

CURRICULUM VITAE

Date of Revision: 18/08/1403

Name: Simzar Hosseinzadeh

Education:

- Bachelor of animal biology, Tabriz university, Tabriz, Iran
- Master of medical nanotechnology, Tehran University of medical science, School of Advanced Technologies in Medicine, Tehran, Iran
- PhD of medical nanotechnology, Tehran University of medical science, School of Advanced Technologies in Medicine, Tehran, Iran

Career/Academic Appointments:

- Associate professor in School of Advanced Technologies in Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
- Chair of tissue engineering and applied cell science department, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Administrative Positions:

- Educational Assistant in School of Advanced Technologies in Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Professional Honors & Recognition:

- Recognized and encouraged as the best researcher of medical Nanotechnology in Iran by Iranian Nanotechnology society, 2011
- Ranked as a selective inventor of color competition by Amir Kabir university, 2015

Grant History:

- Evaluation of probiotic bacteria on the regeneration of dermal wounds with third-degree burns in animal model
- Animal evaluation in mice using a 3-layered scaffold containing oxygen production component for full-thickness dermal wounds
- Preparation and evaluation of chitosan/carbomer injectable hydrogel containing amniotic membrane extract in endometrial repair in Asherman's syndrome mouse model
- Fabrication and characterization of hybrid electrospun nanofibrous scaffold based on polyvinyl alcohol/gum Boswellia serrata /polycaprolactan and investigating its antibacterial properties in vitro
- Simultaneous effect of quercetin nanoparticles(NQue) and cobalt ferrite magnetic nanoparticles on MCF7 cell line apoptosis via improvement of hyperthermia impact and reduction of heat shock proteins HSP proteins expression

- Evaluation of the repair of cartilage defects using alginate/hyaluronic acid/berberine hydrogel containing copper (CuO) nanoparticle and mesenchymal stem cells derived from human tissue in vitro and in vivo
- Evaluation the in-vitro antibacterial and antifungal activity of zinc substituted cobalt- ferrite nanoparticles using broth microdilution method
- Animal study of chitosan-aspirin in rat
- Synthesis and characterization of Alginate based microparticle of Amphotricine B and zinc substituted cobalt - ferrite nano-particles as anti fungal agent for therapeutic approaches in lung tissue infection
- Using carbon quantum dots and cold atmospheric plasma on the destruction of cancer cells
- Fabrication and characterization of electrospun nanofibrous scaffold from amnion-polyurethane-gelatin for growth and differentiation of keratinocytes as in vitro and in vivo
- Fabrication and characterization of electrospun cellulose acetate scaffold and graphene oxide nanoparticles for bone differentiation of adipose stem cells
- MRI-Traced site-specific pulmonary delivery of Nano-In-Micro alginate based hydrogel composed of Amphotericin B and magnetic nanoparticles
- Evaluation and characterization of carbomer hydrogel scaffold by human umbilical cord vein endothelial cells (HUV-EC) to use in corneal endothelial repair
- Fabrication and characterization of Hydrogel/Nanofiber composite scaffold containing Amniotic Membrane Extract for Tympanic Membrane perforation healing applications in in vitro and in vivo
- Human corneal endothelial tissue engineering using a scaffold based on polyacrylate and PRGF in vitro and in animal's model.
- Synthesis and characterization of chitosan-coated liposomes nanoparticles encapsulating rapamycin; assessment of its inhibitory effect on growth and proliferation in breast cancer cell lines
- Study of simultaneous impact of three ions including silver-gold-platinum as an electrospun scaffold for osteogenesis of mesenchymal stem cells derived from adipose tissue

Completed Grants:

- Design, computational optimization and in-vitro preparation of pharmaceutical nano-formulation to enhance the gastrointestinal absorption of vancomycin
- Study of osteogenic proliferation and differentiation amount of cultured human dental pulp stem cells derived from permanent teeth on an oxygenator electrospinning scaffold from PCL-sodium percarbonate: in vitro and in vivo study
- Synthesis and application of graphene/cobalt ferrite nanostructures for hyperthermia of breast cancer tumors
- The effect of released polyethylenimine from nanofibrous scaffold of polyacrylonitril-polyethylenimine on expression of endothelial genes of cardiac progenitor cells
- Biocompatible fabrication of injectable hydrogel without oxidant for bone differentiation of mesenchymal pulp stem cell isolated from human permanent teeth
- Fabrication of gelatin-polyurethane-sodium percarbonate oxygen scaffold by electrospinning method and investigation of proliferation and differentiation of human keratinocytes in adipose tissue with fat mesenchymal stem cells in skin wound healing in vivo and in vitro
- The examination of synergistic impacts of probiotic bacteria (*Lactobacillus Plantarum*) and Platelet Rich Growth Factors (PRGF) on dermal wounds healing
- Synthesis of dermal patch obtained from electrospun nanofibers of nylon polymer-B-vulgaris extract

- Aspirin as a crosslinker of chitosan hydrogel for differentiate adipose mesenchymal stem cells into bone in vitro and in vivo.
- Analysis of osteogenic effect of Poly(acrylic acid)/nanoparticle tricalcium phosphate scaffold by using human cord mesenchymal stem cells
- Synthesis of nanocomposite membrane containing magnetic nanoparticles-polyvinylidene difluoride and assessment of mesenchymal stem cells differentiation to neural cells using magnetic bioreactor as in vitro study
- Coincident usage of cobalt ferrite magnetic nanoparticles and quercetin for MCF7 cell line apoptosis via improvement of hyperthermia impact and reduction of hsp proteins expression
- Fabrication and study of chitosan / aspirin hydrogel to differentiate adipose mesenchymal stem cells into bone in vitro and in vivo.
- Examination of osteogenesis of mesenchymal stem cells using electrospun nanofibers of polyacrylonitrile-cloisite 30B clay
- Fabrication of niosome nanoparticles including curcumin drug and assessment of its growth inhibitory on thyroid cancer cell line including SW-1736 and TT as non-medullary and medullary cell lines respectively

Lectures, Courses, Web-based Education:

No case.

PROFESSIONAL SERVICE

Peer Review Groups/Grant Study Sections:

No case.

Journal Service:

- Anatomical Science (<https://systems.enpress-publisher.com/index.php/AS/about/editorialTeam>)
- American journal of nanotechnology and nanomedicine (<https://www.scireslit.com/Nanotechnology/editorsJ.php>)

Professional Organizations:

- Tehran University of medical science, School of Advanced Technologies in Medicine, Tehran, Iran (1386-1394)
- Stem Cell Technology Research Center, Tehran, Iran (1387-1397)
- School of Advanced Technologies in Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran (1395-present)

Committees Memberships:

- Medical nanotechnology research center, shahid beheshti university of medical sciences, Tehran, Iran (1400-present)

- Shahid beheshti University of medical science, School of Advanced Technologies in Medicine, Tehran, Iran (1401-present)

Bibliography:

Peer-Reviewed Original Research: (*List of published articles according to Vancouver style, from past to present*)

- Magnetically lung tissue targeting using electrosprayed Nano-In-Micro alginate based antibiotic composed of Amphotericin B and magnetic quantum dots
- In Vivo Model of Bone Regeneration with Aspirin Cross-linked O-carboxymethyl Chitosan Hydrogel Loaded with Adipose Derived-Stem Cells
- Well-regulated dermal regeneration using amnion-containing scaffold in a preclinical study
- Encapsulation of AD-MSC-derived extracellular nanovesicles in an electrospun three-layer scaffold: characterization and controlled release analysis in vitro
- Targeting Heat Shock Proteins for Enhanced Apoptosis in Hyperthermic Breast Cancer Therapy Using Nanoquercetin and Nanocobalt Ferrite.
- Computational assessment of lipid facilitated membrane permeation of vancomycin using force-probe molecular dynamic simulation
- Apoptotic Impact of Heliox Cold Plasma on a Cervical Cell Line Using Gold Nanoparticle-Doped Graphene Oxide Nanosheets
- MWCNT-loaded PCL/PXS-PCL bilayer cardiac patch for myocardial regeneration: An in vitro and in vivo study
- Fabrication of biocompatible artificial skin for full-thickness wound by co-culture of adipose mesenchymal stem cells-human keratinocytes on oxygen-producing nanofiber electrospun scaffold in rat animal model
- In vivo assessment of Lactobacillus plantarum and co-cultured cells on a Polyurethane/PRGF/gelatin/Polyurethane scaffold in skin wound healing
- Recent advances in nanostructured delivery systems for vancomycin
- Incorporation of GelMA/PEGDA into the decellularized cornea as a potential hybrid scaffold for in situ repairing of deep anterior corneal defects
- Synergistic effect of cobalt ferrite-graphene oxide based hyperthermia and capsaicin to induce apoptosis and inhibit telomerase activity in breast cancer cells
- Applications of extraembryonic tissue-derived cells in vascular tissue regeneration
- Structural and biological investigation of alginate-nano-hydroxyapatite with chitosan-hyaluronic acid for potential osteochondral regeneration
- Mesenchymal stem cell therapy using Pal-KTTKS-enriched carboxylated cellulose improves burn wound in rat model
- The current status and future direction of extracellular nano-vesicles in the alleviation of skin disorders
- Genipin-Cross-Linked Silk Fibroin/Alginate Dialdehyde Hydrogel with Tunable Gelation Kinetics, Degradability, and Mechanical Properties: A Potential Candidate for Tissue Regeneration
- The role of oxygen tension in cell fate and regenerative medicine: implications of hypoxia/hyperoxia and free radicals
- A three-dimensional structure with osteoconductive function made of O-carboxymethyl chitosan using aspirin as a cross-linker
- Age-related alterations in mesenchymal stem cell function: understanding mechanisms and seeking opportunities to bypass the cellular aging

- Recent progress of bio-printed PEGDA-based bioinks for tissue regeneration
- Bacterial cellulose as potential dressing and scaffold material: toward improving the antibacterial and cell adhesion properties
- Microfluidic synthesis of ultrasmall chitosan/graphene quantum dots particles for intranasal delivery in Alzheimer's disease treatment
- Chitosan/hyaluronan and alginate-nanohydroxyapatite biphasic scaffold as a promising matrix for osteoarthritis disorders
- Poly (acrylic acid)/tricalcium phosphate nanoparticles scaffold enriched with exosomes for cell-free therapy in bone tissue engineering: An in vivo evaluation
- Evaluation of Lactobacillus plantarum and PRGF as a new bioactive multi-layered scaffold PU/PRGF/gelatin/PU for wound healing
- Do carboxymethyl cellulose and pal-KTTKS make bacterial cellulose a superior wound dressing or skin scaffold?
- Microfluidic synthesis of zoledronic acid loaded chitosan nanoparticles used for osteogenic differentiation of mesenchymal cells
- Biomimetic biphasic scaffolds in osteochondral tissue engineering: Their composition, structure and consequences
- Evaluation of dermal growth of keratinocytes derived from foreskin in co-culture condition with mesenchymal stem cells on polyurethane/gelatin/amnion scaffold
- 3D-printed MgO nanoparticle loaded polycaprolactone β -tricalcium phosphate composite scaffold for bone tissue engineering applications: In-vitro and in-vivo ...
- Osteogenic differentiation of pulp stem cells from human permanent teeth on an oxygen-releasing electrospun scaffold
- The culture of Lactobacillus plantarum on multi-layered bioactive scaffold containing platelet rich growth factors
- Brain homogenate of a rat model of Alzheimer's disease modifies the secretome of 3D cultured periodontal ligament stem cells: A potential neuroregenerative therapy
- Overexpression of VEGF in dermal fibroblast cells accelerates the angiogenesis and wound healing function: in vitro and in vivo studies
- A smart magnetic hydrogel containing exosome promotes osteogenic commitment of human adipose-derived mesenchymal stem cells
- Preparation of poly (acrylic acid)/tricalcium phosphate nanoparticles scaffold: Characterization and releasing UC-MSCs derived exosomes for bone differentiation
- Cytokine co-stimulation effect on odontogenic differentiation of stem cells
- Aspirin effect on bone remodeling and skeletal regeneration
- Carbon nanoparticles for medicine: current and future
- Synergistic effect of quercetin and cobalt ferrite-graphene oxide-based hyperthermia to inhibit expression of heat shock proteins and induce apoptosis in breast cancer cells
- Fabrication and optimization of bioactive cylindrical scaffold prepared by electrospinning for vascular tissue engineering
- Surface coating of polyurethane films with gelatin, aspirin and heparin to increase the hemocompatibility of artificial vascular grafts
- A Bilayered, electrospun poly (glycerol-sebacate)/polyurethane-polyurethane scaffold for engineering of endothelial Basement membrane
- Repairing rat calvarial defects by adipose mesenchymal stem cells and novel freeze-dried three-dimensional nanofibrous scaffolds
- Hyperthermia of breast cancer tumor using graphene oxide-cobalt ferrite magnetic nanoparticles in mice

- Optimization of nanoclay/polyacrylonitrile scaffold using response surface method for bone differentiation of human mesenchymal stem cells
- Polyethylene glycol triggers the anti-cancer impact of curcumin nanoparticles in sw-1736 thyroid cancer cells
- Effects of in vitro low oxygen tension preconditioning of buccal fat pad stem cells on in Vivo articular cartilage tissue repair
- Evaluation of in vitro fibroblast migration by electrospun triple-layered PU-CA/gelatin. PRGF/PU-CA scaffold using an AAVS1 targeted EGFP reporter cell line
- Fabrication and characterization of cobalt ferrite magnetic hydrogel combined with static magnetic field as a potential bio-composite for bone tissue engineering
- Cartilage tissue engineering by co-transplantation of chondrocyte extracellular vesicles and mesenchymal stem cells, entrapped in chitosan–hyaluronic acid hydrogel
- The utility of dermal fibroblasts in treatment of skin disorders: a paradigm of recessive dystrophic epidermolysis bullosa
- Stable conductive and biocompatible scaffold development using graphene oxide (GO) doped polyaniline (PANi)
- The applications of heparin in vascular tissue engineering
- Wound healing improvement by curcumin-loaded electrospun nanofibers and BFP-MSCs as a bioactive dressing
- PANC-1 cancer stem-like cell death with silybin encapsulated in polymersomes and deregulation of stemness-related miRNAs and their potential targets
- Regenerative medicine under the control of 3D scaffolds: current state and progress of tissue scaffolds
- Ursolic Acid Improve Skeletal Muscle Hypertrophy by Increasing of PAX7, Myod and Myogenin Expression and Satellite Cells Proliferation in Native Broiler Chickens
- Appropriate scaffold selection for CNS tissue engineering
- Evaluation of probiotic bacteria on the regeneration of dermal wounds with third-degree burns in animal model
- Animal evaluation in mice using a 3-layered scaffold containing oxygen production component for full-thickness dermal wounds
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- Fabrication of niosome nanoparticles including curcumin drug and assessment of its growth inhibitory on thyroid cancer cell line including SW-1736 and TT as non-medullary and medullary cell lines respectively

Chapters, Books:

- Golchin, Ali, Parisa Kangari, Sepideh Mousazadehe, Faeza Moradi, and Simzar Hosseinzadeh. "Nanotechnology in Cell Delivery Systems." In 21st Century Nanoscience–A Handbook, pp. 19-1. CRC Press, 2020.
- Golchin, Ali, Forough Shams, Parisa Kangari, Arezoo Azari, and Simzar Hosseinzadeh. "Regenerative medicine: injectable cell-based therapeutics and approved products." Cell Biology and Translational Medicine, Volume 7: Stem Cells and Therapy: Emerging Approaches (2020): 75-95.
- Translation of “Scaffold for tissue engineering: biological design, materials and fabrication”, 1402, Shahid beheshti University of medical science, School of Advanced Technologies in Medicine, Tehran, Iran
- Principles of materials based on medicine, 1402, Shahid beheshti University of medical science, School of Advanced Technologies in Medicine, Tehran, Iran

Invited Editorials, Commentaries, Reports and Case Studies:

No case.