Dr. Bibi Fatemeh Kalalinia
Associate Professor of Pharmaceutical Biotechnology

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Updated at: 21th June 2016

Educational Background

- **Pharm.D. (Top student):** School of Pharmacy, Kerman University of Medical Sciences, Kerman, Iran, 1998-2004
- **Ph.D. in Pharmaceutical Biotechnology (Top Student, First rank in entrance exam):** School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran, 2005-2010
- **Visiting Research Period:** Institute of Pathology at the Charité, Humboldt-University of Berlin, Germany, 2009-2010

Research Interests

1. Stem cell research
    a. investigating the new materials that induce osteogenesis
    b. investigating the new materials that induce neurogenesis
    c. investigating the new materials that induce chondrogenesis
2. Tissue engineering
    a. designing and evaluating the new scaffolds with electrospinning method
    b. designing and evaluating the new scaffolds with 3D printing method
    c. designing and evaluating the new scaffolds with freeze drying method
3. Cell therapy
    a. for the treatment of bone fractures
    b. for the treatment of cartilage problems
    c. for the treatment of burns
    d. for the treatment of cancers

4. Multi drug resistance in cancer
5. Evaluate the hypotheses considered in traditional Iranian medicine

Publications

1. Shadi Heidari, Sina Mahdiani, Maryam Hashemi, **Fatemeh Kalalinia**. Recent advances in neurogenic and neuroprotective effects of curcumin through the induction of neural stem cells. Biotechnology and Applied Biochemistry journal, 2020, (IF: 1.429)

2. Navid Neyshaburinezhad, **Fatemeh Kalalinia**, Maryam Hashemi. Encapsulation of crocetin into poly (lactic-co-glycolic acid) nanoparticles overcomes drug resistance in human ovarian cisplatin-resistant carcinoma cell line (A2780-RCIS). Molecular biology reports. 46:6, Pages
3. 6525-6532. (IF: 2.107)

4. Shirin Mollazadeh, Amirhossein Sahebkar, **Fatemeh Kalalinia**, Javad Behravan, Farzin Hadizadeh. Synthesis, in silico and in vitro studies of new 1, 4-dihydropiridine derivatives for antitumor and P-glycoprotein inhibitory activity. Bioorganic chemistry journal (91), page 103156. (IF: 3.926)

5. Samaneh Bayat, Nafise Amiri, Elham Pishavar, **Fatemeh Kalalinia**, Jebrail Movaffagh, Maryam Hahsemi. Bromelain-loaded chitosan nanofibers prepared by electrospinning method for burn wound healing in animal models. Life Sciences (229), Pages 57-66. (IF: 3.234)

6. Shirin Hashemitabar, Rezvan Yazdian-Robati, Maryam Hashemi, Mohammad Ramezani, Khalil Abnous, **Fatemeh Kalalinia**. ABCG2 aptamer selectively delivers doxorubicin to drug-resistant breast cancer cells. Journal of biosciences. 2019, 44:39. (IF: 1.823)

7. **Fatemeh Kalalinia**, Shirin Toosi, Javad Behravan, Hojjat Naderi-Meshkin, Asieh Heirani-Tabasi, Fahimeh Rezaie, Hossein HosseinKhani, Shahrzad Havakhah, Sirous Nekooei, Amir Hossein Jafarian, Mohammad Taghi Peivandi, Hooman Mesgarani. Bone defect healing is induced by collagen sponge/polyglycolic acid. Journal of Materials Science: Materials in Medicine. March 2019, 30 . (IF: 2.448)

8. Toosi SH, Naderi-Meshkin H, **Kalalinia F**, HosseinKhani H, Heirani-Tabasi A, Havakhah S, Nekooei S, Jafarian AH, Rezaie F, Pievandi MT, Mesgarani H., and Behravan J.*. Bone defect healing is induced by collagen sponge/polyglycolic acid. Journal of Materials Science: Materials in Medicine. March 2019, 30:33. . (IF: 2.448)

9. Hashemitabar S., Yazdian-Robati R., Hashemi M., Ramezani M., Abnous K. *, **Kalalinia F. *,** ABCG2 aptamer selectively delivers doxorubicin to drug-resistant breast cancer cells. Journal of Biosciences, June 2019, 44:39. (IF: 1.528)

Commented [k1]:

10. Movaffagh J, Amiri N, Ebrahimi S, **Kalalinia F**, Fazli Bazaz S, Azizzadeh M, Arabzadeh S, and Miri MA. Electrospun zein nanofibers as nanocarrier of vancomycin: Characterization, release and antibacterial properties. JFST. No. 80, Vol. 15, Oct 2018 (ISC)

11. **Kalalinia F**, Ghasim H, Amel Farzad S, Pishavar E, Ramezani M, Hashemi M. Comparison of the effect of crocin and crocetin, two major compounds extracted from saffron, on osteogenic

differentiation of mesenchymal stem cells. 2018. Life Sciences (208), Pages 262-267 (IF: 3.234)
12. Neyshaburinezhad N, Hashemi M, Ramezani M, Arabzadeh S, Behravan J, and **Kalalinia F. *** The effects of Crocetin, extracted from saffron, in Chemotherapy against the incidence of multiple drug resistance phenotype. Iranian Journal of Basic Medical Sciences: November 2018, Page 1192-1197 (IF: 1.514)
13. Behravan E., Moallem S.A., **Kalalinia F.**, Ahmadimanesh M., Blain P., Jowsey P., Khateri S., Forghanifard MM., BalaliMood M. Telomere shortening associated with increased levels of oxidative stress in sulfur mustard-exposed Iranian veterans. Mutation Research/Genetic Toxicology and Environmental Mutagenesis. Available online 20 June 2018. (IF: 2.13, Q2)
14. Taheri M, Jami al Ahmadi Kh and **Kalalinia F.*,** Expression of Oncoprotein Gankyrin in Drug Resistant and Sensitive Cancer Ovarian and Gastric Cancer Cell Lines**.** J Mazandaran Univ Med Sci 2018, 28(161): 12-23 . (Scopus, Q3).
15. Alibolandi M, Amel Farzad S, Mohammadi M,Abnous K, Taghdisi SM, **Kalalinia F** & Ramezani M. Tetrac-decorated chitosan-coated PLGA nanoparticles as a new platform for targeted delivery of SN38. Artificial Cells · May 2018. (IF: 5.605, Q1)
16. J.Behravan, S.Toosi, H.Naderi-Meshkin, **F.Kalalinia**. Osteogenic lineage differentiation potential of long bone mesenchymal stem cells after crypreservation. Cytotherapy Volume 20, Issue 5, Supplement, May 2018, Page S29. (IF: 3.203. Q1)
17. Akbari S and **Kalalinia F*,** Evaluation of the effects of solamargine extracted from solanum nigrum as an angiogenesis inhibitor. JIMS. 2018, 35(464):1956-1961. (Scopus, Q4).
18. **Kalalinia F,** Jouya M, Komachal AK, Mohammad AS, Karimi G, Behravan J, Abnous K, Etemad L, Kamali H and Hadizadeh F, Design, Synthesis, and Biological Evaluation of New Azole Derivatives as Potent Aromatase Inhibitors with Potential Effects against Breast Cancer. Anticancer Agents Med Chem. 2018 Jan 15. (IF: 2.59)
19. Taheri M, Jami al Ahmadi Kh and **Kalalinia F.*,** Unexpected Lower Expression of Oncoprotein Gankyrin inDrug Resistant ABCG2 Overexpressing Breast Cancer Cell Lines. Asian Pac J Cancer Prev. 2017 Dec 29;18(12):3413-3418. (Pub Med).
20. Allahyari A, Sheikhvanloo M, Jannati M**, Kalalinia F**, Mohamadpoor AH, and Elyasi S. * Evaluation of Correlation Between Serum Level of Dihydropyrimidine Dehydrogenase Enzyme and Capecitabine Induced Adverse Reaction. Reports of Radiotherapy and Oncology. June 2017, 4 (1); e80910 (ISC).
21. Vahedi S, Noormohamadi Z, Mosaffa F, Behravan J and **Kalalinia F.*,** Induction of Continuous Expression of Cyclooxygenase -2 in Human Breast Cancer Cell Line Using COX-2 cDNA Plasmid Transfection. J Mazandaran Univ Med Sci. 2017; 27 (154): 38-50. (scopus).
22. Hoseini F, Tavallaie S, Mouhebati M, Mousavinejhad M and **Kalalinia F.*,** Evaluation of the Effects of Increased Parathyroid Hormone (PTH) Following Myocardial Infarction on the

Expressions Level of Matrix Metalloproteinase 9 and Tissue Inhibitor Metalloproteinase. JIMS. 2017 35(445):1156-1163. (scopus).

23. Toosi SH, Naderi-Meshkin H, **Kalalinia F,** Pievandi MT, HosseinKhani H, Bahrami AR, Heirani-Tabasi A, Mirahmadi M, Behravan J.*. Long bone mesenchymal stem cells (Lb-MSCs): clinically reliable cells for osteo-diseases. Cell and Tissue Banking. 2017; Augest: 1-12. (IF: 1.331).
24. **Kalalinia F.,** Karimi Sani I.*. Anticancer Properties of Solamargine: A Systematic Review. Anticancer Properties of Solamargine: A Systematic Review. 2017; 31(6):858-870. (IF: 2.694)
25. Hossein Kazemi Mehrjerdi ; Hooman Mesgarani ; Jebrail Movafagh ; Hossein Nourani ; Javad Behravan ; **Fatemeh Kalalinia**. Treatment of Critical-Sized Calvarial Non-Union Defect Via Collagen-Polyglycolic Acid Scaffold Loading With Simvastatin in Rabbits. Iranian Journal of Veterinary Science and Technology. 2016: 8(2) 10-19.
26. Toosi SH, Naderi-Meshkin H, **Kalalinia F,** Pievandi MT, HosseinKhani H, Bahrami AR, Heirani-Tabasi A, Mirahmadi M, Behravan J. Comparative characteristics of mesenchymal stem cells derived from reamer-irrigator-aspirator, iliac crest bone marrow, and adipose tissue. Cellular and molecular biology (Noisy-le-Grand, France). 2016: 62(10): 68 (IF: 0.605)
27. Mahdizadeh S., Karimi Gh., Behravan J., Arabzadeh S., Lage H., **Kalalinia F.*,** Crocin suppresses multidrug resistance in MRP overexpressing ovarian cancer cell line. DARU Journal of Pharmaceutical Sciences. 2016, 24 June (IF: 1.654).
28. Toosi SH, Naderi-Meshkin H, **Kalalinia F,** Pievandi MT, HosseinKhani H, Bahrami AR, Heirani-Tabasi A, Mirahmadi M, Behravan J. PGA-incorporated Collagen: Toward a Biodegradable Composite Scaffold for Bone-tissue Engineering. J Biomed Mater Res A. 2016 Apr 5 (IF= 3.263).
29. Hasanabady MH, **Kalalinia F.*,** ABCG2 inhibition as a therapeutic approach for overcoming multidrug resistance in cancer. J Biosci. 2016 Jun; 41(2):313-24 (IF= 2.064).
30. Hashemi M., **Kalalinia F.*,** Application of encapsulation technology in stem cell therapy. Life Sciences. 2015, 143: 139–146. (IF: 2.702).
31. Karimi Sani I., Marashi SH., and **Kalalinia F.***, Solamargine inhibits migration and invasion of human hepatocellular carcinoma cells through down-regulation of matrix metalloproteinases 2 and 9 expression and activity. Toxicology in Vitro. **2015**, 29 (5): 893-900. (IF: 3.207).
32. Hosseini M., Nakhaei MM., Bayat M., and **Kalalinia F.**, **(1393).** Antibiotic resistance pattern of metallo-beta-lactamase producing and non-producing clinical isolates of *Pseudomonas aeruginosa* in Mashhad, journal of north Khorasan University of medical science, 6(1): 33-40.
33. **Kalalinia F.**, Elahian F., Mosaffa F., and Behravan J., Celecoxib up regulates the expression of drug efflux transporter ABCG2 in breast cancer cell lines. IJPR. **2014**; 13 (4): 1391-99. (IF: 0.614)

34. **Kalalinia F.**, Elahian F., Hassani M., Kasaeeian J. and Behravan J., Phorbol ester TPA modulates chemoresistance in drug sensitive breast cancer cell line MCF-7 by inducing expression of drug efflux transporter ABCG2. Asian Pac J Cancer Prev. **2012**;13(6):2979-84. (IF: 1.33)

35. Mosaffa F, **Kalalinia F**, Lage H, Afshari JT, Behravan J. Pro-inflammatory cytokines interleukin-1 beta, interleukin 6, and tumor necrosis factor-alpha alter the expression and function of ABCG2 in cervix and gastric cancer cells. Mol Cell Biochem. **2012** Apr;363(1-2):385-93. (IF: 2.168)

36. Esmaeili B, Rezaee SA, Layegh P, Tavakkol Afshari J, Dye P, Ghayoor Karimiani E, **Kalalinia F**, Rafatpanah H. Expression of IL-17 and COX2 Gene in Peripheral Blood Leukocytes of Vitiligo Patients. Iran J Allergy Asthma Immunol. 2011 Jun; 10(2):81-9 (IF: 0.968)

37. Mosaffa F, **Kalalinia F**, Parhiz H, Behravan J. Tumor Necrosis Factor Alpha induces stronger cytotoxicity in ABCG2-overexpressing resistant breast cancer cells compared to their drug-sensitive parental line; DNA Cell Biol. 2011; 30(6):413-8 (IF: 2.28)

38. Hanafi-Bojd MY, Iranshahi M, Mosaffa F, Tehrani SO, **Kalalinia F**, Behravan J. Farnesiferol A from Ferula persica and Galbanic Acid from Ferula szowitsiana Inhibit P-Glycoprotein-Mediated Rhodamine Efflux in Breast Cancer Cell Lines. Planta Med. 2011; 77(14):1590-3 (IF: 2.369)

39. Amirghofran Z, Malek-hosseini S, Gholmoghaddam H, **Kalalinia F**. Inhibition of tumor cells growth and stimulation of lymphocytes by Euphorbia species. Immunopharmacol Immunotoxicol. **2011** Mar;33(1):34-42, (IF: 1.209).

40. Rassouli, F.B., Matin, M.M., Iranshahi, M., Bahrami, A.R., Behravan, J., Mollazadeh, S., Neshati, V., **Kalalinia, F**. **(2010)**. Investigating the enhancement of cisplatin cytotoxicity on 5637 cells by combination with mogoltacin. Toxicol in vitro. 25 (2):469-74, (IF: 2.546).

41. **Kalalinia, F**., Elahian, F., Behravan, J. **(2011).** Potential role of cyclooxygenase-2 on the regulation of the drug efflux transporter ABCG2 in breast cancer cell lines. J. Canc. Res. Clin. Oncol. 137: 321-330, (IF: 2.485).

42. Elahian, F., **Kalalinia, F**.,Behravan, J.**(2010).** Evaluation of indomethacin and dexamethasone effects on BCRP mediated drug resistance in MCF-7 parental and resistant cell lines. Drug and Chemical Toxicol. 33 (2): 113-9, (IF: 1.25).

43. Elahian, F.;**Kalalinia, F**.;Behravan, J. **(2009).** Dexamethasone Downregulates BCRP mRNA and Protein Expression in Breast Cancer Cell lines. Onc. Res. 18 (1): 9-15, (IF: 1.299).

44. **Kalalinia, F**., Behravan, J.,Ramezani, M., Hassanzadeh, M. K., Asadipour, A. **(2008).** Chemical Composition, Moderate In Vitro Antibacterial and Antifungal Activity of the Essential Oil of

Pistacia vera L. and it's Major Constituents Journal of Essential Oil Bearing plants.11 (4): 376 - 383, (IF: 0.29).

Presentations

1. **Fatemeh Kalalinia[1]□,** Azadeh Sadat Mortazavi[2], Sara Amel-Farzad[3] and Seyed Kamal Kazemi-Tabar[2], Evaluation the Possibility of Induction of Neurogenic Differentiation of Mesenchymal Stem Cells Using Curcumin, Stem cell 2018 **International,** Tehran, 28th Nov-1th Dec 2018
2. **Kalalinia F.,*** Ghasim H., Hasehmi M., Crocin, extracted from saffron, as a potent osteogenic agent. Stem cell 2017 **International,** Tehran, 13-15th July 2017.
3. **Fatemeh Kalalinia***, Shahla Vaezi, Hamideh Moalemzadeh Haghighi. Induction of osteogenic differentiation of mesenchymal stem cells by homeopathy medicine. Mashhad Stem cell2017 International. Mashhad, Iran, 19-21th April 2017.
4. Ghasim H., **Kalalinia F.*** , Hasehmi M., Induction of Osteogenic Differentiation of Mesenchymal Stem Cells by Crocin and Crocetin. The First National Festival & International Congress on Stem Cell and Regenerative Medicine. Rayzan International Conference Center Tehran, I ran, 19 - 21 May, 2016.
5. Jamialahmadi Kh., Taheri M. and **Kalalinia F.*** Unexpected Low Expression of Oncoprotein Gankyrin in ABCG2 Overexpressing Breast Cancer Cell Line. International Conference on Medicine, Public Health and Biological Sciences (MPHBS-2016), Tehran, Iran, September 18-19, 2016.
6. **Kalalinia F.***, Drugs and stem cells fate, Stem Cells and Regenerative Medicine International Congress- Mashhad, Iran, May 13-15, 2015.
7. Jamialahmadi Kh., Taheri M. and **Kalalinia F**., Pattern of Gankyrin Oncoprotein Expression in Drug Resistant and Sensitive Human Ovarian and Gastric Cancer Cell Lines, ASEAN Congress on Medical Biotechnology and Molecular Biosciences 2015.
8. Shirin Hamed Akbari Tusi, Hojjat Naderi-Meshkin, Mohammad Taghi Peyvandi, **Fatemeh Kalalinia**, Ahmad Reza Bahrami, Asieh Heirani-Tabasi, Mahdi Mirahmadi , Hossein HosseinKhani and Javad Behravan. Ream content or iliac crest: which one is the best source for producing mesenchymal stem cells? Stem Cells and Regenerative Medicine International Congress- Mashhad, Iran, May 13-15, 2015.
9. Shirin Hamed Akbari Tusi, **Fatemeh Kalalinia**, Hojjat Naderi-Meshkin, Hossein HosseinKhani, Mohammad Taghi Peyvandi, Ahmad Reza Bahrami, Asieh Heirani-Tabasi, Mahdi Mirahmadi and Javad Behravan. Collagen Reinforced by PGA Fibers as Scaffold for Bone Tissue Engineering. Stem Cells and Regenerative Medicine International Congress- Mashhad, Iran, May 13-15, 2015.
10. **Kalalinia F.**,Elahian F.,Behravan J. Induction of Cyclooxygenase-2 by Phorbol Ester TPA Modulate Chemoresistance by Induction Expression and Activity of Drug Efflux Transporter ABCG2 in Breast Cancer Cell Lines, CELL JOURNAL (YAKHTEH) Winter **2011**; 12(Supplement 1 (The 1ST International Student Congress on Cell and Molecular Medicine)):49-50.
11. Fatemeh Mosaffa, Javad Behravan, Hermann Lage, Jalil Tavakol Afshari, **Fatemeh Kalalinia**. Pro-inflammatory cytokines alter the expression and function of ABCG2 in cervix and gastric cancer cell lines, but not in their drug resistant derivatives. Clinical Biochemistry Volume 44, Issue 13,

Supplement, September 2011, Pages S68 (12th Iranian Congress of Biochemistry & 4th International Congress of Biochemistry and Molecular Biology, Mashhad, Iran, September 6-9 2011).

12. **Kalalinia F.**,Elahian F.,Behravan J. Induction of Cyclooxygenase-2 by Phorbol Ester TPA Modulate Chemoresistance by Induction Expression and Activity of Drug Efflux Transporter ABCG2 in Breast Cancer Cell Lines, CELL JOURNAL (YAKHTEH) Winter **2011**; 12(Supplement 1 (The 1ST International Student Congress on Cell and Molecular Medicine)):49-50.

13. J Behravan, **BF Kalalinia**, M Ramazani, and A Asadipour. Evaluation of Antimicrobial Activity of the Essential Oil of the Gum of *Pistacia Vera* and its Major Components. Can J Infect Dis Med Microbiol. **2008** January; 19(1): 77–142.

Books

1. Stem Cells and Medical Clinical Applications

2. **Fatemeh Kalalinia**, Fatemeh Mosaffa and Javad Behravan. Breast Cancer - Focusing Tumor Microenvironment, Stem cells and Metastasis, December 2011. Chapter 16: MCF-7 Breast Cancer Cell Line, a Model for the Study of the Association between Inflammation and ABCG2-Mediated Multi Drug Resistance. ISBN 978-953-307-766-6.

3. stem cells and clinical applications

Patents

1. Toosi SH, Naderi-Meshkin H, **Kalalinia F,** Pievandi MT, HosseinKhani H, Heirani-Tabasi A, Mirahmadi M, Behravan J. PGA-incorporated Collagen: Toward a Biodegradable Composite Scaffold for Bone-tissue Engineering. 2018.

2. Hadizadeh F, Jouya M, **Kalalinia F**, Abnous K, Behravan J. Design, synthesis and effects of aromatase inhibitors with potential effects against breast cancer and pregnancy induced. Iran Patent 74795. 2012.

3. Hadizadeh F, Jouya M and **Kalalinia F**. In vitro measurement of potency of aromatase inhibitors using hepatic cancer cell lines (HepG2) and estrone ELISA kit. Iran Patent 79465. 2013.

Membership

- Biotechnology Research Center, School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran
- Iran Medical Council
- Iran council for stem cell sciences and technologies

Administrative Responsibilities

- 2016 to date: Head of the Reference Laboratory of Research of East Iran. Mashhad University of Medical Sciences, Mashhad, Iran
- 2011 to date: Assistant Professor of Pharmaceutical Biotechnology, Biotechnology Research Center, School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran
- 2011 to date: Supervisor of Biotechnology Department, Biotechnology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
- 2011 to 2014: Education and Research Coordinator of Ph.D. by research students, Mashhad University of Medical Sciences, Mashhad, Iran

Other Skills
Honors & Awards