iMedPub Journals http://www.imedpub.com/

DOI: 10.21767/2572-4657.100011

## Biomolecular Spectroscopy and Dynamics of Nano–Sized Molecules and Clusters as Cross–Linking–Induced Anti–Cancer and Immune–Oncology Nano Drugs Delivery in DNA/RNA of Human Cancer Cells' Membranes under Synchrotron Radiations: A Payload–Based Perspective

## Alireza Heidari\*

Faculty of Chemistry, California South University, 14731 Comet St. Irvine, CA 92604, USA

\*Corresponding author: Alireza Heidari, Faculty of Chemistry, California South University (CSU), 14731 Comet St. Irvine, CA 92604, USA Tel: 1-775-410-4974; E-mail: Scholar.Researcher.Scientist@gmail.com

Received Date: May 22, 2017; Accepted Date: May 23, 2017; Published Date: May 30, 2017

**Copyright:** © 2017 Heidari A, This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

**Citation:** Heidari A. Biomolecular Spectroscopy and Dynamics of Nano–Sized Molecules and Clusters as Cross–Linking–Induced Anti–Cancer and Immune–Oncology Nano Drugs Delivery in DNA/RNA of Human Cancer Cells' Membranes under Synchrotron Radiations: A Payload–Based Perspective. Arch Chem Res. 2017, 1:2.

## Editorial

Chemists have been fascinated for a long time with phenomenon of bimolecular spectroscopy and dynamics of Nano-sized molecules and clusters as cross-linking-induced anti-cancer and Immune-Oncology (I-O) Nano drugs delivery in DNA/RNA of human cancer cells' membranes under synchrotron radiations [1-25]. This concept generally associated with anticancer and Immune-Oncology (I-O) Nano drugs delivery under synchrotron radiations, now extends equally well to synchrotron chemistry. Despite its continuing very frequent use in the scientific literature, anti-cancer and Immune-Oncology (I-O) Nano drugs delivery under synchrotron radiations like many other useful and popular chemical concepts is non-reductive and lacks an unambiguous basis. It has no precise quantitative definition and is not directly measureable experimentally. In other words, anti-cancer and Immune-Oncology (I-O) Nano drugs delivery under synchrotron radiations is a virtual quantity, rather than a physical observable. Since anti-cancer and Immune-Oncology (I-O) Nano drugs delivery under synchrotron radiations is not a directly measureable quantity, its magnitude is now generally evaluated in terms of structural, energetic and magnetic criteria. However, magnetic properties are the most closely related to anti-cancer and Immune-Oncology (I-O) Nano drugs delivery under synchrotron radiations, as they depend directly on the induced ring currents associated with cyclic electron delocalization. The main purpose of this editorial is to show how the different criteria can be used to describe the Nano drugs delivery under synchrotron radiations of various Nano-sized molecules and clusters as cross-linking-induced anti-cancer and Immune-Oncology (I-O) Nano drugs in DNA/RNA of human cancer cells' membranes.

On the other hand, functionalized cross–linking–induced anti– cancer and Immune-Oncology (I-O) Nano drugs delivery in DNA/RNA of human cancer cells' membranes under synchrotron radiations are found in a variety of Nano–sized molecules and clusters using biomolecular spectroscopies such as <sup>1</sup>HNMR, <sup>13</sup>CNMR, <sup>31</sup>PNMR, Attenuated Total Reflectance Fourier Transform Infrared (ATR-FTIR) and FT-Raman. Consequently, many synthetic methodologies have been developed for constructing these anti-cancer and Immune-Oncology (I-O) Nano drugs delivery under synchrotron radiations, most of which were based on cycloaddition/elimination or condensation reactions. Since Michael reactions hydrophobic effects could strongly enhance the rate of some anti-cancer and Immune-Oncology (I-O) Nano drugs delivery under synchrotron radiations reactions and rediscovered the use of water as solvent in synchrotron chemistry in 2010s. Anti-cancer and Immune-Oncology (I-O) Nano drugs delivery under synchrotron radiations reactions in water without using harmful organic solvents are one of the current focuses today specially in our environmentally vigilant societies. In this editorial, we wish to report a one-pot, three-component reaction of different Nanosized molecules and clusters as cross-linking- induced anticancer and Immune-Oncology (I-O) Nano drugs delivery in DNA/RNA of human cancer cells' membranes under synchrotron radiations in refluxing water.

## References

- 1. Sun Y, Su J, Liu G, Chen J, Zhang X, et al. (2017) Advances of blood cell-based drug delivery systems. Eur J Pharm Sci 96: 115-128.
- 2. Qin SY, Zhang AQ, Cheng XS, Rong L, Zhang XZ (2017) Drug selfdelivery systems for cancer therapy. Biomaterials 112: 234-247.
- Gorgieva S (2017) 2 Preparative methods and devices of bioinspired materials in drug-delivery systems, Woodhead Publishing, USA, pp: 45-67.
- Lühmann TC, Meinel L, Groll J, Dalton PD (2017) Electrospun Fibers for Drug Delivery: In Reference Module in Materials Science and Materials Engineering, Elsevier.
- Wang L, Chang MW, Ahmad Z, Zheng H, Li JS (2017) Mass and controlled fabrication of aligned PVP fibers for matrix type antibiotic drug delivery systems, Chemical Engineering Journal 307: 661-669.

1

**Archives in Chemical Research** 

- Lopes RM, Fonseca NA, Cruz AF, Gregório AC, Fernandes AV, et al. (2017) 14 - Advances on nucleic acid delivery with nonviral vectors. Woodhead Publishing, USA, pp: 403-426.
- Nguyen TTC, Nguyen CK, Nguyen TH, Tran NQ (2017) Highly lipophilic pluronics-conjugated polyamidoamine dendrimer nanocarriers as potential delivery system for hydrophobic drugs. Materials Science and Engineering: C 70: 992-999.
- Liu M, Wang X, Zhu D, Li L, Duan H, et al. (2017) Encapsulation of NiO nanoparticles in mesoporous carbon nanospheres for advanced energy storage. Chemical Engineering Journal 308: 240-247.
- Cardoso VF, Ribeiro C, Mendez SL (2017) 3 Metamorphic biomaterials, Bioinspired Materials for Medical Applications, Woodhead Publishing, USA pp: 69-99.
- 11. Peters BA, Drmanac S, Liu JS, Xun X, Drmanac R (2017) Advanced Personal Genome Sequencing as the Ultimate Diagnostic Test, Molecular Diagnostics (3rd Edn), Academic Press: USA, pp: 155-172.
- Anandhakumar S, Krishnamoorthy G, Ramkumar KM, Raichur AM (2017) Preparation of collagen peptide functionalized chitosan nanoparticles by ionic gelation method: An effective carrier system for encapsulation and release of doxorubicin for cancer drug delivery. Materials Science and Engineering: C 70: 378-385.
- Huang Y, Mao K, Zhang B, Zhao Y (2017) Superparamagnetic iron oxide nanoparticles conjugated with folic acid for dual targetspecific drug delivery and MRI in cancer theranostics. Materials Science and Engineering: C 70: 763-771.
- 14. Wang D, Wu LP (2017) Nanomaterials for delivery of nucleic acid to the central nervous system (CNS). Materials Science and Engineering: C 70: 1039-1046.
- 15. Feng C, Li J, Mu Y, Kong M, Li Y, et al. (2017) Multilayer microdispersing system as oral carriers for co-delivery of doxorubicin hydrochloride and P-gp inhibitor. International Journal of Biological Macromolecules 94: 170-180.
- 16. Gontero D, Viger ML, Brouard D, Bracamonte AG, Boudreau D, et al. (2017) Smart multifunctional nanoparticles design as sensors

and drug delivery systems based on supramolecular chemistry. Microchemical Journal 130: 316-328.

- 17. Tan G, Yu S, Pan H, Li J, Liu D, et al. (2017) Bioadhesive chitosanloaded liposomes: A more efficient and higher permeable ocular delivery platform for timolol maleate. International Journal of Biological Macromolecules 94: 355-363.
- Paun IA, Zamfirescu M, Luculescu CR, Acasandrei AM, Mustaciosu CM, et al. (2017) Electrically responsive microreservoires for controllable delivery of dexamethasone in bone tissue engineering. Applied Surface Science 392: 321-331.
- 19. Cardoso VMDO, Cury BSF, Evangelista RC, Gremião MPD (2017) Development and characterization of cross-linked gellan gum and retrograded starch blend hydrogels for drug delivery applications. Journal of the Mechanical Behavior of Biomedical Materials 65: 317-333.
- Monteil M, Lecouvey M, Landy D, Ruellan S, Mallard I (2017) Cyclodextrins: A promising drug delivery vehicle for bisphosphonate. Carbohydrate Polymers 156: 285-293.
- 21. Dang N, Liu TY, Prow TW (2017) Nano- and Microtechnology in Skin Delivery of Vaccines, In Micro and Nano Technologies, William Andrew Publishing, USA pp: 327-341.
- 22. Heidari A (2016) A Chemotherapeutic and Biospectroscopic Investigation of the Interaction of Double–Standard DNA/RNA– Binding Molecules with Cadmium Oxide (CdO) and Rhodium (III) Oxide (Rh2O3) Nanoparticles as Anti–Cancer Drugs for Cancer Cells' Treatment. Chemo Open Access 5: e129.
- 23. A Heidari (2016) Biotranslational Medical and Biospectroscopic Studies of Cadmium Oxide (CdO) Nanoparticles-DNA/RNA Straight and Cycle Chain Complexes as Potent Anti-Viral, Anti-Tumor and Anti-Microbial Drugs: A Clinical Approach. Transl Biomed 7:2.
- 24. Heidari A (2016) Coplanarity and Collinearity of 4'–Dinonyl–2,2'– Bithiazole in One Domain of Bleomycin and Pingyangmycin to be Responsible for Binding of Cadmium Oxide (CdO) Nanoparticles to DNA/RNA Bidentate Ligands as Anti-Tumor Nano Drug. Int J Drug Dev & Res 8: 007-008.
- 25. Heidari A (2016) Computational Study on Molecular Structures of C20, C60, C240, C540, C960, C2160 and C3840 Fullerene Nano Molecules under Synchrotron Radiations Using Fuzzy Logic. J Material Sci Eng 5: 282.