



Personal data:

Name:	Azadeh Khalili
Marital Status:	Married
Nationality:	Iranian
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Mailing address	Department of Physiology - Pharmacology and medical physics, School of Medicine, Alborz University of Medical Sciences, Karaj, Iran

Education:

1999-2005	Pharm.D., Faculty of Pharmacy, Shiraz University of Medical Sciences, Shiraz, Iran
2007-2013	Ph.D candidates
Aug 2013	Ph.D degree

Pharm.D thesis:

Antihypertensive effects of new Nitroxyalkyl 1, 4-dihydropyridine derivatives in rat model of two-kidney, one-clip hypertension.

Ph.D thesis:

The cardiovascular effects of Oleuropein in rats with renal hypertension and type 2 diabetes

Employment:

- * Educational Assistant professor of pharmacology department of Shiraz University of Medical Science (2014-2016)
- * Educational Assistant professor of Physiology, Pharmacology and Medical Physic department of Alborz University of Medical Science (2016-Now)
- * Head of graduate affairs (2019-Now)

Publications:

-Papers:

1. AA. Nekooeian, **A. Khalili**, K. Javidnia, AR. Mehdipour and R. Miri. **Antihypertensive effects of some new nitroxyalkyl 1, 4-dihydropyridine derivatives in rat model of two-kidney, one-clip hypertension.** *Iranian Journal of Pharmaceutical Research*, 2009; 8 (3): 193-199.
2. **A. Khalili**, MB. Khosravi, AA. Zolghadr Asli, AA. Nekooeian. **The aqueous extract of vaccinium arctostaphylos berries decreases blood pressure in rat model of two-kidney, one-clip renal hypertension.** *Iranian Cardiovascular Research Journal*, 2009; 3 (4): 195-9.
3. **A. Khalili**, MB. Khosravi, AA. Nekooeian. **The effects of aqueous extract of Vaccinium arctostaphylos leaves on blood pressure in renal hypertensive rats.** *Iranian red crescent medical journal*, 2011; 13 (2): 123-127.
4. AA. Nekooeian, GA. Dehghani, H. Mostafavi, **A. Khalili**. **The effects of hydroalcoholic extract of olive leaves on blood pressure in rats with two-kidney, one-clip hypertension. A role of basal nitric oxide.** *Iranian Cardiovascular Research Journal*, 2011; 5 (1): 1-6.
5. **A. Khalili**, AA. Nekooeian, MB. Khosravi. **Simultaneous renal hypertension and type 2 diabetes exacerbate vascular endothelial dysfunction in rats.** *International Journal of Experimental Pathology*, 2012; 93: 210-217.
6. AA. Nekooeian, **A. Khalili**, MB. Khosravi. **The effects of short-term renovascular hypertension and type 2 diabetes on cardiac functions in rats.** *Iranian journal of medical science*, 2014; 39 (1): 51-59.
7. AA. Nekooeian, **A. Khalili**, MB. Khosravi. **Oleuropein offers cardioprotection in rats with simultaneous type 2 diabetes and renal hypertension.** *Indian journal of pharmacology*, 2014; 46 (4): 398-403.

8. AA. Nekooeian, **A. Khalili**, MB. Khosravi. **The effects of Oleuropein in rats with simultaneous type 2 diabetes and renal hypertension: a study of antihypertensive mechanisms.** *Journal of asian natural product research*, 2014; 16 (9): 953-962.
9. M. Tafaghodi, Sh. Alipour, H. Montaseri, **A. Khalili**. **Non-invasive endotracheal delivery of paclitaxel loaded alginate microparticles.** *Journal of Chemotherapy*, 2016; 28 (5): 411-416.
10. G. Bayat, M. Javan, F. Safari, **A. Khalili**, S. Shokri, M. Goudarzvand, M. Salimi and S. Hajizadeh. **Nandrolone decanoate negatively reverses the beneficial effects of exercise on cardiac muscle via sarcolemmal, but not mitochondrial K_{ATP} channel.** *Canadian Journal of Physiology & Pharmacology*, 2016; 94 (3):324-31.
11. **A. Khalili**, AA. Nekooeian and MB. Khosravi. **Oleuropein improves glucose tolerance and lipid profile in rats with simultaneous renovascular hypertension and type 2 diabetes.** *Journal of Asian Natural Products Research*, 2017; 19(10); 1011-1021.
12. G. Bayat, M. Javan, **A. Khalili**, F. Safari, S. Shokri, S. Hajizadeh. **Chronic endurance exercise antagonizes the cardiac UCP₂ and UCP₃ protein up-regulation induced by nandrolone decanoate.** *Journal of Basic and Clinical Physiology and Pharmacology*, 2017; 28(6), 609-614.
13. A. Purkhosrow, **A. Khalili**, A. Chih Ho, S. Mowlazadeh Haghighi, Sh. Fakher, A. Khalafi-Nezhad. **Highly efficient, one pot, solvent and catalyst, free Synthesis of novel quinazoline derivatives under ultrasonic irradiation and their vasorelaxant activity isolated thoracic aorta of rat.** *In Iranian journal of pharmaceutical research*, 2019; 18(2):607-619.
14. **A. Khalili**, Sh. Alipour, M. Fathalipour, A. Purkhosrow, E. Mashghoolozekr, G. Bayat, Ali Akbar Nekooeian. **Liposomal and Non-Liposomal formulations of vitamin C: Comparison of the antihypertensive and vascular modifying activity in renovascular hypertensive rats.** *Iranian Journal of Medical Sciences*, 2020; 45(1), pp. 41-49.
15. **A. Khalili**, H. Karim, G. Bayat. **Theoretical assessment of therapeutic effects of angiotensin receptor blockers and angiotensin-converting enzyme inhibitors on covid-19.** *Iranian Journal of Medical Sciences*, 2021; 46(4), 312-316.
16. M. Bayat, K. A. Kohlmeier, M. Haghani, A. Borhani Haghighi, **A. Khalili**, G. Bayat, E. Hooshmandi and M. Shabani. **Co-treatment of vitamin D supplementation with enriched environment improves synaptic plasticity and spatial learning and memory in aged rats.** *Psychopharmacology*, 2021; 238(8), 2297-2312.
17. **A. Khalili**, P. Fallah, S. Hashemi, M. Ahmadian-Attari, V. Jamshidi, Roham Mazloom, Leila Beikzadeh, Gholamreza Bayat. **New mechanistic insights into hepatoprotective activity of milk thistle and chicory quantified extract: The role of hepatic Farnesoid-X activated receptors.** *Avicenna Journal of Phytomedicine*, 2021; 11(4): 367-379.

18. V. Jamshidi, S. A. Hashemi, **A. Khalili**, P. Fallah, M. M. Ahmadian-Attari, L. Beikzadeh, R. Mazloom, P. Najafizadeh, G. Bayat. **Saffron offers hepatoprotection via up-regulation of hepatic farnesoid-X-activated receptors in a rat model of acetaminophen-induced hepatotoxicity.** *Avicenna Journal of Phytomedicine*, 2021; 11(6): 622-623.
19. F. Niazi, K. Hedayatyanfard, M. Soroush, B. Habibi, NS. Haddadi, K. Rostami, S. Rajabi, **A. Khalili**, S. Niazi. **Increased level of Histamine in keloid Tissue.** *Novelty in Biomedicine*, 2021; 9 (1):1-4.
20. N. Zhalehjoo, M. Arabi, Z. Momeni, M. Akabari Kamrani, **A. Khalili**, S. Riahi, T. Tahmtani, F. Mirloonia. **Virtual education status from the perspective of students at alborz university of medical sciences in the Covid-19 pandemic period.** *Journal of Medical Education Development*, 2021; 14 (42): 24-31.
21. G. Bayat, S. A. Hashemi, H. Karim, P. Fallah, K. Hedayatyanfard, M. Bayat, **A. Khalili**. **Biliary cirrhosis-induced cardiac abnormality in the rat: interaction between Farnesoid-X-activated receptors and the cardiac Uncoupling proteins 2 and 3.** *Iranian Journal of Basic Medical Sciences*, 2022; 25(1), 126-133.
22. S. Motamed, R. Bakhshi, K. Hedayatyanfard, N. S. Haddadi, **A. Khalili**, G. Bayat, B. Tavakoli-Far, A. Roeintan. **Early post-operative use of Botulinum toxin type A in prevention of scar after mammoplasty and abdominoplasty.** *Australasian Journal of Dermatology*, 2022; 63(1): 111-113.
23. M. Bayat, **A. Khalili**, G. Bayat, S. Akbari, A. Yousefi Nejad, A. Borhani Haghighi, M. Haghani. **Effects of platelet-rich plasma on the memory impairment, apoptosis, and hippocampal synaptic plasticity in a rat model of hepatic encephalopathy.** *Brain and Behavior*, 2022; In press
24. G. Bayat, R. Mazloom, S. A. Hashemi, K. Pourkhalili, P. Fallah, A. Shams, P. Esmaeili, **A. Khalili**. **Silymarin administration attenuates Cirrhotic-induced cardiac abnormality in rat: a possible role of β 1-adrenergic receptors and L-type voltage-dependent calcium channels.** *Iranian Journal of Medical Sciences*, 2022; 47 (4): 367-378.

-Book:

Niknahad, H., Khalili, A., Khalili, B., Ostovan, Z. Translation into Persian of Drug Information Handbook by Charles F. Lacy, Lora Armstrong, Morton P. Goldman, Leonard I. Lance, 2000; (Translation).

-Booklet:

Collaboration in the publication of Weekly Newsletter for Drugs and Foods published by Vice-Chancellor for Drugs and Food Affairs, Shiraz University of Medical Sciences, 1385.

-Bulletin:

Better Medicine No 4: Herbal medicine, real drugs with real adverse effects

Doping, a guide for health care personnel

-Pamphlet:

Doping, a guide for everyone. Distributed in health week, 2006

Presentation:

1. **Poster:** Khalili, A., Khalili, B., Miri, R. Light identification by stimulated emission of radiation in medical sciences. **Pharmacy Research Day, Shiraz School of Pharmacy, 15 Nov. 2000, Shiraz, Iran.**
2. **Poster:** Omrani, E., Khalili, B., Khalili, A., Montaseri, H.. A computer software for pharmacy education and calculation. **Pharmacy Research Day, Shiraz School of Pharmacy, 15 Nov. 2002, Shiraz, Iran.**
3. **Poster:** Miri, R. Khalili, B., Khalili, A. Arjmand, M, Rahimian, H.R. The comparison of pharmacy educational system in Iran with 5 scientific-industrial countries. **8th Iranian seminar of Pharmaceutical Sciences (IPSC), Aug, 27-29, 2002, Shiraz, Iran.**
4. **Poster:** Miri, R., Khalili, A., Khalili B., Ostavan, Z, Arjmand, M., Quantitative structure activity relationship of Dihydropyridine derivatives. **Pharmacy Research Day, Shiraz School of Pharmacy, 15 Nov. 2003, Shiraz, Iran.**
5. **Poster:** Khalili, A., Nekooeian, A.A. Blood pressure lowering effect of hydroalcoholic extract of Apium graveolens in rat model of two kidney, one clip hypertension. **First Seminar of Medicinal & Natural Products Chemistry, May 10-11, 2005, Shiraz, Iran.**
6. **Poster:** Nekooeian, A.A., Miri, R., Khalili, A., Antihypertensive effects of new Nitroxyalkyl 1, 4- Dihydropyridine derivatives in rat model of two-kidney, one-clip hypertension. **10th Iranian Seminar of Pharmaceutical Sciences (IPSC), August, 21-24, 2006, Tehran, Iran.**

7. **Poster:** Nekooeian, A.A.Khalili, A., The antihypertensive effects of new Nitroxyalkyl 1, 4-dihydropyridine derivatives in Goldblatt hypertension in rats. **The 8th congress of the European association for clinical pharmacology & therapeutics; Aug 29-Sep 1, 2007, Amsterdam, the Netherland.**
8. **Poster:** Khalili A, Nekooeian AA, Fakher Sh., Oleuropein Causes a Biphasic Response in Isolated Thoracic Aorta of Rats. **The 5th Middle East cardiovascular congress, 23-25 Feb, 2011, Kish Island, Iran.**
9. **Poster:** Khalili A, Nekooeian AA, Dehghani F, Fakher Sh., Renovascular Hypertension Increases Total Cardiac Volume in Rats: A Stereological Study. **The 5th Middle East cardiovascular congress, 23-25 Feb, 2011, Kish Island, Iran.**
10. **Poster:** Poorkhosrow A, Molazadeh Haghighi S, Khalili A, Nekooeian AA, khalafinezhad A, Fakher Sh., Vasorelaxing activities of new quinazoline-derivatives in rat thoracic aorta. **The 5th Middle East cardiovascular congress, 23-25 Feb, 2011, Kish Island, Iran.**
11. **Poster:** Fakher Sh., Nekooeian AA, Khalili A, The effects of hypertension on kidney volume in Goldblatt hypertensive rats. **The 5th Middle East cardiovascular congress, 23-25 Feb, 2011, Kish Island, Iran.**
12. **Poster:** Roham Mazloom, Gholamreza Bayat, Mahdi Goudarzvand, Azadeh Khalili. Heart rate variability in sinus bradycardia: a case study. **National Congress on Clinical Case Reports, December 26-27, 2018, Karaj-Iran.**
13. **Poster:** Vahid Jamshidi, Gholamreza Bayat, Azadeh Khalili, Parviz Fallah, Mohammad Mahdi Ahmadian-Attari, Seyed Ali Hashemi, Roham Mazloom, Parvaneh Najafizadeh. Evaluating the effects of Crocus sativus hydro-alcoholic extract on hepatic gene expression of Farnesoid receptors (FXR) in rat model of acetaminophen-induced hepatotoxicity. **8th National Congress on Medicinal Plants, 24-25 April, 2019, Tehran-Iran.**
14. **Poster:** Gholamreza Bayat, Roham Mazloom, Azadeh Khalili, Seyed Ali Hashemi, Parviz Fallah, Leila Beikzadeh, Mohammad Mahdi Ahmadian-Attari, Vahid Jamshidi. Evaluating the effects of Silybum marianum on cardiac expression of Farnesoid-X activated receptor (FXR), uncoupling protein 2 and 3 (UCP2 and UCP3) genes in the rat model of cirrhosis. **24th Iranian & International Congress of Physiology & Pharmacology, Shahed University, 30 October-01 November, 2013, Tehran-Iran.**
15. **Poster:** Azadeh Khalili, Gholamreza Bayat, Vahid Jamshidi, Roham Mazloom, Parviz Fallah, Mohammad Mahdi Ahmadian-Attari, Seyed Ali Hashemi, Leila Beikzadeh. Evaluating the effect of Silybum marianum seed Cichorium intybus root extracts on hepatic gene expression of Farnesoid-X activated receptor (FXR), in rat model of acetaminophen-induced hepatotoxicity. **24th Iranian & International Congress of**

Physiology & Pharmacology, Shahed University, 30 October-01 November, 2013, Tehran-Iran.

- 16. Poster:** Roham Mazloom, Gholamreza Bayat, Azadeh Khalili. A case report of fractal dynamic analysis of electrogastrogram interval variation in a physiologic human. **3rd National Congress on Clinical Case Reports, December 25-26, 2019, Karaj-Iran.**
- 17. Oral:** Roham Mazloom, Diba Sadat Miraghaee, Milad Nazari, Zahra Mousavi, Gholamreza Bayat, **Azadeh Khalili**. Investigating the effects of acute nicotine on heart rate variability in rat model of ulcerative colitis. **4th International and 25th Iranian Congress of Physiology & Pharmacology, October 20-22, 2021, Tehran University Medical Sciences, Tehran, Iran.**
- 18. Oral:** Mahsa Asadi, Milad Nazari, Hamed Shafaroodi, **Azadeh Khalili**, Gholamreza Bayat, Roham Mazloom. Investigating the effect of nicotine on heart rate variability in cecal ligation and puncture-induced inflammation in rats. **4th International and 25th Iranian Congress of Physiology & Pharmacology, October 20-22, 2021, Tehran University Medical Sciences, Tehran, Iran.**

Departmental presentation:

1. Depression can break your heart: the relationship between depression and cardiovascular disease. Dec 2007.
2. Pathophysiology and therapeutic potentials of purinergic signaling. Sep 2008.
3. Stem cell and their application in cardiac disease. Nov 2008.
4. The effects of seeds and leaves of aqueous extract of vaccinium arctostaphylos in rats with two kidney one clip hypertension, Jan 2009.
5. Thesis proposal: Cardiovascular effects of Oleuropein in rats with renal hypertension and type 1 or 2 diabetes; Jun 2009.
6. Cardiovascular effects of green tea catechins; Mechanistic consideration; April 2010.
7. Physiological and Pathological Modulation of Ryanodine Receptors; Focus on: New Therapeutic Target for Heart Failure; October 2010.
8. Animal models of cardiovascular diseases; March 2011.
9. Report presentation: transgene cardiomyocytes from rat embryonic stem cells

10. Introduction on new reference manager software; Mendeley

Workshops attended:

1. Research methodology for Pharmacy students, a workshop presented by Vice-Presidency for Research, Shiraz University of Medical Sciences. Oct. 14-16., **2003**, Shiraz, Iran.
2. Research methodology for pharmacist associated with Shiraz University of Medical Sciences, a workshop presented by Vice-Presidency for Research, Shiraz University of Medical Sciences. March 7-8, **2005**, Shiraz, Iran.
3. Endnote X2 workshop. Presented by Vice-Presidency for Research, Shiraz University of Medical Sciences. May11, **2009**, Shiraz, Iran.
4. Laboratory animal models of cardiovascular disease workshop, offered as a satellite workshop by the 19th Iranian Congress of Physiology & Pharmacology at Golestan University of Medical Sciences. Jul 15-16., **2009**. Gorgan, Iran.
5. Endnote X3 workshop. Presented by Vice-Presidency for Research, Shiraz University of Medical Sciences. **2010**, Shiraz, Iran.
6. Cardiovascular electrophysiology and MAP recording from experimental animal models workshop, Golestan University of Medical Sciences. Jul 15-16., **2010**. Gorgan, Iran.
7. “First Royan nano-engineering congress with electrospinning approach” at Royan Institute of Jahad organization; Oct 27-28, 2012. Shiraz, Iran.
8. Educational workshop of “neurolinguistic programs (NLP) in effective presentation” of Shiraz University of Medical Science, Dec 17, **2014**. Shiraz, Iran.
9. Educational workshop of “How to write a good paper” which was held at the Research consultation center on Dec 29-30, **2014**. Shiraz. Iran.
10. “Application of neurolinguistic programming (NLP) on effective presentation” at school of advanced medical science and technologies, Shiraz University of Medical Science, Dec 17, **2014**; Shiraz, Iran.
11. “How to write a good paper” at the research consultation center of Shiraz University of Medical Science; Dec 29-30, **2014**; Shiraz, Iran.
12. “Miracle of word: teaching experience during 30 years” at Hafez hospital of Shiraz University of Medical Science May 6, **2014**; Shiraz, Iran.

13. "Peaceful Parenting" at Medical school of Shiraz University of Medical Science May 20, **2015**; Shiraz, Iran.
14. "3th empowerment courses for new entrance academic members, at medical school of Shiraz University of Medical Science at May 6, **2014**; Shiraz, Iran.
15. "Induction of *in vivo* cardiac ischemia-reperfusion in rat" for postgraduate students. Shiraz University of Medical Science, School of medicine, Jul 18, **2016**.
16. "Professional ethics in medical research" instructed by Vice-Chancellor for research of Alborz University of Medical Sciences, Jan 30 to Feb 1, **2017**.

Workshop instructed:

1. A National workshop on isolated heart (Langendorff technique). The workshop was sponsored by Eqlim Danesh Company in Mashhad University of Medical Science, **2010**.
2. Animal models of hypertension in National workshop of 20th National congress of Physiology and Pharmacology. Golestan University of Medical Science, Sep 28-30, **2011**.
3. "Introduction on Sigmaplot graphical software" for postgraduate students. Shiraz University of Medical Science, School of medicine, Dec 16, **2015**.
4. "Catheterization of artery and vein, invasive and non-invasive intubtion in rat" for postgraduate students. Shiraz University of Medical Science, School of Medicine, Feb 28, **2016**.
5. "Induction of two-kidney one-clip renovascular hypertension in rat" for postgraduate students. Shiraz University of Medical Science, School of Medicine, Jan 26, **2016**.
6. "Isolated heart: Langendorff technique" for postgraduate students. Shiraz University of Medical Science, School of Medicine, May 2, **2016**.
7. Workshop on Surgical Methods of Measuring Invasive Arterial Blood Pressure in Rat, 23rd Iranian & International Congress of Physiology & Pharmacology, Iran University of Medical Sciences, September, **2017**.

Other workshop (non-academic):

-Association of watercolor painters from May 20-26, **2016**

Research projects (past and present):

1. A survey of factors involved in ineffective relations between School of Pharmacy and Pharmacy Industry, 2005-2006.
2. A survey of the effects of education on the knowledge of women working at central office of Shiraz University of Medical Sciences about the knowledge for keeping foods and drugs, 2005-2006.
3. An analysis of drug groups about which information was sought by Fars citizens from the Information Center for Drugs and Poisons at Shiraz University of Medical Sciences. 2005-2006.
4. An analysis of telephone calls to information center for drugs and poisons at Shiraz University of Medical Sciences, 2006.
5. The effects of seeds and leaves of aqueous extract of *vaccinium arctostaphylos* in rats with two kidney, one clip hypertension, 2008.
6. Embryonic Stem cell test; Royan institute; 2011-2012.
7. Evaluation of the effects of standard and liposomal forms of oral vitamin C on blood pressure, endothelial function and markers of oxidative stress in rat model of two kidney-one clip Goldblatt hypertension, 2016; ID no. 9734 in pajooheshyar.
8. Evaluating the hepatoprotective activity of *Cichorium intybus* and *Silybum marianum* mechanism in rat model of acetaminophen-induced hepatotoxicity: the role of hepatic nuclear receptors.
9. Evaluating the cardiac hemodynamic effects of *Silybum marianum* on isolated hearts in rat model of biliary cirrhosis: the role of Cardiac Farnesoid-X activated receptors, uncoupling protein 2 and 3 (UCP₂ and UCP₃).
10. Evaluating the cardiac hemodynamic effects of *Silybum marianum* on isolated hearts in rat model of biliary cirrhosis: the role of cardiac adrenergic receptor (β_1), cholinergic receptor (μ_2) and L-type calcium channel.

Supervised/consulted thesis:

1. Evaluation of pharmacokinetic factors of PLGA microparticles containing Rifampin drug after non-invasive administration in the lung; Pharm-D thesis (Pharmacy); Shiraz University of Medical Sciences; **2015**.
2. Evaluating the effects of *Crocus Sativus* hydro-alcoholic extract on hepatic expression of Farnesoid receptors (FXR) in Wistar albino rat model of acetaminophen-induced hepatotoxicity; Master of Toxicology thesis; Islamic Azad University, Tehran, **2018**.

3. Evaluating of the time-course pattern of hepatic gene expression of Farnesoid receptors (FXR) and glutathione S-transferase (α -GST) in valproic acid-induced hepatotoxicity in mice; Master of Toxicology; Islamic Azad University, Tehran, **2020**.
4. Evaluating the effect of nicotine on heart rate variability (HRV) in rat model of ulcerative colitis; Pharm-D thesis (Pharmacy); Islamic Azad University, Tehran, **2021**.
5. Investigating the effect of nicotine on heart rate variability in cecal ligation and puncture-induced inflammation in rats; Pharm-D thesis (Pharmacy); Islamic Azad University, Tehran, **2021**.
6. Evaluating the time-course pattern of the Farnesoid-X- receptor and associated genes with glutathione antioxidant pathway in the rat model of Gentamicin-induced renal failure; Master of Physiology thesis; Arak University of Medical Sciences; **2021**.
7. Evaluating the effect of nicotine on heart rate variability (HRV) in a model of acetaminophen induced -acute liver injury in rat; Pharm-D thesis (Pharmacy); Islamic Azad University, Tehran, **2022**.
8. Investigating the effect of topical compound containing metformin drug for the treatment of hypertrophic scars and keloids; Specialization thesis, Shahid Beheshti University of Medical Sciences; **2022**.
9. Evaluating of the effect of cannabidiol on the expression of the FXR, Nrf2, SOD, CB₁ and CB₂ gens in Gentamicin-induced renal failure in the rat kidney; Master of Physiology thesis; Arak University of Medical Sciences; **2022**.

Teaching experiences:

2006-2007	Teaching Pharmacology at <u>Jahrom university of Medical Science</u> and <u>Fasa university of Medical Science</u>
2013-2016	Teaching Pharmacology at <u>Shiraz university of Medical Science</u>
2016-Now	Teaching Pharmacology at <u>Alborz university of Medical Science</u>

Research Experience in Royan institute of Tehran: (for more than 1 year training; 2011-2012):

- Rat embryonic stem cell culture
- Differentiation of Rat embryonic stem cell into beating cardiomyocytes
- Generation of transgenic rat embryonic stem cell Using gene promoter incorporation via Electroporation and/or fugene
- Embryonic Stem cell test Technique for drug efficacy/toxicity assessment on transfected differentiated rat cardiomyocytes

Skills:

Methods:

- Surgery and induction of two-kidney, one clip hypertension in rats
- Rat surgery and cannulation for cardiovascular studies
- Isolated heart technique; Langendorff method
- Isolated tissue technique; Organ Bath method
- Surgical model of animal cirrhosis: Bile duct ligation model
- Blood pressure Measurement using invasive and non-invasive methods
- Making plexiglass clips used for the induction of renal hypertension
- In vitro cell culture testing
- Embryonic stem cell culture (mouse, rat)
- Embryonic stem cell Test (EST for drug screening assessment)
- Differentiation of Rat and Mice embryonic stem cells into cardiomyocytes
- Transgenesis of embryonic stem cells using electroporation method
- Transgenesis of embryonic stem cells using fusion method

Software:

- Photoshop software
- Sigma Plot graphical software
- Sigma Stat statistical software
- Endnote reference manager software
- Mendeley reference manager software
- Flowing software for flow cytometry analysis

Awards:

An award from the **Dr. Imanieh** the Chancellor of Shiraz University of Medical Sciences and Fars Health Care Services on the occasion of National Health Week comprised of a letter of appreciation and a 500,000 Rials in recognition of contribution to the week's activities, 2005.

An award from **Vice-Chancellor for Education** and **the Head of Graduate Studies** of Shiraz University of Medical Sciences; for selection as the best PhD student, 2011.

An award from the **5th Middle East Cardiovascular Congress**, comprised of a letter of recognition and 500\$ for presenting one of the best posters, 2011.

The Late **Dr. Ejtehadi** award comprise of a recognition letter, an Icon and a Gold Coin, 2011.