

In the Name of God

A- Personal Information

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B- Education

Degree	Institution	Field	Date
B.Sc.	Amirkabir University, Iran	Chemical Eng. (Petrochemistry)	1996
M.Sc.	Tarbiat Modarres University, Iran	Chemical Eng. (Biotechnology)	2000
Ph.D.	Tarbiat Modarres University, Iran	Chemical Eng. (Biotechnology)	2006

Title of Ph.D Thesis: The effect of process variables on the surface treatment of cells by reactive PEGs.

C- Research Interests

- Cell Therapy
- Tissue Engineering

D- Publications

- 1- S.N. Jafari Farjam, S. Hashemi-Najafabadi, S.A. Shojaosadati, Evaluation of green synthesized Ag/Fe₃O₄ nanocomposite on Staphylococcus aureus wound infection in normal and diabetic rats under static magnetic field, **Journal of Drug Delivery Science and Technology**, 2026, 115: 107717.
- 2- Z. Kazemian-Najafabadi, S. Hashemi-Najafabadi, M. Baghaban-Eslaminejad, F. Bagheri, In vivo investigation of osteogenesis and angiogenesis of modified polycaprolactone–hydroxyapatite–zinc oxide electrospun nanofibers loaded with metformin, **Annals of Biomedical Engineering**, 2025, 53: 2095–2110.

- 3- M.S. Adibhosseini, E. Vasheghani-Farahani, S. Hashemi-Najafabadi, S. Jafarzadeh-Holagh, H. Pouri, Composite cryogel of gelatin/nanofibrillated cellulose/partially demineralized chitin with potential for bone tissue engineering, **International Journal of Biological Macromolecules**, 2025, 307: 142019.
- 4- R. Mahdavi, S. Hashemi-Najafabadi, M. A. Ghiass, S. Valaskivi, H. Välimäki, J. Kreutzer, C.H. Blomqvist, S. Romeo, P. Kallio, C.B. Adiels, Design, fabrication, and characterization of a user-friendly microfluidic device for studying liver zonation-on-chip (ZoC), **Biomedical Microdevices**, 2025, 27:8.
- 5- M. Movahedi, A. Sanei, S. Hashemi-Najafabadi, E. Vasheghani-Farahani, F. Bagheri, H. Pouri, Effect of microcapsules' mechanical stability on the encapsulated cells' behavior, **International Journal of Polymeric Materials and Polymeric Biomaterials**, 2025, 74 (9): 773–789.
- 6- F. Norouzi, F. Bagheri, S. Hashemi-Najafabadi, Alendronate releasing silk fibroin 3D bioprinted scaffolds for application in bone tissue engineering: Effects of alginate concentration on printability, mechanical properties and stability, **Results in Engineering**, 2024, 22: 102186.
- 7- H. Abolhassani, M. Zaer, S.A. Shojaosadati, S. Hashemi-Najafabadi, Evaluation of a targeted drug delivery system on breast tumor spheroids on a chip, **Journal of Drug Delivery Science and Technology**, 2024, 92: 105346.
- 8- R. Mahdavi, S. Hashemi-Najafabadi, M.A. Ghiass, C.B. Adiels, Microfluidic design for in vitro liver zonation—a numerical analysis using COMSOL Multiphysics, **Medical & Biological Engineering & Computing**, 2024, 62: 121-133.
- 9- N. Kalbali, S. Hashemi-Najafabadi, F. Bagheri, Improving pore size of electrospun gelatin scaffolds containing graphene oxide using PEG as a sacrificial agent for bone tissue engineering, **International Journal of Polymeric Materials and Polymeric Biomaterials**, 2024, 73(12): 1068–1077.
- 10- M. Ghorbani, E. Vasheghani-Farahani, N. Azarpira, S. Hashemi-Najafabadi, A. Ghasemi, Dual-crosslinked in-situ forming alginate/silk fibroin hydrogel with potential for bone tissue engineering, **Biomaterials Advances**, 2023, 153: 213565.
- 11- S. Moghadam Deymeh, S. Hashemi-Najafabadi, M.R. Baghaban-Eslaminejad, F. Bagheri, Investigation of osteogenesis and angiogenesis in perfusion bioreactors using improved multi-layer PCL-nHA-nZnO electrospun scaffolds, **Biotechnology Letters**, 2023, 45: 1223-1243.
- 12- N. Eghbalifam, S.A. Shojaosadati, S. Hashemi-Najafabadi, Role of bioactive magnetic nanoparticles in the prevention of wound pathogenic biofilm formation using smart nanocomposites, **Journal of Nanobiotechnology**, 2023, 21:161.
- 13- H. Abolhassani, M. Zaer, S.A. Shojaosadati, S. Hashemi-Najafabadi, Rapid generation of homogenous tumor spheroid microtissues in a scaffold-free platform for high-throughput screening of a novel combination nanomedicine, **PLoS ONE**, 2023, 18(2): e0282064.
- 14- O. Jamialahmadi, E. Salehabadi, S. Hashemi-Najafabadi, E. Motamedian, F. Bagheri, R.M. Mancina, S. Romeo, Cellular genome-scale metabolic modeling identifies new potential drug targets against hepatocellular carcinoma, **OMICS A Journal of Integrative Biology**, 2022, 26(12): 671-682.
- 15- S.R. Hosseini, S. Hashemi-Najafabadi, F. Bagheri, Differentiation of the mesenchymal stem cells to pancreatic β -like cells in alginate/trimethyl chitosan/alginate microcapsules, **Progress in Biomaterials**, 2022, 11:273–280.

- 16- S. Moghadam Deymeh, S. Hashemi-Najafabadi, M.R. Baghaban-Eslaminejad, F. Bagheri, Use of gelatin as a sacrificial agent in combination with ultrasonication to improve cell infiltration and osteogenesis of nanofibrous PCL-nHA scaffolds for bone tissue engineering, **Iranian J. Biotechnology**, 2022, 20(4), 1-12.
- 17- F. Nazemi Harandi, A. Chackoshian Khorasani, S.A. Shojaosadati, S. Hashemi-Najafabadi, Surface modification of electrospun wound dressing material by Fe₂O₃ nanoparticles incorporating Lactobacillus strains for enhanced antimicrobial and antibiofilm activity, **Surfaces and Interfaces**, 2022, 28, 101592.
- 18- F. Nazemi Harandi, A. Chackoshian Khorasani, S.A. Shojaosadati, S. Hashemi-Najafabadi, Living Lactobacillus-ZnO nanoparticles hybrids as antimicrobial and antibiofilm coatings for wound dressing application, **Materials Science & Engineering C**, 2021, 130, 112457.
- 19- S. Khanchezar, S. Hashemi-Najafabadi, S.A. Shojaosadati, V. Babaeipour, High cell density culture of recombinant *E. coli* in the miniaturized bubble columns, **Bioprocess and Biosystems Engineering**, 2021, 44, 2075–2085.
- 20- N. Eghbalifam, S.A. Shojaosadati, S. Hashemi-Najafabadi, A. Chackoshian Khorasani, Synthesis and characterization of antimicrobial wound dressing material based on silver nanoparticles loaded gum Arabic nanofibers, **International Journal of Biological Macromolecules**, 2020, 155, 119-130.
- 21- A. Rahmani, S. Hashemi-Najafabadi, M.R. Baghaban Eslaminejad, F. Bagheri, F.A. Sayahpour, The effect of modified electrospun PCL-nHA-nZnO scaffolds on osteogenesis and angiogenesis, **Journal of Biomedical Materials Research: Part A**, 2019, 107A, 2040–2052.
- 22- M. Yaghoobi, S. Hashemi-Najafabadi, M. Soleimani, E. Vasheghani-Farahani, Osteogenic induction of human mesenchymal stem cells in multilayered electrospun scaffolds at different flow rates and configurations in a perfusion bioreactor, **Journal of Bioscience and Bioengineering**, 2019, 128(4), 495-503.
- 23- O. Jamialahmadi, S. Hashemi-Najafabadi, E. Motamedian, S. Romeo, F. Bagheri, A benchmark-driven approach to reconstruct metabolic networks for studying cancer metabolism, **PLoS Computational Biology**, 2019, 15(4): e1006936.
- 24- H. Goodarzi, S. Hashemi-Najafabadi, N. Baheiraei, F. Bagheri, Preparation and characterization of a nanocomposite scaffold (collagen/b-TCP/SrO) for bone tissue engineering, **Tissue Engineering and Regenerative Medicine**, 2019, 16(3), 237–251.
- 25- S. Khanchezar, S. Hashemi-Najafabadi, S.A. Shojaosadati, V. Babaeipour, Hydrodynamics and mass transfer in miniaturized bubble column bioreactors, **Bioprocess and Biosystems Engineering**, 2019, 42, 257–266.
- 26- N. Najafikhah, S. Hashemi-Najafabadi, S. Zahediasl, M.M. Nabavimanesh, K. Farrokhfall, Normal insulin secretion from immune-protected islets of Langerhans by PEGylation and encapsulation in the alginate-chitosan-PEG, **Iranian Journal of Biotechnology**, 2018, October;16(4):e1669.
- 27- S. Jafarzadeh-Holagh, S. Hashemi-Najafabadi, H. Shaki, E. Vasheghani-Farahani, Self-assembled and pH-sensitive mixed micelles as an intracellular doxorubicin delivery system, **Journal of Colloid and Interface Science**, 2018, 523, 179–190.
- 28- R. Ramezanzadeh Andevvari, S. Hashemi-Najafabadi, F. Bagheri, Immunoisolation of stem cells by simultaneous encapsulation and PEGylation, **Progress in Biomaterials**, 2018, 7, 55–60.

- 29- S. Hamed, S.A. Shojaosadati, S. Shokrollahzadeh, S. Hashemi-Najafabadi, Mechanism study of silver nanoparticle production using *Neurospora intermedia.*, **IET Nanobiotechnology**, 2017, 11(2), 157-163.
- 30- S. Hamed, S.A. Shojaosadati, S. Shokrollahzadeh, S. Hashemi-Najafabadi, Controlled green synthesis of silver nanoparticles using culture supernatant of filamentous fungus, **Iranian Journal of Chemistry and Chemical Engineering**, 2017, 36, 33-42.
- 31- A. Ghiaseddin, H. Pouri, M. Soleimani, E. Vasheghani-Farahani, H. Ahmadi Tafti, S. Hashemi-Najafabadi, Cell laden hydrogel construct on-a-chip for mimicry of cardiac tissue in-vitro study, **Biochemical and Biophysical Research Communications**, 2017, 484(2), 225-230.
- 32- S.B. Mousavi, A. Fazeli, S.A. Shojaosadati, M.R. Fazeli, S. Hashemi-Najafabadi, Purification and efficient refolding process for recombinant tissue-type plasminogen activator derivative (reteplase) using glycerol and Tranexamic acid, **Process Biochemistry**, 2017, 53, 135-144.
- 33- M. Aghajanpoor, S. Hashemi-Najafabadi, M.R. Baghaban-Eslaminejad, F. Bagheri, S.M. Mousavi, F.A. Sayyahpour, The effect of increasing the pore size of nanofibrous scaffolds on the osteogenic cell culture using a combination of sacrificial agent electrospinning and ultrasonication, **Journal of Biomedical Materials Research: Part A**, 2017, 105(7), 1887-1899.
- 34- J. Hashemi, S. Hashemi-Najafabadi, E. Vasheghani-Farahani, Synergistic effect of PEGylation and pentoxifylline addition on immunoprotection of pancreatic islets, **Journal of Biomaterials Science, Polymer Edition**, 2017, 28, 33-49.
- 35- O. Jamialahmadi, E. Motamedian, S. Hashemi-Najafabadi, BiKEGG: a COBRA toolbox extension for bridging the BiGG and KEGG databases, **Molecular BioSystems**, 2016, 12, 3459-3466.
- 36- S.A. Azadi, E. Vasheghani-Farahani, S. Hashemi-Najafabadi, A. Godini, Co-encapsulation of pancreatic islets and pentoxifylline in alginate-based microcapsules with enhanced immunosuppressive effects, **Progress in Biomaterials**, 2016, 5, 101-109.
- 37- M. Yaghoobi, S. Hashemi-Najafabadi, M. Soleimani, E. Vasheghani-Farahani, S.M. Mousavi, Osteogenic differentiation and mineralization on compact multilayer nHA-PCL electrospun scaffolds in a perfusion bioreactor, **Iranian Journal of Biotechnology**, 2016, 14(2):e1382, 41-49.
- 38- M. Tavakol, E. Vasheghani-Farahani, M.A. Mohammadifar, M. Soleimani, S. Hashemi-Najafabadi, Synthesis and characterization of an in situ forming hydrogel using tyramine conjugated high methoxyl gum tragacanth, **Journal of Biomaterials Applications**, 2016, 30(7), 1016-1025.
- 39- F. Rezvani, H. Azargoshasb, O. Jamialahmadi, S. Hashemi-Najafabadi, S.M. Mousavi, S.A. Shojaosadati, Experimental study and CFD simulation of phenol removal by immobilization of soybean seed coat in a packed-bed bioreactor, **Biochemical Engineering Journal**, 2015, 101, 32-43.
- 40- O. Jamialahmadi, A. Fazeli, S. Hashemi-Najafabadi, M.R. Fazeli, A novel clot lysis assay for recombinant plasminogen activator, **Biotechnology Letters**, 2015, 37, 593–600.
- 41- M.M. Nabavimanesh, S. Hashemi-Najafabadi, E. Vasheghani-Farahani, Islets immunoisolation using encapsulation and PEGylation, simultaneously, as a novel design, **Journal of Bioscience and Bioengineering**, 2015, 119 (4), 486-491.

- 42- S. Kheradmandnia, S. Hashemi-Najafabadi, S.A. Shojaosadati, S.M. Mousavi, K. Malek Khosravi, Development of parallel miniature bubble column bioreactors for fermentation process, **Journal of Chemical Technology and Biotechnology**, 2015, 90, 1051–1061.
- 43- Z. Gholami, S. Hashemi-Najafabadi, M. Soleimani, Simultaneous camouflage of major and minor antigens on red blood cell surface with activated mPEGs, **Iranian Journal of Biotechnology**, 2014, 12(2): e17776.
- 44- S. Hamedi, S.A. Shojaosadati, S. Shokrollahzadeh, S. Hashemi-Najafabadi, Extracellular biosynthesis of silver nanoparticles using a novel and non-pathogenic fungus, *Neurospora intermedia*: controlled synthesis and antibacterial activity, **World Journal of Microbiology and Biotechnology**, 2014, 30, 693-704.
- 45- M. Tavakol, E. Vasheghani-Farahani, M. Soleimani, M.A. Mohammadifar, S. Hashemi-Najafabadi, M. Hafizi, Synthesis and characterization of an enzyme mediated in situ forming hydrogel based on gum tragacanth for biomedical applications, **Iranian Journal of Biotechnology**, 2014, 12(1), 1-8.
- 46- A. Dustgani, E. Vasheghani-Farahani, M. Soleimani, S. Hashemi-Najafabadi, Process optimization of electrospun polycaprolactone and nanohydroxyapatite composite nanofibers using response surface methodology, **Journal of Nanoscience and Nanotechnology**, 2013, 13 (7), 4708-4714.
- 47- M. Tavakol, E. Vasheghani-Farahani, S. Hashemi-Najafabadi, The effect of polymer and CaCl₂ concentrations on the sulfasalazine release from alginate-N,O-carboxymethyl chitosan beads, **Progress in Biomaterials**, 2013, 2 (10).
- 48- H. Aghajani-Lazarjani, E. Vasheghani-Farahani, S. Hashemi-Najafabadi, S.A. Shojaosadati, S. Zahediasl, T. Tiraihi, F. Atyabi, Optimization of monomethoxy poly(ethylene glycol) grafting on Langerhans islets capsule using response surface method, **Progress in Biomaterials**, 2013, vol. 2 (7).
- 49- F. Rezvani, S. Hashemi-Najafabadi, S.M. Mousavi, S.A. Shojaosadati, S. Saharkhis, Optimization of the removal of phenol by soybean seed coats using response surface methodology, **Water Science and Technology**, 2012, 66 (10), 2229-2236.
- 50- A. Abolhasani, S. Hashemi-Najafabadi, M. Khodabandeh-Shahraki and Z.A. Sadigh, Chemical modification of recombinant human interferon beta-1a using linear and branched mPEGs, **Current Trends in Biotechnology and Pharmacy**, 2012, 6 (2), 229-240.
- 51- A. Dustgani, E. Vasheghani-Farahani, M. Soleimani, S. Hashemi-Najafabadi, Optimizing the mechanical properties of electrospun polycaprolactone and nanohydroxyapatite composite nanofibers, **Composites: part B**, 2012, 43, 1830-1836.
- 52- A. Dustgani, E. Vasheghani-Farahani, M. Soleimani, S. Hashemi-Najafabadi, Preparation and characterization of aligned and random nanofibrous nanocomposite scaffolds of poly (vinyl alcohol), poly (caprolactone) and nanohydroxyapatite, **International Journal of Nanoscience and Nanotechnology**, 2011, 7 (3), 128-133.
- 53- H. Aghajani-Lazarjani, E. Vasheghani-Farahani, S.A. Shojaosadati, S. Hashemi-Najafabadi, S. Zahediasl, T. Tiraihi, F. Atyabi, The effect of two different polyethylene glycol (PEG) derivatives on the immunological response of PEG grafted pancreatic islets, **Journal of Artificial Organs**, 2010, 13, 218-224.
- 54- L. Barani, E. Vasheghani-Farahani, H. Aghajani Lazarjani, S. Hashemi-Najafabadi, F. Atyabi, Effect of molecular mass of methoxypoly(ethylene glycol) activated with

- succinimidyl carbonate on camouflaging pancreatic islets, **Biotechnology Applied Biochemistry**, 2010, 57, 25-30.
- 55- H. Aghajani Lazarjani, E. Vasheghani-Farahani, L. Barani, S. Hashemi-Najafabadi, S.A. Shojaosadati, S. Zahediasl, T. Tairahi, F. Atyabi, Effect of polymer concentration on camouflaging of pancreatic islets with mPEG-succinimidyl carbonate, **Artificial Cells, Blood Substitutes and Biotechnology**, 2010, 38, 250-258.
- 56- S. Esfandiari, S. Hashemi-Najafabadi, S.A. Shojaosadati, S.A. Sarrafzadeh, Z. Pourpak, Purification and refolding of Escherichia coli-expressed recombinant human interleukin-2, **Biotechnology and Applied Biochemistry**, 2010, 55, 209–214.
- 57- M. Tavakol, E. Vasheghani-Farahani, T. Dolatabadi-Farahani, S. Hashemi-Najafabadi, Sulfasalazine release from alginate-N-,O-carboxymethyl chitosan gel beads coated by chitosan, **Carbohydrate Polymers**, 2009, 77, 326-330.
- 58- A. Bagherzadeh-Namaz, S.A. Shojaosadati, S. Hashemi-Najafabadi, Biodegradation of used engine oil using mixed and isolated cultures, **International Journal of Environmental Research**, 2008, 2 (4), 431-440.
- 59- F. Sarvi, S. Hashemi-Najafabadi, E. Vasheghani-Farahani, S.A. Shojaosadati, Surface coating of red blood cells with monomethoxy poly(ethylene glycol) activated with two different reagents, **Iranian Journal of Chemistry & Chemical Engineering**, 2008, 27 (3).
- 60- S. Hashemi-Najafabadi, E. Vasheghani-Farahani, S.A. Shojaosadati, M.J. Rasaei, M. Moin, Z. Pourpak, Factorial design optimization of red blood cell PEGylation with a low molecular weight polymer, **Iranian Polymer Journal**, 2006, 15 (8), 675-683.
- 61- S. Hashemi-Najafabadi, E. Vasheghani-Farahani, S.A. Shojaosadati, M.J. Rasaei, J.K. Armstrong, M. Moin, Z. Pourpak, A method to optimize PEG- coating of red blood cells, **Bioconjugate Chemistry**, 2006, 17, 1288-1293.
- 62- F. Sarvi, E. Vasheghani-Farahani, S.A. Shojaosadati, S. Hashemi-Najafabadi, M. Moin, Z. Pourpak, Surface treatment of red blood cells with monomethoxy (polyethylene glycol) activated by succinimidyl carbonate, **Iranian Polymer Journal**, 2006, 15 (6), 525-534.
- 63- S.A. Shojaosadati, S. Hashemi-Najafabadi, Bioremediation of hydrocarbon polluted soil, **International Journal of Engineering Science**, 2002, 13, (4), 11-20.