

# Dr. Khatereh Khorsandi



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**Affiliation:** Department of Photodynamic,  
Medical Laser Research Center, YARA institute,  
ACECR, TUMS branch, Tehran, IRAN

## Academic Experiences

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### **Current Positions:**

- Assistant Professor of Biochemistry and head of Department of Photodynamic, Medical Laser Research Center, Tehran, IRAN. From 2014 to Present

### **Teaching Experience:**

Visiting Assistant Professor at Islamic Azad University Tehran North Branch, Department of Biology, and Tehran, Iran. From 2016 to Present.

## Education

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**2008-2013:** Ph.D. in Biochemistry, Institute of Biochemistry & Biophysics (IBB), University of Tehran, Tehran, Iran (GPA 18.84/20)

**2005-2007:** M.Sc. in Biochemistry, Institute of Biochemistry & Biophysics (IBB), University of Tehran, Tehran, Iran (GPA 18.69/20)

**2001-2005:** B.S. in biology (Botany Science), Faculty of Science, University of Tehran, Tehran, Iran (GPA 18.11/20)

## Honors & Awards

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- **Top Graduated Students Award** Ranked 1<sup>st</sup> in biology (botany science) Branch in graduated students at Tehran University in BS (summer 2005) with GPA 18.11/20
- **Top Speaker Award**, Ranked 1<sup>st</sup> in Third Iranian Congress of trace elements in Kashan, Iran, (winter 2013)
- **Young Scientist Award:** Ranked 1<sup>st</sup> in Third Iranian Congress of trace elements in Kashan, Iran, (winter 2013)
- **FAOBMB Young Scientist Fellowship Award** from 14<sup>th</sup> FAOBMB congress, 2015, Hyderabad, India.
- **IUBMB Young Scientist Award** from 16<sup>th</sup> IUBMB conference, 2016, Vancouver, Canada.
- **FAOBMB Young Scientist Travel Fellowship Award** from 25<sup>th</sup> FAOBMB conference, 2016, manila, Philippines.
- **IUBMB Young Scientist program Award** from 24<sup>th</sup> IUBMB Congress and 15<sup>th</sup> FAOBMB Congress, 2018, Seoul, Korea.
- **ESP Fellowships award for the World Congress on Light and Life (2019)** from European Society of Photobiology, 2019, Barcelona, Spain.
- **IUPAB UPAB-SBBq-SBBf Young Scientist Program fellowship Award** from 20<sup>th</sup> International Congress of the International Union for Pure and Applied Biophysics (IUPAB), a joint event with the 45<sup>th</sup> Annual Meeting of Brazilian Biophysical Society (SBBf) and the 49<sup>th</sup> Annual Meeting of Brazilian Biochemistry and Molecular Biology Society (SBBq), Foz do Iguaçu, Brazil, October 26<sup>th</sup> to 30<sup>th</sup>, 2020. Congress postponed to 2021.

## Research Interests

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- Photodynamic Therapy (PDT), Photobiomodulation & antimicrobial photodynamic therapy (aPDT)
- Cancer Biology; Combination therapy
- Nanobiotechnology; Drug delivery
- Antimicrobial drug resistance
- Stem Cells, Cell and Tissue Regeneration

## List of Publications

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- 1- **khatereh khorsandi\* et al**, .. Curcumin and diabetes mellitus: Molecular targets and cellular mechanisms, Ready to submit, **2021**.
- 2- Leila Gholami, **Khatereh Khorsandi\*** and Reza Fekrazad, a comparison between the effects of red and near infrared laser irradiation on PDL stem cell: ROS generation and cell cycle analysis. Submitted to Oral Diseases, **2021**.
- 3- **khatereh khorsandi\*** et al, .. Characteristics of CircRNA and its approach as diagnostic tool in melanoma, **Expert Review of Molecular Diagnostics**, under review, **2021**.
- 4- **Khatereh Khorsandi**, Reza Fekrazad\* and Michael R Hamblin, Low-dose photodynamic therapy effect on wound healing of normal and diabetic fibroblast cells: An in vitro study. **Journal of Biophotonics**, Revised, Manuscript ID jbio.202100005R1, **2021**.
- 5- **khatereh khorsandi\***; Zahra Kianmehr; Elmira Ghelichkhani, Combination effect of low-level laser irradiation and Traychsperrum ammi essential oil on colorectal cancer cells (SW48). **Laser in medical sciences**, Revised, Manuscript ID LIMS-D-20-00758R1, **2021**.
- 6- Saeedeh Keyvani-Ghamsari, **Khatereh Khorsandi\***, and Azhar Rasul and Muhammad khatir zaman, Current understanding of epigenetics mechanism as a novel target in reducing cancer stem cells resistance" (CLEP-D-20-00604R1), **Clinical Epigenetics**, Revised, **2021**.
- 7- Muhammad Adnan,..., **khatereh khorsandi**,..., Radioprotective role of natural polyphenols: From sources to mechanisms, **Anti-Cancer Agents in Medicinal Chemistry**, BMS-ACAMC-2020-HT28-1817-8, Minor Revision, **2020**.
- 8- **Khatereh Khorsandi\***, Reza Hosseinzadeh, Homa Sadat Esfahani, Saeedeh Keyvani-Ghamsari and Saeed Ur Rahman , Nanomaterials as drug delivery systems with antibacterial properties: Current trends and future priorities, **Expert Review of Anti-infective Therapy**, Accepted , DOI:10.1080/14787210.2021.1908125, **2021**.
- 9- **khatereh khorsandi\***; Saeedeh Keyvani-Ghamsari; Fedora khatibi Shahidi; Reza Hosseinzadeh and Simab Kanwal, A mechanistic perspective on targeting bacteria drug resistance with nanoparticles, **Journal of Drug Targeting**. **2021**, <https://doi.org/10.1080/1061186X.2021.1895818>.

- 10- Doroudian, A., Hosseinzadeh, R., Maghami, P., **Khorsandi, K**, Spectroscopic investigation on molecular aspects and structural and functional effects of tetraethyl pyrophosphate organophosphorus insecticide interaction with adult human hemoglobin, **Journal of Biomolecular Structure and Dynamics**, 2021. <https://doi.org/10.1080/07391102.2021.1902398>.
- 11- Mahsa Salemi, **Khatereh Khorsandi**, Reza Hosseinzadeh, Parvaneh Maghami, Effect of low-level laser irradiation on cytotoxicity of benzene in human normal fibroblast cells, **Lasers Med Sci**, (2021). <https://doi.org/10.1007/s10103-020-03211-y>.
- 12- Gholami, L., Nooshabadi, V.T., Shahabi, S... and **Khatereh Khorsandi**. Extracellular vesicles in bone and periodontal regeneration: current and potential therapeutic applications. *Cell & Bioscience* volume11, 16 (2021). <https://doi.org/10.1186/s13578-020-00527-8>
- 13- **Khatereh Khorsandi**, Sepehr Fekrazad, Farshid Vahdatinia, Abbas Farmany, and Reza Fekrazad\*, Nano Antiviral Photodynamic Therapy: a Probable Biophysicochemical Management Modality in SARS-CoV-2, **Expert Opinion on Drug Delivery**, 2021, DOI: 10.1080/17425247.2021.1829591,.
- 14- **Khatereh Khorsandi\***; Reza Hosseinzadeh and Elham Chamani, Molecular interaction and cellular studies on combination photodynamic therapy with rutoside for melanoma A375 cancer cells: an in vitro study, **Cancer Cell International**, DOI: 10.1186/s12935-020-01616-x, 2020.
- 15- Mahroo Motallebi, **Khatereh Khorsandi\***, Abbas Akhavan Sepahy, Elham Chamani and Reza Hosseinzadeh, Effect of rutin as flavonoid compound on photodynamic inactivation against *P. aeruginosa* and *S. aureus*, **Photodiagnosis and Photodynamic Therapy**, 2020 Dec;32:102074.doi: 10.1016/j.pdpdt.2020.102074.
- 16- Yousefi Sadeghloo, Arghavan; **khorsandi, khatereh\***; Kianmehr, Zahra, Synergistic Effect of Photodynamic Treatment and Doxorubicin on Triple Negative Breast Cancer Cells, **Photochemical & Photobiological Sciences**, 2020, DOI: 10.1039/d0pp00132e.
- 17- Mehrgan Ghazaeian, **Khatereh Khorsandi**, Reza Hosseinzadeh, Asieh Naderi & Heidi Abrahamse, "Curcumin–silica nanocomplex preparation, hemoglobin and DNA interaction and photocytotoxicity against melanoma cancer cells", **Biomolecular Structure and Dynamics**, 2020. DOI: 10.1080/07391102.2020.1802342
- 18- Reza Fekrazad, Farshid Vahdatinia, **Khatereh Khorsandi**, New advances in photodynamic therapy in dentistry, Book chapter. In book: Advances in Photodynamic Therapy Research Publisher: Nova Science Publishers. July 2020.
- 19- Reza Fekrazad, Sohrab Asefi, **Khatereh Khorsandi**, Marzieh Nejatifard, Photo Bio Stimulatory Effect of Low Dose Photodynamic Therapy on Human Mesenchymal Stem Cells, **Photodiagnosis and Photodynamic Therapy**, 2020 Sep;31:101886.doi: 10.1016/j.pdpdt.2020.101886.
- 20- Saeedeh Keyvani-Ghamsari, **Khatereh Khorsandi**, Asma Gul. Curcumin effect on cancer cells' multidrug resistance: An update, **Phototherapy research**, 2020. doi: 10.1002/ptr.6703

- 21- Khorsandi K**, Hosseinzadeh R, Abrahamse H, Fekrazad R. Biological Responses of Stem Cells to Photobiomodulation Therapy., **Curr Stem Cell Res Ther**, **2020** Feb 4. doi: 10.2174/1574888X15666200204123722.
- 22- Khorsandi, K.**, Kianmehr, Z., Hosseinmardi, Z. et al. Anti-cancer effect of gallic acid in presence of low-level laser irradiation: ROS production and induction of apoptosis and ferroptosis. **Cancer Cell International**, **2020** 20, 18. <https://doi.org/10.1186/s12935-020-1100-y>.
- 23-** Mahtab Mirzahosseini-pour, **Khatereh Khorsandi**, Reza Hosseinzadeh, Mehrgan Ghazaeia and Fedora Khatibi Shahidi, Antimicrobial photodynamic and wound healing activity of curcumin encapsulated in silica nanoparticles, **Photodiagnosis and Photodynamic Therapy**, **2020**, 29, 101639. doi: 10.1016/j.pdpdt.2019.101639.
- 24-** Kianmehr, Zahra; **Khorsandi, Khatereh**; Mohammadi, Maryam; Hosseinzadeh, Reza , Low-level laser irradiation potentiates anticancer activity of p-coumaric acid against human malignant melanoma cells, **Melanoma Research**, April **2020** - Volume 30 - Issue 2 - p 136-146, doi: 10.1097/CMR.0000000000000603.
- 25-** Chamani E, Rezaei Z, Dastjerdi K,4, Javanshir S, **Khorsandi K**, Mohammadi GA, Evaluation of some genes and proteins involved in apoptosis on human chronic myeloid leukemia cells (K562 cells) by datura innoxia leaves aqueous extract., **Journal of Biomolecular Structure and Dynamics**, **2019** Nov 27:1-12. doi: 10.1080/07391102.2019.1691661.
- 26-** Reza Hosseinzadeh and **Khatereh Khorsandi**, Photodynamic effect of Zirconium phosphate biocompatible nano-bilayers containing methylene blue on cancer and normal cells, **Scientific Reports**, **2019**, 9, 14899 DOI: 10.1038/s41598-019-51359-7.
- 27-** Elham Chamani, Roshanak Ebrahimi, **Khatereh Khorsandi**, Azadeh Meshkini, Asghar Zarban and Gholamreza Sharifzadeh, In vitro cytotoxicity of polyphenols from Datura innoxia aqueous leaf-extract on human leukemia K562 cells: DNA and nuclear proteins as targets, **Drug and Chemical Toxicology** , **2019**, DOI: 10.1080/01480545.2019.1629588.
- 28-** Mahdiah Emadi, Parvaneh Maghami, Khatereh Khorsandi, Reza Hosseinzadeh Biophysical Study on the Interaction of Cartap Hydrochloride and Hemoglobin: Heme degradation and Functional Changes of Protein, **Journal of Biochemical and Molecular Toxicology**, **2019**; e22325, DOI: 10.1002/jbt.22325.
- 29- Khatereh Khorsandi**, Reza Hosseinzadeh and fedora khatibi shahidi, Photodynamic treatment with anionic nanoclays containing curcumin on human triple-negative breast cancer cells: Cellular and biochemical studies. **Journal of Cellular Biochemistry**, **2019**; 1-12. <https://doi.org/10.1002/jcb.27775>.
- 30- Khorsandi K**, Hosseinzadeh R, Khatibi Shahidi F, Chamani E. Comparison on Anticancer Effects of phenolic Compounds, Gallic Acid and Para Coumaric Acid on Human Breast Cancer Cells. **J Birjand Univ Med Sci**, **2018**; 25 (3):203-212.
- 31- Khatereh Khorsandi**, Elham Chamani, Ghader Hosseinzadeh, Reza Hosseinzadeh, Comparative study of photodynamic activity of methylene blue in the presence of salicylic

- acid and curcumin phenolic compounds on human breast cancer, **Lasers in Medical Science**, **2019**, <https://doi.org/10.1007/s10103-018-2571-0>.
- 32-** Reza Hosseinzadeh, **Khatereh Khorsandi** and Ghader Hosseinzadeh, Graphene oxide-methylene blue nanocomposite in photodynamic therapy of human breast cancer, **J Biomol Struct Dyn**, **2018** Jul;36(9):2216-2223.
- 33-** Doroudian A, **Khorsandi K**, Maghami P, Hosseinzadeh R, UV-Vis Spectrophotometric studies on the effect of Tetraethyl Pyrophosphate as a bioenvironmental pollutant on the structure and stability of human Hemoglobin. **Journal of Lasers in Medicine**. **2017**; 14 (3):16-10.
- 34-** Reza Hosseinzadeh , **Khatereh Khorsandi** and Maryam jahanshiri moghadam, Combination photodynamic therapy of human breast cancer using salicylic acid and methylene blue, **Spectrochim Acta A Mol Biomol Spectrosc**. **2017** Sep 5; 184:198-203. doi: 10.1016/j.saa.2017.05.008.
- 35-** Reza Hosseinzadeh and Khatereh **Khorsandi**, Methylene blue, curcumin and ion pairing nanoparticles effects on photodynamic therapy of MDA-MB-231 breast cancer cell, **Photodiagnosis and Photodynamic Therapy**, **2017** Jun;18:284-294. doi: 10.1016/j.pdpdt.2017.03.005.
- 36-** Salami M, Hosseinzadeh R, Maghami P, **Khorsandi K**. The response of human fibroblast cells under different low-level laser irradiation to benzene as environmental pollutant. **Journal of Lasers in Medicine**. **2017**; 14 (1):25-17.
- 37-** **Khatereh Khorsandi**, Mohsen Fateh and reza Hosseinzadeh, Application and advantages of nanostructures in photodynamic therapy. **Lasers in Medicine**, **2016**; 12 (3):44-34.
- 38-** **Khatereh Khorsandi**, Reza Hosseinzadeh and Mohsen Fateh, Curcumin intercalated layered double hydroxide nanohybrid as potential drug delivery system for effective photodynamic therapy in human breast cancer cells, **RSC Adv.**, **2015**, 5, 93987-93994, DOI: 10.1039/C5RA15888E.
- 39-** Reza Hosseinzadeh , **Khatereh Khorsandi** , Interaction of Vitamin B1 with Bovine Serum Albumin investigation using Vitamin B1-Selective Electrode: Potentiometric and Molecular modeling study , **Journal of Biomolecular Structure and Dynamics**, **2016** Sep 15:1-24.
- 40-** Hosseinzadeh R, **Khorsandi K**, Sheikh-Hasani V, Khatibi A, Biological interaction of Thiamin with lysozyme using binding capacity concept and molecular docking, **Journal of Biomolecular Structure and Dynamics**, **2016** Oct 16:1-26.
- 41-** **Khatereh Khorsandi**, Effects of photodynamic therapy on tumor extracellular matrix and related molecules. **Lasers in Medicine**, **2014/2015**, volume 11(3, 4), 14-23.
- 42-** **Khorsandi, KH**. Rabbani-chadegani, A. Investigation on chromium oxide (Cr VI) interaction with soluble chromatin and histone H1: A spectroscopic study, **International Journal of biological macromolecule**, **2014**, 70, 57–63.
- 43-** **Khorsandi, KH**. Rabbani- chadegani, A. Studies on the genotoxic effect of chromium oxide (Cr VI): Interaction with deoxyribonucleic acid in solution, **Mutation Research**, **2013**, 750, 105–110.

- 44- Hosseinzadeh, R. **Khorsandi, KH.** Hemmaty, S. Study of the Effect of Surfactants on Extraction and Determination of Polyphenolic Compounds and Antioxidant Capacity of Fruits Extracts, **Plos ONE**, March 2013, Volume 8, Issue 3, e57353.
- 45- **Khorsandi, KH.** Hosseinzadeh, R. Gheshlagi, M. Study of Vitamin-B1 Interaction with Dihydroxyanthraquinone Dye and its Thermodynamic Elucidation, **Journal of Applied Solution Chemistry and Modeling**, 2013, 2, 105-109.
- 46- **Khorsandi, KH.** Hosseinzadeh, R. Determination and comparison of major Polyphenol of four red fruits using High-Performance Liquid Chromatography (HPLC) with Diode-Array Detection. **The Journal of Microbiology, Biotechnology and Food Sciences**, 2013/14: 3 (3) 250-252.

### **International & National Conferences Presentations**

- 1- "Photodynamic Therapy as an Emerging Tool in Cancer Treatment" webinar as **keynote speaker** at 4<sup>th</sup> February 2021, World Cancer Day. Organized by Government College University Faisalabad, Pakistan.
- 2- "Overview of Illuminating Approach to Cancer Treatment" as **keynote speaker** at 4<sup>th</sup> February 2021. Organized by BigBio.
- 3- Women in science, challenges and opportunities in developing World webinar, 11<sup>th</sup> February 2021. Organized by BigBio.
- 4- International Conference on Recent Updates in Biotechnology (ICRUB-2019), **khatereh khorsandi**, Photopharmacology: Light Sensitive Drugs for Therapy, (AIOU, Islamabad, Pakistan October 2019).
- 5- 17th International Congress on Photobiology and 18th Congress of the European Society for Photobiology, World Congress on Light and Life, "COMBINATION THERAPY WITH METHYLENE BLUE BASED PHOTODYNAMIC AND RUTOSIDE FOR MELANOMA CANCER CELLS", **khatereh khorsandi**, Reza Hosseinzadeh, Elham Chamani, Reza Fekrazad. (Barcelona, Spain, August, 2019)
- 6- 15<sup>th</sup> Iranian national Congress of Biochemistry and 6<sup>th</sup> International Congress of Biochemistry and Molecular Biology 2018 (ICBMB 2018) "Methylene Blue-Curcumin Ion Pairing Nanoparticle for Human Breast Cancer Photodynamic Treatment". **Khatereh Khorsandi**, Reza Hosseinzadeh. (Isfahan, IRAN, 25-28 August, 2018)
- 7- 15<sup>th</sup> Iranian national Congress of Biochemistry and 6<sup>th</sup> International Congress of Biochemistry and Molecular Biology 2018 (ICBMB 2018) " Inorganic nanoplate based photosensitizer delivery for photodynamic treatment of breast cancer cells " Reza Hosseinzadeh, **Khatereh Khorsandi**. (Isfahan, IRAN, 25-28 August, 2018)
- 8- 15<sup>th</sup> Iranian national Congress of Biochemistry and 6<sup>th</sup> International Congress of Biochemistry and Molecular Biology 2018 (ICBMB 2018) "Aqueous extract of Datura

- Innoxia leaves interact with double-stranded DNA in solution" Elham Chamani, **Khatereh Khorsandi**, Fatemeh Tajik. (Isfahan, IRAN, 25-28 August, 2018)
- 9- 15<sup>th</sup> Iranian national Congress of Biochemistry and 6<sup>th</sup> International Congress of Biochemistry and Molecular Biology 2018 (ICBMB 2018) " Effects of P-coumaric acid in presence of low-level laser irradiation on human melanoma skin cancer cells" Maryam mohammadi, Zahra kianmehr, **Khatereh Khorsandi**. (Isfahan, IRAN, 25-28 August, 2018)
  - 10- 24<sup>th</sup> IUBMB Congress and 15<sup>th</sup> FAOBMB Congress, "Combined Treatment with Photodynamic and Salicylic acid for Breast Cancer" **Khorsandi, KH.**, Hosseinzadeh, R. (Seoul, Korea (IUBMB SEOUL 2018), 2-8 June, 2018)
  - 11- 11<sup>th</sup> annual Congress of Iranian Medical Laser association, " Carbon Nanostructures Mediated Photodynamic Therapy: Methylene blue – Graphene oxide Nanocomposite ", **Khorsandi, KH.**, Hosseinzadeh, R. (Tehran, IRAN, 27-29 December, 2017)
  - 12- 11<sup>th</sup> annual Congress of Iranian Medical Laser association, "Laser Assisted Photoporation: direct laser light or sensitized nanoparticles", Hosseinzadeh, R. **Khorsandi, KH.**, (Tehran, IRAN, 27-29 December, 2017)
  - 13- Attend The 2<sup>th</sup> international & 4th national congress of wound and tissue healing, (Tehran, IRAN, 25-27 Oct 2017)
  - 14- Attend The 18th Royan International Twin Congress on Reproductive Biomedicine and Stem Cells Biology & Technology, (August 30- September 1, 2017)
  - 15- 4<sup>th</sup> International congress of Stem Cells & Regenerative Medicine Congress "Molecular Mechanisms of Photodynamic Therapy in Skin Rejuvenation", **Khatereh Khorsandi**, Reza Hosseinzadeh and Mohsen Fateh (Mashhad, April 19-21, 2017)
  - 16- 9<sup>th</sup> the SOLA world congress, " Epigenetic assisted photodynamic therapy", **Khatereh Khorsandi** and Reza Hosseinzadeh (Tehran, IRAN, 19-21, APR 2017)
  - 17- 25<sup>th</sup> FAOBMB international conferences, ' The role of vitamin D in breast cancer cells response to curcumin nanohybrid mediated photodynamic therapy", **Khatereh Khorsandi**, Reza Hosseinzadeh (Manila, Philippines, 5-7 Dec 2016)
  - 18- 1<sup>th</sup> international & 3th national congress of wound and tissue healing, " Nano-photodynamic therapy in wound healing", **Khatereh Khorsandi**, Reza Hosseinzadeh (Tehran, IRAN, 26-28 Oct 2016)
  - 19- 11<sup>th</sup> international breast cancer congress, " Breast cancer Nanophotodynamic therapy: curcumin nanohybrid as potential drug delivery system", **Khatereh Khorsandi**, Reza Hosseinzadeh, Maryam jahanshiri moghadam (Tehran, IRAN, 24-26 Feb 2016)
  - 20- Medical laser Congress, the 10<sup>th</sup> Congress of Iranian Medical Laser and 3th Laser Application in Medical Sciences Congress, "Nanotechnology-Based Photodynamic Therapy", **Khorsandi, KH.**", Hosseinzadeh, R (Dr gharazi hall of Milad Hospital, Tehran, IRAN, 27-29 january, 2016).
  - 21- 2<sup>th</sup> national congress of wound and tissue healing, " Mechanism of wound healing in photodynamic therapy", Mohsen fateh and **khorsandi khatereh** (Tehran, IRAN, 28-30 october, 2015).



- 22- Attend The 16<sup>th</sup> Royan International Twin Congress on Reproductive Biomedicine and Stem Cells Biology & Technology, (**August 31- September 2, 2015**).
- 23- The First International congress of stem cell and regenerative medicine,” In vitro effect of low level lesar irradiatin on directinal immigration of adipose tissue-derived stem cells (ADSCs) in direct current electric field” Djavid, GR. Naderi, M. **Khorsandi, KH.**”, Hosseinzadeh, R (**Ferdousi university of mashhad, Mashhad, Iran, 20-22 May, 2015**)
- 24- The 21<sup>th</sup> International Iranian Congress of pharmacology and physiology, “interaction and micellar solubilization of diclofenac with cetyltrimethylammonium bromide”, Hosseinzadeh, R. **Khorsandi, KH.** (**Tabriz university of medical science, Tabriz, Iran, 23-27 August, 2013**)
- 25- The 21<sup>th</sup> International Iranian Congress of pharmacology and physiology, “Evidence for the induction of apoptosis in mouse bone marrow non-adherent hematopoietic cells exposed to chromium oxide (Cr (VI))”, **Khorsandi, KH.** Rabbani-chadegani, A. (**Tabriz university of medical science, Tabriz, Iran, 23-27 August, 2013**)
- 26- The 13<sup>th</sup> Iranian congress of Biochemistry & 5th International congress of Biochemistry and molecular Biology, “Study on the binding affinity of chromium oxide (VI) to DNA and chromatin: Equilibrium dialysis”, **Khorsandi, KH.** Rabbani-chadegani, A. (**Yazd University of medical science, Yazd, Iran, 16-19 April, 2013**).
- 27- The 3<sup>th</sup> national Congress of Trace elements of Iran, “Evidence for toxic effect of chromium oxide (Cr (VI)) on mouse bone marrow stem cell”, by: **Khorsandi, KH.** Rabbani-chadegani, A. (**Kashan university of medical science, Kashan, Iran, 27-28 February, 2013**)
- 28- The 17<sup>th</sup> national & 5th International Conference of Biology of Iran, “A comparison study on chromium oxide (VI) binding to deoxyribonucleic acid (DNA) and chromatin in solution”, by: **Khorsandi, KH.** Rabbani-chadegani, A. (**Shahid Bahonar University of Kerman, Kerman, Iran, 4 –6 September, 2012**)
- 29- The First International & 11th Iran Biophysical Chemistry Conference, “Spectroscopic Studies on the Interaction of Chromium Oxide (Cr (VI)) with Chromatin in Solution”, by: **Khorsandi, KH.** Rabbani-chadegani, A. in: J. Iran. Chem. Soc., Vol. 9, Suppl. 1, June 2012, pp. A1-A144. (**Ardabil University of Medical Sciences, Ardabil, Iran, 13-15 June, 2012**)
- 30- 36<sup>end</sup> FEBS congress, “the study of the interaction of chromium oxide (CrO<sub>3</sub>) with DNA”, by: **Khorsandi, KH.** Rabbani-chadegani, A. in: FEBS journal, Vol.278 (Suppl. 1) p- 431. (**Torino, Italy, 25-30 June, 2011**).
- 31- Attended in congress: the first Iranian proteomics congress, University College of science, university of Tehran. (**Tehran, Iran, 21 February, 2007**).
- 32- 32<sup>end</sup> FEBS congress, “Kinetic properties of lignin peroxidase in pistachio nut extract”, by: **Khorsandi, KH.** Keyhani, E. in: FEBS journal, Vol.274 (Suppl. 1) p- 216. (**Vienna, Austria, 7-12 July, 2007**).
- 33- 9<sup>end</sup> congress of biochemistry & the 2<sup>end</sup> international congress of biochemistry and molecular biology, “Kinetic properties of o-dianisidine peroxidase in pistachio nut extract

“by: **Khorsandi, KH.** Keyhani, E. in: Archives of Iranian medicine, Vol. 10, No. 4 (Suppl. 1), S73. (Shiraz, Iran, October 29- November 1, 2007).

- 34- 2<sup>nd</sup> international symposium on saffron biology & technology, “Superoxide dismutase activity in crocus sativus L. Corms: effect of salinity” , by: Attar, F., keyhani, E., keyhani, J., **Khorsandi, KH.** In: Book of abstract 2<sup>nd</sup> international symposium on saffron biology & technology (ISSBT) P-101. (Mashhad, Iran, 28-30 October, 2006)

## Books

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- 1- Cellular and Molecular Biology, Jahesh Publication, Tehran, IRAN, 2011.
- 2- Translation of "Bioanalytical Chemistry" book, Andres manz, Nicole pamme, dimitri lossifidis, imperial college press, 2004. to Persian, Andisheh Avar Publication, 2013.
- 3- Translation of "Advances in Wound Healing Materials: Science and Skin Engineering" book, A Smithers Group Company, to Persian. 2018.
- 4- Translation of "Bioactive Polysaccharide Materials for Modern Wound Healing" book, springer publisher to Persian, under publication.

## Language Skill

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- English:** Advance
- French:** Basic-Intermediate

## Research Skills/Experience

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- Group leadership and Teamwork
- 2D Cell culture (Stem cell/ Normal cells /Cancer cells, Microbial cells) and 3D cell culture
- Cell viability assay (MTT, LDH,..)
- Exosome extraction and characterization
- Cell colonization assay
- Fluorescence microscopy (EB/AO Staining, Hoechst Staining)
- Flowcytometry assay (Cell cycle, Apoptosis, ROS detection...)
- Gel electrophoresis (Agarose gel-SDS-PAGE), Western Blotting
- Singlet oxygen detection, ROS generation detection
- Spectrophotometry techniques (UV/Vis, Fluorescence, Circular dichroism (CD), FTIR,)
- Enzyme assay (Kinetics, Inhibition)

- DNA, RNA and protein extraction
- Chromatin assay, Histones assay, Epigenetics assay
- Photobiomodulation
- Photodynamic therapy
- Work with animal: Rat, balb-c mice,

## Thesis Guidance

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### Supervisor

- 1- **Mahsa Salami:** MSc student of biophysics, thesis title: The effect of low-level laser on benzene-induced cytotoxicity in human skin fibroblast cells. Graduated winter 2017.
- 2- **Farzaneh Karkhaneh Yousefi:** MSc student of biophysics, thesis title: Study on effect of low-level laser (LLL) and selenium ion on MDA-MB-231 human breast cancer cells. Graduated winter 2017.
- 3- **Maryam Mohammadi:** MSc student of biochemistry, thesis title: Evaluation the effect of para-coumaric acid as phenolic compound and low-level laser on human melanoma cancer cells (A375) and lactate dehydrogenase determination. Graduated summer 2018.
- 4- **Mahroo Motalebi:** MSc student of Microbiology, Antimicrobial effect of rutin as flavonoid compound and photodynamic inactivation on *Pseudomonas aeruginosa* and *Staphylococcus aureus*, Graduated summer 2019.
- 5- **ArghavanYousefi Sadeghloo:** MSc student of biochemistry, thesis title: Combined effect of doxorubicin and activated methylene blue in the presence of laser on breast cancer cells (MDA-MB-231). Graduated winter 2020.
- 6- **Elmira Ghelichkhani:** MSc student of biochemistry, thesis title: Studying the response of colorectal cancer cells (SW48) to *Trachyspermum ammi* essential oils and low-level laser. Graduated winter 2020.
- 7- **Mehrangiz Ghasemi:** MSc student of biochemistry, thesis title: Measurement of reactive oxygen species and activity of glutathione peroxidase enzyme in *Pseudomonas aeruginosa* bacteria treated with silver nanoparticles and photodynamic inactivation, Will graduate soon.

### Advisor

- 1- **Aida Droodian:** MSc student of biophysics, thesis title: Biophysicochemical studies on the effect of TEPP as an organophosphorous insecticide on interaction with human Hemoglobin. Graduated winter 2017.
- 2- **Mahdiehe Emadi:** MSc student of biophysics, thesis title: The Study of Cartap's Effect as a Carbamate Insecticide on Adult Human Hemoglobin using Spectroscopic Techniques. Graduated winter 2017.

- 3- **Samaneh Ghenati:** MSc student of biophysics, thesis title: Evaluating the effect of low-level laser on survival of human skin fibroblast cells in the presence of xylene. Will graduate soon.
- 4- **Zohreh Hosseinmardi:** MSc student of biochemistry, thesis title: Effects of polyphenol gallic acid and low power laser on cell survival and apoptosis in human breast cancer cells (MDA-MB-231) and melanoma cells (A375). Graduated spring 2019.
- 5- **Sepideh Zariéh:** MSc student of biochemistry, thesis title: Effects of *Trachyspermum ammi* essential oils and low-level laser on cell survival and cell cycle in human breast cancer cells (MDA-MB-231). Graduated winter 2020.
- 6- **Mahdiyeh Samadi:** MSc student of biochemistry, thesis title: Study of induced apoptosis and evaluation ROS in breast cancer cell (MDA-MB-231) treated with doxorubicin and selenium in presence of low-level laser irradiation. Will graduate soon.
- 7- **Elnaz Karimi:** MSc student of biochemistry, thesis title: Investigation of the Effect of *Trachyspermum ammi* extract in the Presence of Low Level Irradiation on the 3D Culture of MDA-MB-231 Breast Cancer Cells. Will graduate soon.

### **Contribution in Research Projects**

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- 1- The comparison study of photodynamic effects of LDH-Curcumin nano-hybrid and intact Curcumin on MDA-MB-231 human breast cell line. Finished. Head of project.
  - 2- Combination photodynamic therapy of human breast cancer using salicylic acid and methylene blue. Finished. Head of project.
  - 3- Graphene oxide-methylene blue nanocomposite in photodynamic therapy of human breastcancer. Finished. Co-worker.
  - 4- Evaluation of Photodynamic therapy effect of methylene blue intercalated in nanostructure zirconium phosphate bilayers on MDA-MB-231 breast cancer cell and related normalcell lines. Finished .Co-worker.
  - 5- Spectrophotometric study of methylene blue and curcumin molecular interactions and study of the photodynamic therapy effect of alone and ion-pair nanoparticle forms of methylene blue and curcumin in polyethylene glycol micelles. Finished. Co-worker.
- **Ongoing projects**
  - I have three projects in progress, the first one; we using stem cell-derived exosomes for cell regeneration specially their effects on cell viability and other biochemical and cellular changes. These exosomes will be treated with low level laser irradiation and after increasing their cellular activity they will use for wound healing and tissue regeneration instead of stem cells as stem cells may have many unknown side effects in cells and tissues.

- Second project is a comparison between the effects of red and near infrared laser irradiation on periodontal ligament stem cell (PDL): ROS generation and cell cycle analysis. This project is almost done and currently we are working of final reports and its article.
- Another project is about role of laser irradiation (photobiomodulation) as noninvasive method for enhancing the activity of anti-cancer drugs and also their delivery toward cancer cells.

## **Leading workshops/conferences**

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- Scientific Secretary in Student Section of 6<sup>th</sup> International and 6<sup>h</sup> National Congress of Wound and Tissue Repair-2019 and 2020
- Scientific Committee Member (Chairperson) of 6<sup>th</sup> International and National Congress of Wound and Tissue Repair-2019 and 2020
- Executive Committee Member of 6<sup>th</sup> International and National Congress of Wound and Tissue Repair-2019 and 2020
- Scientific Committee Member (Chairperson) of 1<sup>th</sup> 1<sup>st</sup> international conference on recent updates in biotechnology, Islamabad, Pakistan, Oct-2019.

## **Membership**

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- Member of European Society of Photobiology
- Member of Iran Society of Biophysical Chemistry
- Member of Iranian Biochemistry Society

## **Reviewer of journals**

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Different journals including:

- Cancer Cell International, BioMed Central Ltd
- International Journal of Nanomedicine, Dove Medical Press
- Photodynamic and Photodiagnosis, Elsevier
- Photobiomodulation, Photomedicine, and Laser Surgery, Mary Ann Liebert, Inc
- BMC Cancer, BioMed Central Ltd and ....