

# Nanomedicine and Nanoscience Technology: Open Access

Opinion | Volume 2, Issue 2

# Benefits and Challenges of Particle Therapy for Cancer Treatment

Alireza Heidari<sup>1,2,3,4\*</sup>

\*Correspondence: Faculty of Chemistry. Alireza Heidari, California South University, 14731 Comet St. Irvine, CA 92604, USA

Received Date: Aug 03, 2022 / Accepted Date: Aug 11, 2022 / Published Date: Aug 17, 2022

#### **Abstract**

Practically all radiation therapies for (containing disease) cancers are given utilizing electron linacs that give the two electrons and photons at (more than two, yet not much of) energies. Plan and development of these linacs depend on mature innovation that is rapidly turning out to be to an ever-increasing extent (done or made to look the same way like clockwork) and extravagant (or brilliant).

#### Keywords

Hadrontherapy, Radiotherapy, Cancer, Treatment, Cure, Tumors, Oncology, Particle Therapy

## **Opinion**

Practically all radiation therapies for (containing disease) cancers are given utilizing electron linacs that give the two electrons and photons at (more than two, yet not much of) energies. Plan and development of these linacs depend on mature innovation that is rapidly turning out to be to an ever-increasing extent (done or made to look the same way like clockwork) and extravagant (or brilliant). The utilization of hadrons like neutrons, protons, alphas, or carbon, oxygen and neon particles are (contrasted with different things) new. (gadget that speeds something up)s for hadron treatment are a long way from (done or made to look the same way like clockwork), yet the utilization of hadron treatment as another decision to conventional radiation has prompted enormous enhancements and (little however significant upgrades) in customary therapy approaches to getting things done. This paper presents the explanations behind (following through with something) for radiation treatment, portrays the (gadget that speeds something up) utilized in normal and hadron treatment, and frameworks the issues that should in any case be gotten comfortable the recently apparent field of hadron treatment [1–30].

## Acknowledgement

This study was supported by the Cancer Research Institute (CRI) Project of Scientific Instrument and Equipment Development, the National Natural Science Foundation of the United Sates, the International Joint BioSpectroscopy Core Research Laboratory (BCRL) Program supported by the California South University (CSU), and the Key project supported by the American International Standards Institute (AISI), Irvine, California, USA.

#### References

1. Heidari A, Brown C. Study of Composition and Morphology of Cadmium Oxide (CdO) Nanoparticles for Eliminating Cancer Cells. J Nanomed Res. 2015; 2(5)20:2015.

<sup>&</sup>lt;sup>1</sup>California South University, 14731 Comet St. Irvine, CA 92604, USA

<sup>&</sup>lt;sup>2</sup>BioSpectroscopy Core Research Laboratory, California South University, 14731 Comet St. Irvine, CA 92604, USA

<sup>&</sup>lt;sup>3</sup>Cancer Research Institute (CRI), California South University, 14731 Comet St. Irvine, CA 92604, USA

<sup>&</sup>lt;sup>4</sup>American International Standards Institute, Irvine, CA 3800, USA

- 2. Heidari A, Brown C. Study of Surface Morphological, Phytochemical and Structural Characteristics of Rhodium (III) Oxide (Rh<sub>2</sub>O<sub>3</sub>) Nanoparticles. Int J Pharmacol Phytoche Ethnomed. 2015:1(1):15-19.
- 3. Heidari A. An Experimental Biospectroscopic Study on Seminal Plasma in Determination of Semen Quality for Evaluation of Male Infertility. Int J Adv Technol. 2016;7: e007.
- 4. Heidari A. Extraction and Preconcentration of N-Tolyl-Sulfonyl-Phosphoramid-Saeure-Dichlorid as an Anti-Cancer Drug from Plants: A Pharmacognosy Study. J Pharmacogn Nat Prod. 2016;2: e103.
- 5. Heidari A. A Thermodynamic Study on Hydration and Dehydration of DNA and RNA-Amphiphile Complexes. J Bioeng Biomed Sci. 2016;S:006.
- 6. Heidari A. Computational Studies on Molecular Structures and Carbonyl and Ketene Groups' Effects of Singlet and Triplet Energies of Azidoketene O=C=CH-NNN and Isocyanatoketene O=C=CH-N=C=O. J Appl Computat Math.2016;5:e142.
- 7. Heidari A. Study of Irradiations to Enhance the Induces the Dissociation of Hydrogen Bonds between Peptide Chains and Transition from Helix Structure to Random Coil Structure Using ATR–FTIR, Raman and <sup>1</sup>HNMR Spectroscopies. J Biomol Res Ther. 2016;5:e146.
- 8. Heidari A. Future Prospects of Point Fluorescence Spectroscopy, Fluorescence Imaging and Fluorescence Endoscopy in Photodynamic Therapy (PDT) for Cancer Cells. J Bioanal Biomed. 2016;8: e135.
- 9. Heidari A. A Bio-Spectroscopic Study of DNA Density and Color Role as Determining Factor for Absorbed Irradiation in Cancer Cells. Adv Cancer Prev. 2016;1: e102.
- 10. Heidari A Manufacturing Process of Solar Cells Using Cadmium Oxide (CdO) and Rhodium (III) Oxide (Rh<sub>2</sub>O<sub>3</sub>) Nanoparticles. J Biotechnol Biomater.2016;6: e125.
- 11. Heidari A. A Novel Experimental and Computational Approach to Photobiosimulation of Telomeric DNA/RNA: A Biospectroscopic and Photobiological Study. J Res Development 2016;4:144.
- 12. Heidari A. Biochemical and Pharmacodynamical Study of Microporous Molecularly Imprinted Polymer Selective for Vancomycin, Teicoplanin, Oritavancin, Telavancin and Dalbavancin Binding. Biochem Physiol. 2016;5:e146.
- 13. Heidari A. Anti-Cancer Effect of UV Irradiation at Presence of Cadmium Oxide (CdO) Nanoparticles on DNA of Cancer Cells: A Photodynamic Therapy Study. Arch Cancer Res. 2016;4:1.
- 14. Heidari A. Biospectroscopic Study on Multi–Component Reactions (MCRs) in Two A–Type and B–Type Conformations of Nucleic Acids to Determine Ligand Binding Modes, Binding Constant and Stability of Nucleic Acids in Cadmium Oxide (CdO) Nanoparticles–Nucleic Acids Complexes as Anti–Cancer Drugs. Arch Cancer Res. 2016;4:2.
- 15. Heidari A.Simulation of Temperature Distribution of DNA/RNA of Human Cancer Cells Using Time–Dependent Bio–Heat Equation and Nd: YAG Lasers. Arch Cancer Res. 2016;4:2.
- 16. Heidari A. Quantitative Structure–Activity Relationship (QSAR)Approximation for Cadmium Oxide (CdO) and Rhodium (III) Oxide (Rh<sub>2</sub>O<sub>3</sub>) Nanoparticles as Anti-Cancer Drugs for the Catalytic Formation of Proviral DNA from Viral RNA Using Multiple Linear and Non-Linear Correlation Approach. Ann Clin Lab Res. 2016;4:1.
- 17. Heidari A. Biomedical Study of Cancer Cells DNA Therapy Using Laser Irradiations at Presence of Intelligent Nanoparticles. J Biomedical Sci. 2016;5:2.
- 18. Heidari A. Measurement the Amount of Vitamin D2 (Ergocalciferol), Vitamin D3 (Cholecalciferol) and Absorbable Calcium (Ca<sup>2+</sup>), Iron (II) (Fe<sup>2+</sup>), Magnesium (Mg<sup>2+</sup>), Phosphate (PO<sup>4-</sup>) and Zinc (Zn<sup>2+</sup>) in Apricot Using High–Performance Liquid Chromatography (HPLC) and Spectroscopic Techniques. J Biom Biostat. 2016;7:292.
- 19. Heidari A. Spectroscopy and Quantum Mechanics of the Helium Dimer (He<sup>2+</sup>), Neon Dimer (Ne<sup>2+</sup>), Argon Dimer (Ar<sup>2+</sup>), Krypton Dimer (Kr<sup>2+</sup>), Xenon Dimer (Xe<sup>2+</sup>), Radon Dimer(Rn<sup>2+</sup>) and Ununoctium Dimer (Uuo<sup>2+</sup>) Molecular Cations. Chem Sci J. 2016;7: e112.
- 20. Heidari A. Human Toxicity Photodynamic Therapy Studies on DNA/RNA Complexes as a Promising New Sensitizer for the Treatment of Malignant Tumors Using Bio-Spectroscopic Techniques. J Drug Metab Toxicol. 2016;7: e129.
- 21. Heidari A. Novel and Stable Modifications of Intelligent Cadmium Oxide (CdO) Nanoparticles as Anti-Cancer Drug in

- Formation of Nucleic Acids Complexes for Human Cancer Cells' Treatment. Biochem Pharmacol (Los Angel) 2016;5: 207.
- 22. Heidari A. A Combined Computational and QM/MM Molecular Dynamics Study on Boron Nitride Nanotubes (BNNTs), Amorphous Boron Nitride Nanotubes (a–BNNTs) and Hexagonal Boron Nitride Nanotubes (h–BNNTs) as Hydrogen Storage. Struct Chem Crystallogr Commun 2016;2.
- 23. Heidari A. Pharmaceutical and Analytical Chemistry Study of Cadmium Oxide (CdO) Nanoparticles Synthesis Methods and Properties as Anti–Cancer Drug and Its Effect on Human Cancer Cells. Pharm Anal Chem Open Access. 2016;2:113.
- 24. Heidari A. A Chemotherapeutic and Biospectroscopic Investigation of the Interaction of Double–Standard DNA/RNA-Binding Molecules with Cadmium Oxide (CdO) and Rhodium (III) Oxide (Rh<sub>2</sub>O<sub>3</sub>) Nanoparticles as Anti-Cancer Drugs for Cancer Cells' Treatment", Chemo Open Access. 2016;5: e129.
- 25. Heidari A. Pharmacokinetics and Experimental Therapeutic Study of DNA and Other Biomolecules Using Lasers: Advantages and Applications. J Pharmacokinet Exp Ther. 2016;1:e005.
- 26. Heidari A. Determination of Ratio and Stability Constant of DNA/RNA in Human Cancer Cells and Cadmium Oxide (CdO) Nanoparticles Complexes Using Analytical Electrochemical and Spectroscopic Techniques. Insights Anal Electrochem 2016;2:1.
- 27. Heidari A. Discriminate between Antibacterial and Non–Antibacterial Drugs Artificial Neutral Networks of a Multilayer Perceptron (MLP) Type Using a Set of Topological Descriptors. J Heavy Met Toxicity Dis. 2016;1: 2.
- 28. Heidari A. Combined Theoretical and Computational Study of the Belousov–Zhabotinsky Chaotic Reaction and Curtius Rearrangement for Synthesis of Mechlorethamine, Cisplatin, Streptozotocin, Cyclophosphamide, Melphalan, Busulphan and BCNU as Anti–Cancer Drugs. Insights Med Phys. 2016;1:2.
- 29. Heidari A. A Translational Biomedical Approach to Structural Arrangement of Amino Acids' Complexes: A Combined Theoretical and Computational Study. Transl Biomed. 2016;7:2.
- 30. Heidari A. Ab Initio and Density Functional Theory (DFT) Studies of Dynamic NMR Shielding Tensors and Vibrational Frequencies of DNA/RNA and Cadmium Oxide (CdO) Nanoparticles Complexes in Human Cancer Cells. J Nanomedine Biotherapeutic Discov 2016;6: e144.

**Citation:** Alireza Heidari. Benefits and Challenges of Particle Therapy for Cancer Treatment. Nanomed Nanosci Technol: Open Access 2022;2(2):1-4.

**Copyright:** © 2022 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.