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Narayan S Hosmane

Northern Illinois University, USA

Dendritic and nanostructured boron and carbon compounds for cancer therapy

In recent years, many efforts have been devoted to developing nanomaterials-based boron drugs for Neutron Capture Therapy (NCT) and to date, a majority of the studies have proved reasonably promising. Conversely, further *in vivo* studies and clinical trials are needed to establish them as appropriate boron carriers; this is especially so with the relatively novel boron and carbon nanotubes and magnetic nanoparticles. More advanced forms of boron nanotubes can be anticipated as much interest in their synthesis as their future applications. Thus, Boron Neutron Capture Therapy (BNCT) is a promising treatment for malignant brain tumors as well as for other types of cancers, such as, liver, prostate, bladder, breasts, head and neck tumors. Current research focuses on both the design and synthesis of high boron containing compounds as BNCT agents, and the search for suitable delivery vehicles. To be suitable BNCT agents, the problem of their low water-solubility needs to be resolved by chemical modification. In the case of magnetic nanoparticles, strategies are required to counter their tendency of embolization and their unclear cytotoxicity must be resolved.

Biography

Narayan S Hosmane is a BS and MS Graduate of Karnatak University, India. He obtained a PhD in Inorganic Chemistry in 1974 from the University of Edinburgh. After Post-doctoral Research in UK and in the USA (UVa), he joined Virginia Tech and then moved to SMU in 1982, where he became Professor of Chemistry in 1989. In 1998, he moved to Northern Illinois University as a Distinguished Research and Board of Trustees Professor. His international awards include but are not limited to the Alexander von Humboldt Foundation's Senior US Scientist Award twice; the BUSA Award for Distinguished Achievements in Boron Science; the Gauss Professorship of the Göttingen Academy of Sciences, Visiting Professor of the Chinese Academy of Sciences and Foreign Member of the Russian Academy of Natural Sciences. He has published over 320 papers in leading scientific journals and is an author of five books on boron science and cancer therapies.

hosmane@niu.edu

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