Role of metal and metal oxide nanoparticles as diagnostic and therapeutic tools for highly prevalent viral infection

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From National Conference on Interdisciplinary Research and Innovations in Biosciences, NATCON -2018. Post Graduate & Research Department of Biochemistry, Mohamed Sathak College of Arts & Science, Sholinganallur, Chennai-600119, India. 24th & 25th January 2018.

American J of Bio-pharm Biochem and Life Sci 2018 January, Vol. 4 (Suppl 1): **OP42**

ABSTRACT

Nanotechnology is increasingly playing important roles in various fields including virology. The emerging use of metal or metal oxide nanoparticles in virus targeting formulations shows the promise of improved diagnostic or therapeutic ability of the agents while uniquely enhancing the prospects of targeted drug delivery. Although a number of nanoparticles varying in composition, size, shape, and surface properties have been approved for human use, the candidates being tested or approved for clinical diagnosis and treatment of viral infections are relatively less in number. Challenges remain in this domain due to a lack of essential knowledge regarding the in vivo comportment of nanoparticles during viral infections. This review article provides a broad overview of recent advances in diagnostic, prophylactic and therapeutic applications of metal and metal oxide nanoparticles in human immunodeficiency virus.

Published: February 2018.