Molood Gooniband Shooshtari

PhD of Medical Physics

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EDUCATION:

➢08/2018-12/2023: Ph.D. in Medical Physics, Iran University of Medical Sciences (IUMS), Tehran, Iran.

Thesis title: "Investigating the non-thermal effects of ultrasound waves with two types of gold nanoparticles (spherical and spiky) on colon cancer, In-Vitro and In-Vivo."

Advisor: Mohammad Bagher Shiran

➢ 08/2013-8/2016: MSc in Medical Physics, University of Shahid Beheshti, Tehran, Iran.

Thesis title: "Radioactivity levels in the mostly foodstuff consumed by residents of the high level natural radiation areas of Ramsar, Iran"

Advisor: Mohammad Reza Deevband

➢ 08/2007-5/2012: BSc in Physics, Isfahan University, Isfahan, Iran.

Skills:

Laboratory Skills:

➢Cell cultures:

All standards of conventional cell culture

➢ Laboratory In-Vitro tests:

All standards of laboratory In-Vitro tests (Colony assay, hemolysis, MTT and flowcytometry tests)

➢Animal study, In-Vivo tests:

All standards of laboratory animal handling

Tumor modeling

Tumor surgery

Pathologic tests of tumors (H&E)

➢ Laboratory Ultrasound irradiation tests:

Designing different mode of ultrasound irradiation according to research goals

Ultrasound irradiation of cells and animals

➢Computer:

Systematic Search, Microsoft Office (Word, Excel, PowerPoint, etc.), ImageJ, GraphPad Prism, Photoshop

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Teaching:

➢ Ultrasonic waves (laboratory tests) for MSc Medical Physics students (08/2020-12/2020)

➢Ultrasonic waves (laboratory tests) for Medical students (08/2019-12/2019)

➢ Physics for students of health departments (08/2019-12/2019)

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Publication:

1. Evaluation of photobiomodulation therapy (117 and 90s) on pain, regeneration, and epigenetic factors (HDAC 2, DNMT3a) expression following spinal cord injury in a rat model. Photochemical and photobiological science journal.

(https://link.springer.com/article/10.1007/s43630-023-00467-5)

2. Radioactivity levels in the mostly local foodstuff consumed by residents of the high level natural radiation areas of Ramsar, Iran. Journal of environmental radioactivity.

(https://www.sciencedirect.com/science/article/pii/S0265931X16303)

3. Public ingestion exposure to 226Ra in Ramsar, Iran. Journal of environmental radioactivity.

(https://www.sciencedirect.com/science/article/pii/S0265931X18304430)

4. Population doses due to indoor gamma radiation exposure in Ramsar. Iranian journal of radiation safety and measurements.

(https://rsm.kashanu.ac.ir/article_112230_en.html?lang=fa)

5. Public exposure to natural radiation sources (Ramsar case study). Iranian journal of Medical Physics.

(https://ijmp.mums.ac.ir/article_11844.html)

6. The enhancement of therapeutic effects of low intensity ultrasound with spiky and spherical gold nanoparticles on CT26 cell line, In-vitro Study. Journal of immunopathologia persa. (Has been accepted)

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Activities:

➢Executive board of the 12th International Conference of Medical Physics in University of Shahid Beheshti (2016)

➢ Executive board of the International Conference of radiotherapy in Iran University of Medical science (2019)

➢ Collaborator of the research projects

1. Optimization of ultrasound dose in recovery regeneration of spinal cord lesions and improve movement conditions (2023)

2. Determining the effect of ultrasound radiation on condition medium of CT26 cells with graphene nanoparticles to reduce tumor volume (2023)

3. Evaluation of low intensity ultrasound and laser on pain, regeneration and epigenetic factors followed by spinal cord injury in a rat model (2022)

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RESEARCH INTERESTS:

My research interest lies in Ultrasound bioeffects (cavitation, sonoporation, sonodynamic therapy, drug delivery). Also, I am interested in understanding the mechanisms of ultrasound irradiation in combination with different nanoparticles.