

Elimination of the Heavy Metals Toxicity and Diseases in Disruption of Extracellular Matrix (ECM) Proteins and Cell Adhesion Intelligent Nanomolecules Adjustment in Cancer Metastases Using Metalloenzymes and under Synchrotron Radiation

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, 14731 Comet St. Irvine, CA 92604, USA, E-mail: Scholar.Researcher.Scientist@gmail.com

Citation: Heidari, A. Elimination of the Heavy Metals Toxicity and Diseases in Disruption of Extracellular Matrix (ECM) Proteins and Cell Adhesion Intelligent Nanomolecules Adjustment in Cancer Metastases Using Metalloenzymes and under Synchrotron Radiation. (2017) *Lett Health Biol Sci* 2(2): 78- 81.

Received Date: June 22, 2017
Accepted Date: July 18, 2017
Published Date: July 21, 2017

DOI: 10.15436/2475-6245.17.019



Introduction

Heavy metals Nano compounds are important synthetic intermediates in organic, medicinal and pharmaceutical chemistry and are valuable in the preparation of biologically and pharmaceutically relevant Nano materials^[1-11]. The oxidation of heavy metals Nano compounds is the most straight forward method for the synthesis of heavy metals Nano compounds^[12-24]. However, only a few reports are available where a given oxidant is suitable for controlled synthesis of heavy metals Nano compounds^[25-27]. It is often noticed that heavy metals Nano compounds oxidation is accompanied by several disadvantages such as long reaction times, inconvenient reaction conditions, expensive oxidants, undesired side and now yields^[28-32]. An important goal in this area of research has been to develop catalyst systems for mild and selective oxidations of heavy metals Nano compounds. Metalloenzymes capable of activating dioxygen in order to oxidize exogenous substrates play an important and inspirational role in the design of new oxidation catalysts. Particularly, heavy metals Nano compounds oxygenases have become attractive targets for extensive research efforts toward the synthesis of nanomolecule analogues of their active sites.

Modern science is based on interaction among disciplines. Pharmaceutical and medicinal chemistry has transformed the materials of everyday life, but this is merely a quick look of the future of pharmaceutical and medicinal materials such as intelligent nanomolecules that behave as a sensor, self-reproducing pharmaceutical and medicinal Nano compounds, intelligent nanomolecules that work (Nano-Engineering) and even intelligent nanomolecules that think may transform our world in ways not yet imagined (Figures 1 and Figure 2)^[33-35]. These developments are the result of cooperation among pharmaceutical chemists, physicists, engineers, material scientists, computer experts, pharmacists, medicinal chemists and many others. The most dramatic developments at the beginning of the twenty-first century are new methods in chemistry, pharmacology, pharmaceutical sciences and medicine from collaborations among pharmaceutical and medicinal chemists and biologists. In this short communication, a transcendental approach to biofield changing premix metal powders characteristics as metalloenzymes for elimination of the heavy metals toxicity and diseases in disruption of Extracellular Matrix (ECM) proteins and cell adhesion intelligent nanomolecules adjustment in cancer metastases in-

duced by osteosarcoma, chondrosarcoma, carcinoid, carcinoma, Ewing's sarcoma, fibrosarcoma and secondary hematopoietic solid or soft tissue tumors under synchrotron radiation have been investigated.

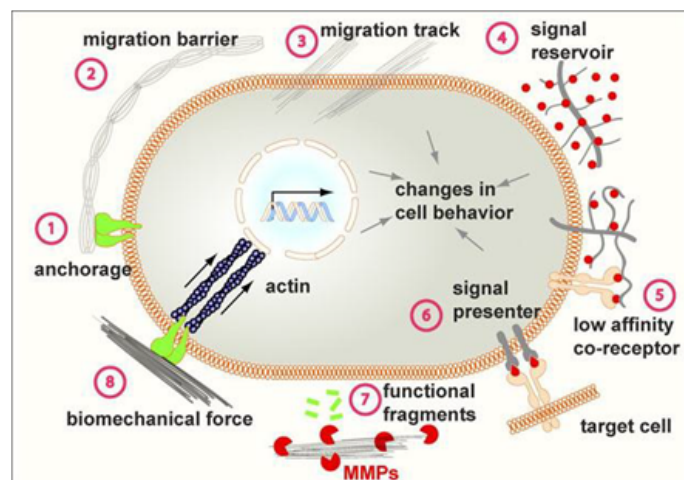


Figure 1: Schematic of elimination of the heavy metals toxicity and diseases in disruption of Extracellular Matrix (ECM) proteins and cell adhesion intelligent nanomolecules adjustment in cancer metastases^[33-55].

ing premix metal powders characteristics as metalloenzymes is depending on low hazard and easily recovering. Biofield changing premix metal powders characteristics as metalloenzymes for elimination of the heavy metals toxicity and diseases is one of the valuable and sensitive disruption of Extracellular Matrix (ECM) proteins and cell adhesion intelligent nanomolecules adjustment in cancer metastases induced by osteosarcoma, chondrosarcoma, carcinoid, carcinoma, Ewing's sarcoma, fibrosarcoma and secondary hematopoietic solid or soft tissue tumors under synchrotron radiation. There are many literatures about disruption of Extracellular Matrix (ECM) proteins and cell adhesion intelligent nanomolecules adjustment in cancer metastases induced by osteosarcoma, chondrosarcoma, carcinoid, carcinoma, Ewing's sarcoma, fibrosarcoma and secondary hematopoietic solid or soft tissue tumors, but most of them use hard reaction conditions. For this purpose, we have investigated the process of disruption of Extracellular Matrix (ECM) proteins and cell adhesion intelligent nanomolecules adjustment in cancer metastases induced by osteosarcoma, chondrosarcoma, carcinoid, carcinoma, Ewing's sarcoma, fibrosarcoma and secondary hematopoietic solid or soft tissue tumors in various solvents such as Dichloromethane (DCM or Methylene Chloride), Acetone, Tetrahydrofuran (THF) and Ethyl Acetate and also have reported purity, yield and expense of produce, stability and crystallinity of them. By this optimization, we are able to disrupt Extracellular Matrix (ECM) proteins and cell adhesion intelligent nanomolecules adjustment in cancer metastases induced by osteosarcoma, chondrosarcoma, carcinoid, carcinoma, Ewing's sarcoma, fibrosarcoma and secondary hematopoietic solid or soft tissue tumors and have a crystalline form with more stability and therapeutically effect under synchrotron radiation.

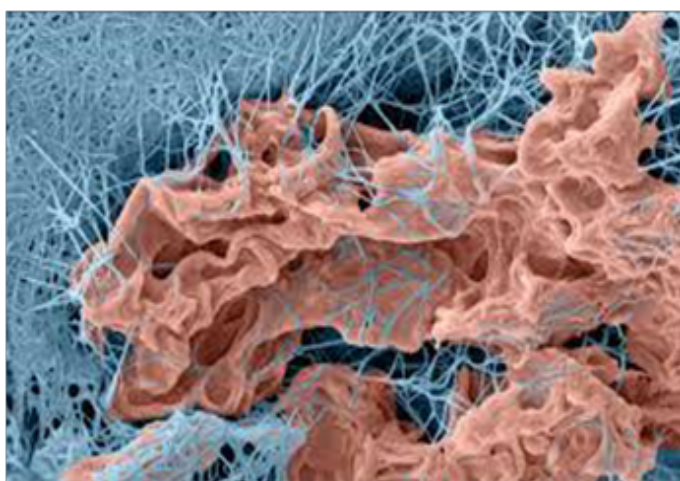


Figure 2: A Scanning Electron Microscope (SEM) image of interaction between heavy metals toxicity and diseases in disruption of Extracellular Matrix (ECM) proteins and cell adhesion intelligent nanomolecules adjustment in cancer metastases using metalloenzymes and under synchrotron radiation^[33-55].

On the other hand, it is well-known that biofield changing premix metal powders characteristics as metalloenzymes for elimination of the heavy metals toxicity and diseases is critical role and effect in most of reactions. This role is important, when you do these reactions in disruption of Extracellular Matrix (ECM) proteins and cell adhesion intelligent nanomolecules adjustment in cancer metastases induced by osteosarcoma, chondrosarcoma, carcinoid, carcinoma, Ewing's sarcoma, fibrosarcoma and secondary hematopoietic solid or soft tissue tumors under synchrotron radiation. For example, in pharmaceutical and medicinal manufactures, biofield changing premix metal powders characteristics as metalloenzymes has prominent role in purity, yield, stability and expense for elimination of the heavy metals toxicity and diseases. Furthermore, biofield chang-

References

- Heidari, A., Brown, C. Study of Composition and Morphology of Cadmium Oxide (CdO) Nanoparticles for Eliminating Cancer Cells. (2015) *Journal of Nanomedicine Research* 2(5): 20.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. Extraction and Preconcentration of N-Tolyl-Sulfonyl-Phosphoramid-Saeure-Dichlorid as an Anti-Cancer Drug from Plants: A Pharmacognosy Study. (2016) *J Pharmacogn Nat Prod* 2: e103.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. Future Prospects of Point Fluorescence Spectroscopy, Fluorescence Imaging and Fluorescence Endoscopy in Photodynamic Therapy (PDT) for Cancer Cells. (2016) *J Bioanal Biomed* 8: e135.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. A Bio-Spectroscopic Study of DNA Density and Color Role as Determining Factor for Absorbed Irradiation in Cancer Cells. (2016) *Adv Cancer Prev* 1: e102.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. Anti-Cancer Effect of UV Irradiation at Presence of Cadmium Oxide (CdO) Nanoparticles on DNA of Cancer Cells: A Photodynamic Therapy Study. (2016) *Arch Cancer Res* 4: 1.
[Pubmed](#) | [Crossref](#) | [Others](#)
- 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* 4(2): 2016.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. Simulation of Temperature Distribution of DNA/RNA of Human Cancer Cells Using Time-Dependent Bio-Heat Equation and Nd: YAG Lasers. (2016) *Arch Cancer Res* 4: 2.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. Quantitative Structure-Activity Relationship (QSAR) Approximation for Cadmium Oxide (CdO) and Rhodium (III) Oxide (Rh2O3) Nanoparticles as Anti-Cancer Drugs for the Catalytic Formation of Proviral DNA from Viral RNA Using Multiple Linear and Non-Linear Correlation Approach. (2016) *Ann Clin Lab Res* 4: 1.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. Biomedical Study of Cancer Cells DNA Therapy Using Laser Irradiations at Presence of Intelligent Nanoparticles. (2016) *J Biomedical Sci* 5: 2.
[Pubmed](#) | [Crossref](#) | [Others](#)
- 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. (2016) *Biochem Pharmacol (Los Angel)* 5: 207.
[Pubmed](#) | [Crossref](#) | [Others](#)
- 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. (2016) *Pharm Anal Chem Open Access* 2: 113.
[Pubmed](#) | [Crossref](#) | [Others](#)
- 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 (Rh2O3) Nanoparticles as Anti-Cancer Drugs for Cancer Cells' Treatment. (2016) *Chemo Open Access* 5: e129.
[Pubmed](#) | [Crossref](#) | [Others](#)
- 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. (2016) *Insights Anal Electrochem* 2: 1.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. Combined Theoretical and Computational Study of the Belousov-Zhabotinsky Chaotic Reaction and Curtius Rearrangement for Synthesis of Mechlorethamine, Cisplatin, Streptozotocin, Cyclophosphamide, Melfalphan, Busulphan and BCNU as Anti-Cancer Drugs. (2016) *Insights Med Phys* 1: 2.
[Pubmed](#) | [Crossref](#) | [Others](#)
- 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. (2016) *J Nanomedine Biotherapeutic Discov* 6: e144.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. Nitrogen, Oxygen, Phosphorus and Sulphur Heterocyclic Anti-Cancer Nano Drugs Separation in the Supercritical Fluid of Ozone (O3) Using Soave-Redlich-Kwong (SRK) and Peng-Robinson (PR) Equations. (2016) *Electronic J Biol* 12: 4.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. Study of the Role of Anti-Cancer Molecules with Different Sizes for Decreasing Corresponding Bulk Tumor Multiple Organs or Tissues. (2016) *Arch Can Res* 4: 2.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. Pharmacogenomics and Pharmacoproteomics Studies of Phosphodiesterase-5 (PDE5) Inhibitors and Paclitaxel Albumin-Stabilized Nanoparticles as Sandwiched Anti-Cancer Nano Drugs between Two DNA/RNA Molecules of Human Cancer Cells. (2016) *J Pharmacogenomics Pharmacoproteomics* 7: e153.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. A Comparative Study on Simultaneous Determination and Separation of Adsorbed Cadmium Oxide (CdO) Nanoparticles on DNA/RNA of Human Cancer Cells Using Biospectroscopic Techniques and Dielectrophoresis (DEP) Method. (2016) *Arch Can Res* 4: 2.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. Cheminformatics and System Chemistry of Cisplatin, Carboplatin, Nedaplatin, Oxaliplatin, Heptaplatin and Lobaplatin as Anti-Cancer Nano Drugs: A Combined Computational and Experimental Study. (2016) *J Inform Data Min* 1: 3.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. Linear and Non-Linear Quantitative Structure-Anti-Cancer-Activity Relationship (QSACAR) Study of Hydrous Ruthenium (IV) Oxide (RuO2) Nanoparticles as Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs) and Anti-Cancer Nano Drugs. (2016) *J Integr Oncol* 5: e110.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. A Pharmacovigilance Study on Linear and Non-Linear Quantitative Structure (Chromatographic) Retention Relationships (QSRR) Models for the Prediction of Retention Time of Anti-Cancer Nano Drugs under Synchrotron Radiations. (2016) *J Pharmacovigil* 4: e161.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. DNA/RNA Fragmentation and Cytolysis in Human Cancer Cells Treated with Diphthamide Nano Particles Derivatives. (2016) *Biomedical Data Mining* 5: e102.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. A Comparative Study of Conformational Behavior of Isotretinoin (13-Cis Retinoic Acid) and Tretinoin (All-Trans Retinoic Acid (ATRA)) Nano Particles as Anti-Cancer Nano Drugs under Synchrotron Radiations Using Hartree-Fock (HF) and Density Functional Theory (DFT) Methods. (2016) *Insights in Biomed* 1: 2.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. Chemotherapy a Last Resort for Cancer Treatment. (2016) *Chemo Open Access* 5: 4.
[Pubmed](#) | [Crossref](#) | [Others](#)
- Heidari, A. Yoctosecond Quantitative Structure-Activity Relationship (QSAR) and Quantitative Structure-Property Relationship (QSPR) under Synchrotron Radiations Studies for Prediction of Solubility of Anti-Cancer Nano Drugs in Aqueous Solutions Using Genetic Function Approximation (GFA) Algorithm. (2016) *Insight Pharm Res* 1: 1.
[Pubmed](#) | [Crossref](#) | [Others](#)

27. Heidari, A. Cancer Risk Prediction and Assessment in Human Cells under Synchrotron Radiations Using Quantitative Structure Activity Relationship (QSAR) and Quantitative Structure Properties Relationship (QSPR) Studies. (2016) *Int J Clin Med Imaging* 3: 516.
 Pubmed | [Crossref](#) | [Others](#)
28. Heidari, A. Integrating Precision Cancer Medicine into Healthcare, Medicare Reimbursement Changes and the Practice of Oncology: Trends in Oncology Medicine and Practices. (2016) *J Oncol Med & Pract* 1: 2.
 Pubmed | [Crossref](#) | [Others](#)
29. 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. (2017) *Arch Chem Res.* 1: 2.
 Pubmed | [Crossref](#) | [Others](#)
30. Heidari, A. Deficiencies in Repair of Double-Standard DNA/RNA-Binding Molecules Identified in Many Types of Solid and Liquid Tumors Oncology in Human Body for Advancing Cancer Immunotherapy Using Computer Simulations and Data Analysis. (2017) *J Appl Bioinforma Comput Biol* 6: 1.
 Pubmed | [Crossref](#) | [Others](#)
31. Heidari, A. Polymorphism in Nano-Sized Graphene Ligand-Induced Transformation of Au_{38-x}Ag_x/xCu_x(SPh-tBu)₂₄ to Au_{36-x}Ag_x/xCu_x(SPh-tBu)₂₄ (x = 1-12) Nanomolecules for Synthesis of Au₁₄₄-(SC6)60, (SC12)60, (PET)60, (p-MBA)60, (F)60, (Cl)60, (Br)60, (I)60, (At)60, (Uus)60 and (SC6H13)60 Nano Clusters as Anti-Cancer Nano Drugs. (2017) *J Nanomater Mol Nanotechnol*, 6: 3.
 Pubmed | [Crossref](#) | [Others](#)
32. Medicinal, Clinical, Pharmaceutical, Chemical and Translational Research and Their Applications in Cancer Research. (2017) *Int J Biomed Data Min* 6: e103.
 Pubmed | [Crossref](#) | [Others](#)
33. Bodeker, G., Burford, G., Volkov, A. Integrative, Traditional and Complementary Medicine, In *International Encyclopedia of Public Health* (Second Edition), edited by Stella R. Quah. (2017) Academic Press 288-295.
 Pubmed | [Crossref](#) | [Others](#)
34. Zampieri, F. Chapter 43 - The Impact of Modern Medicine on Human Evolution, In *On Human Nature*, edited by Michel Tibayrenc and Francisco J. Ayala. (2017) Academic Press San Diego 707-727.
 Pubmed | [Crossref](#) | [Others](#)
35. Jamin, K., Addae, G., Sandy, Y., et al. A comparison of trends in operative approach and postoperative outcomes for colorectal cancer surgery. (2017) *Journal of Surgical Research* 208: 111-120.
 Pubmed | [Crossref](#) | [Others](#)
36. Vallabhajosyula, S., Kanmanthareddy, A., Erwin, J., et al. Role of statins in delirium prevention in critical ill and cardiac surgery patients: A systematic review and meta-analysis. (2017) *Journal of Critical Care* 37 189-196.
 Pubmed | [Crossref](#) | [Others](#)
37. Michael, P., Gulshakra, J., Zamira J.N. The Results of Surgical Treatment of Cushing Tumors in the Republic of Uzbekistan: Establishing Transsphenoidal Surgery in A Developing Nation. (2017) *World Neurosurgery* 97: 213-220.
 Pubmed | [Crossref](#) | [Others](#)
38. Sood, A., Abdollah, F., Sammon, D.J. Postoperative sepsis prediction in patients undergoing major cancer surgery. (2017) *Journal of Surgical Research* 209: 60-69.
 Pubmed | [Crossref](#) | [Others](#)
39. Sharma, R.K. Occupational Health Hazards in Emergency and Triage of Health Care Setting. (2017) *Lett Health Biol Sci* 2(2): 1-3.
 Pubmed | [Crossref](#) | [Others](#)
40. Chye, S.M. A Mini Review on Medicinal Effects of Edible Bird's Nest. (2017) *Lett Health Biol Sci* 2(2): 1-3.
 Pubmed | [Crossref](#) | [Others](#)
41. Prakash, S., Yadav, K. Microalbuminuria in Diabetes. (2017) *Lett Health Biol Sci* 2(2): 1- 9.
 Pubmed | [Crossref](#) | [Others](#)
42. Scherlag, B.J., Scherlag, A., Scherlag, J. Seeds as a Source of Plant Inhibitory Fungi: Potential for Discovering New Antibiotics. (2017) *Lett Health Biol Sci* 2(1): 1- 4.
 Pubmed | [Crossref](#) | [Others](#)
43. Scherlag, B.J. The Life Cycle of Dwarf Stentors. (2017) *Lett Health Biol Sci* 2(1): 1- 4.
 Pubmed | [Crossref](#) | [Others](#)
44. Scimeca, M., Bonfiglio, R., Tancredi, V., et al. Pluripotent Stem Cells: the Hidden Treasure of the Human Milk. (2017) *Lett Health Biol Sci* 2(1):1- 2.
 Pubmed | [Crossref](#) | [Others](#)
45. Osowole, A.A., Odutemu, A.E. Synthesis, Physicochemical and Antioxidant Properties of Some Metal(II) Complexes of Mixed Drugs, Aspirin and Nicotinamide. (2017) *Lett Health Biol Sci* 2(1): 1- 6.
 Pubmed | [Crossref](#) | [Others](#)
46. Szyszkowicz, M. Visualization of Method-Specific Suicide Mortality Data. (2016) *Lett Health Biol Sci* 1(1): 1-2.
 Pubmed | [Crossref](#) | [Others](#)
47. Parkash, A. Electricity Generation from Sugar Processing Wastewater Using Environmental Friendly Dual Chamber Microbial Fuel Cell. (2016) *Lett Health Biol Sci* 1(1): 1- 6.
 Pubmed | [Crossref](#) | [Others](#)
48. Jamil, H., Fakhoury, M., Yamin, J.B., et al. Determinants of Employment among Well-Educated Refugees before and After the 2007 U.S. Economic Recession. (2016) *Lett Health Biol Sci* 1(1): 1-6.
 Pubmed | [Crossref](#) | [Others](#)
49. Farrukh, M.A. Arshad, M., Haneef, S., et.al. Antibacterial and Antifungal Activities of Zinc-Silicon Oxides Nanocomposite. (2016) *Lett Health Biol Sci* 1(1): 1-5.
 Pubmed | [Crossref](#) | [Others](#)
50. D'Ambrosca, B., et al. Polar Bioactive Constituents from Aerial Parts of *Thymus longicaulis* C. Presl. (2016) *Lett Health Biol Sci* 1(1): 1- 4.
 Pubmed | [Crossref](#) | [Others](#)
51. Takashima, A., Sano, K., Iwashita, J., et al. Suppressive Effects of Welsh Onion Extracts on Mucus Hyper-Production in Human Airway Cells. (2016) *Lett Health Biol Sci* 1(2): 1- 3.
 Pubmed | [Crossref](#) | [Others](#)
52. Osowole, A.A., Odutemu, A.E. Synthesis, Magnetic, Spectral and Antibacterial Properties of Some Metal(II) Complexes of Mixed Drugs, Aspirin and Vitamin B2. (2016) *Lett Health Biol Sci* 1(2): 1- 4.
 Pubmed | [Crossref](#) | [Others](#)
53. Z., et al. HMGB1: A Potential Therapeutic Target for Non-Small Cell Lung Cancer. (2016) *Lett Health Biol Sci* 1(2):1- 2.
 Pubmed | [Crossref](#) | [Others](#)
54. Kara, B. An Overview of the Effects of Anthroposophic Medicine in Patients with Chronic Disease. (2016) *Lett Health Biol Sci* 1(2): 1- 2.
 Pubmed | [Crossref](#) | [Others](#)
55. Scimeca, M., Bischetti, S., Bonanno, E. Energy Dispersive X-Ray (EDX) Microanalysis in Biomedical Research. (2016) *Lett Health Biol Sci* 1(2): 1- 2.
 Pubmed | [Crossref](#) | [Others](#)