

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

Volume 2, Issue 5, June 2022

## Advanced in Nanomedicine Drug Delivery Application for HIV Therapy

Khade Swati S.<sup>1</sup> Singh Saritha A.<sup>2</sup>, Sayyad Sapna B.<sup>3</sup>, Kumbhar Jagruti V.<sup>4</sup> Students, Samarth Institute of Pharmacy, Belhe, Maharashtra, India<sup>1,2,3,4</sup>

**Abstract:** *HIV* is the chronic disease and patient adherence to treatment is critical over a lifetime Nanomedicine Application can improve a variety of pharmacological problem from Increasing bioavailability to specific targeting to the site of action. The application of Nanomedicine to present and future HIV treatment may offer bespoke solution to the problem faced by established formulated drug. In this review We are discuss about the advance in Nanomedicine drug delivery application for HIV therapy. poor aqueous drug solubility is the major limitation negativity impating oral bioavailability for many antiretraviral drug. HIV is a long term disease patient adherence therapy is critical over a lifetime.

Keywords: Include Nanomedicine. Biocompatibility. HIV/Long acting Antiretraviral

## REFERENCES

- Giardiello M, Liptrott NJ, Mcdonald TO, et al. Accelerated oral nanomedicine discovery from miniaturized screening to clinical production exemplified by paediatric HIV nanotherapies. Nat. Commun. 2016;7:13184.
  [PMC free article] [PubMed] [Google Scholar]
- [2]. Tatham LM, Rannard SP, Owen A. Nanoformulation strategies for the enhanced oral bioavailability of antiretroviral therapeutics. Ther. Deliv., 2015; 6(4): 469–490. [PubMed] [Google Scholar].
- [3]. Poveda E, Tabernilla A. New insights into HIV-1 persistence in sanctuary sites during antiretroviral therapy. AIDS Rev., 2016; 18(1): 55. [PubMed] [Google Scholar]
- [4]. Lesego Tshweu Katata L, Hulda swai, et al. Enhanced oral bioavailability of the antiretroviral efavirenz encapsulated in poly(epsilon-caprolactone) nanoparticles by a spray-drying method Nanomedicine (London), 2014; 9(12): 1821-1833.
- [5]. Owen A, Rannard S. Strengths, weaknesses, opportunities and challenges for long acting injectable therapies: insights for applications in HIV therapy. Adv. Drug Deliv. Rev. 2016;103:144–156.
- [6]. Skanji R, Andrieux K, Lalanne M, et al. A new nanomedicine based on didanosine glycerolipidic prodrug enhances the long term accumulation of drug in a HIV sanctuary. Int. J. Pharm. 2011;414(1–2):285–297. [PubMed] [Google Scholar]
- [7]. Rosslein M, Liptrott NJ, Owen A, Boisseau P, Wick P, Herrmann IK. Sound understanding of environmental, health and safety, clinical, and market aspects is imperative to clinical translation of nanomedicines. Nanotoxicology. 2017;11(2):147–149.
- [8]. Waring MJ, Arrowsmith J, Leach AR, et al. An analysis of the attrition of drug candidates from four major pharmaceutical companies. Nat. Rev. Drug Discov. 2015;14(7):475–49.Darville N, Van Heerden M, Marien D, et al. The effect of macrophage and angiogenesis inhibition on the drug release and absorption from an intramuscular sustained-release paliperidone palmitate suspension. J. Control. Release. 2016;230:95–108.
- [9]. Gnanadhas DP, Dash PK, Sillman B, et al. Autophagy facilitates macrophage depots of sustained-release nanoformulated antiretroviral drugs. J. Clin. Invest. 2017;127(3):857–873
- [10]. Rosenbloom DI, Hill AL, Rabi SA, Siliciano RF, Nowak MA. Antiretroviral dynamics determines HIV evolution and predicts therapy outcome. Nat. Med. 2012;18(9):1378–1385. [PMC free article] [PubMed] [Google Scholar]
- [11]. Owen A, Rannard S. Strengths, weaknesses, opportunities and challenges for long acting injectable therapies: insights for applications in HIV therapy. Adv. Drug Deliv. Rev. 2016;103:144–156. [PMC free article] [PubMed] [Google Scholar]

## **IJARSCT**



International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

## Volume 2, Issue 5, June 2022

- [12]. Poveda E, Tabernilla A. New insights into HIV-1 persistence in sanctuary sites during antiretroviral therapy. AIDS Rev. 2016;18(1):55. [PubMed] [Google Scholar]
- [13]. Cory TJ, Schacker TW, Stevenson M, Fletcher CV. Overcoming pharmacologic sanctuaries. Curr. Opin. HIV AIDS. 2013;8(3):190–195. [PMC free article] [PubMed] [Google Scholar]
- [14]. Martinez Rivas CJ, Tarhini M, Badri W, Miladi K, Greige-Gerges H, Nazari QA, et al. Nanoprecipitation process: from encapsulation to drug delivery. Int J Pharm. (2017) 532:66–81. doi: 10.1016/j.ijpharm.2017.08.064
- [15]. Victor OB. Nanoparticles and its implications in HIV/AIDS therapy. Curr Drug Discov Technol. (2019) 16:1. doi: 10.2174/1570163816666190620111652 CrossRef Full Text | Google Scholar
- [16]. Cao S, Woodrow KA. Nanotechnology approaches to eradicating HIV reservoirs. Eur J Pharm Biopharm. (2019) 138:48–63. doi: 10.1016/j.ejpb.2018.06.002
- [17]. Mamo T, Moseman EA, Kolishetti N, Salvador-Morales C, Shi J, Kuritzkes DR, et al. Emerging nanotechnology approaches for HIV/AIDS treatment and prevention. Nanomedicine (Lond). (2010) 5:269–85. doi: 10.2217/nnm.10.1