon, very little is currently known about boron in therapeutics. The aim of this presentation is to show the ability of boron clusters in producing new molecules for their desired application in nanomaterials and nanomedicine. In this regard, a new type of gold NPs, which is hydrophobic and completely insoluble in water when uncharged, but, when offered electrons by a suitable reducing agent, transfers readily to an aqueous.[1] The design of water-soluble boron rich particles or macromolecules is of significance for medicine and for drug delivery. In addition, [3,3'-Co(1,2-$C_2B_9H_{11})_2$]$^-$ has also been shown to form small monolayer nano-vesicles and micelles or lamellas in water depending on the concentration while.[2] Both boron-rich metallacarboranes have shown to cross through synthetic lipid membranes and to accumulate within living cells, where they can be detected by ν B-H Raman Microspectroscopy.[3] These results reveal unexpected properties at the interface of biological and synthetic membranes and demonstrate an alternative method for cell labelling and detection.[4] The incorporation of hollow spherical carboranes as capping agents for magnetite/maghemite NPs[5] and the interaction between metallabis-(dicarbollide) with proteins[6] and double-stranded DNA as well as "in vitro" and "in vivo" studies will be presented.[7] The Kinase-Inhibitors-Loaded Boron Cluster as Hybrid Agents for Glioma-Cell-Targeting Therapy will be also presented.[8]



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