

# Neda Saraygord-Afshari

## Ph.D.



### Positions

**Faculty**  
Assistant Professor/Research Fellow  
2014-current

Iran University of Medical Sciences (IUMS) Faculty  
of allied medical sciences  
Department of Medical Biotechnology  
Tehran, Iran

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### Education

<b>Ph.D.</b>	Biophysics, Tarbiat Modares University, Tehran, Iran	Sep 2012
<b>M.Sc.</b>	Biophysics, Tarbiat Modares University, Tehran, Iran	Sep 2009
<b>B.Sc.</b>	Biology, Razi University, Kermanshah, Iran	Jul 2003
<b>The equivalent of an M.Sc. degree</b>	Master of Business Administration (MBA), Sharif University Of Technology, Tehran, Iran,	Sep 2020
<b>M.Sc.</b>	Medical education, Iran University of Medical Sciences (IUMS)	2022-current

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### Executive Experiences

- Manager of the Educational Development Office (EDO), 2016-2022.
- Member of the Strategic Committee of Iran University of Medical Sciences (IUMS) Core Research Laboratory (ICL), 2020-current.
- Head of Iran University of Medical Sciences (IUMS) Core Research Laboratory (ICL), 2019-2020
- Member of the Spatial planning committee, 2019-current.

- Member of the Educational Evaluation committee of the Ministry of Health's Transformation and Innovation Packages.
  - Coordinator of the Biotechnologies' laboratory, IUMS, Biotechnology Department, 2014-current.
  - Member of the student's research committee, IUMS, Faculty of the allied medical sciences, 2012-current.
  - Collaboration with Iran Academy of Medical Sciences, 2012-2015.
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## Academic biography

- A cross-disciplinary researcher with expertise in proteomics techniques and data interpretation.
  - Interested in clinical omics-based systems biology and medical bioinformatics.
  - Director of several research projects mainly focused on breast neoplasms using different approaches including:
    - Developing innovative microfluidic Lab-On-Chip platforms to explore drug dosage effects on tumor cells.
    - Neoantigens discovery by serological proteome analysis (SERPA) techniques.
    - Epitope mapping and discovery of antibody-recognizing motifs of cancer protein antigens.
    - Investigating the miRNA tumor regulating functions using proteome profiling techniques.
    - Deciphering the biochemical pathways involved in tumorigenesis of cancer stem cells by designing innovative proteomic experiments.
    - Design and construction of nanoparticles for co-delivery of breast cancer-specific drugs.
    - Investigating the synergistic effect of drugs in breast cancer treatment.
  - Director of some research projects focused on proteome profiling of stem cells to make applicable suggestions for tissue engineering platforms.
  - Director of some research projects focused on the development of microfluidic devices for drug dosing and drug monitoring.
  - Have some expertise in environmental dosimetry due to a period of collaboration with AEOI.
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## HSR and educational research projects

- To propose a comprehensive approach for postgraduate student's admission in Medical base sciences at Iran's medical universities; ongoing project.
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## Publications

### ***Book compilation***

1. **Technology to aid the early detection of cancer: A review on the CTC detection techniques, from conventional methods to the advent of the microfluidic Lab-On-Chip devices.** ISBN: 978-600-155-070-6; 2016, In Persian.  
Verification link on the National Library of Iran site:

[http://opac.nlai.ir/opac-prod/search/briefListSearch.do?command=FULL\\_VIEW&id=4144377&pageStatus=0&sortKeyValue1=sortkey\\_title&sortKeyValue2=sortkey\\_author](http://opac.nlai.ir/opac-prod/search/briefListSearch.do?command=FULL_VIEW&id=4144377&pageStatus=0&sortKeyValue1=sortkey_title&sortKeyValue2=sortkey_author)

2. **Chernobyl accident: A consequence of cold war.** ISBN: 978-600-91012-7-6; 2011, In Persian. Verification link on the National Library of Iran site:

[http://opac.nlai.ir/opac-prod/search/briefListSearch.do?command=FULL\\_VIEW&id=2088576&pageStatus=0&sortKeyValue1=sortkey\\_title&sortKeyValue2=sortkey\\_author](http://opac.nlai.ir/opac-prod/search/briefListSearch.do?command=FULL_VIEW&id=2088576&pageStatus=0&sortKeyValue1=sortkey_title&sortKeyValue2=sortkey_author)

### **Book translation**

1. **Gene cloning and DNA analysis: An Introduction. Translations into Persian against English.2017**

Verification link on the National Library of Iran site:

[http://opac.nlai.ir/opac-prod/search/briefListSearch.do?command=FULL\\_VIEW&id=4849404&pageStatus=0&sortKeyValue1=sortkey\\_title&sortKeyValue2=sortkey\\_author](http://opac.nlai.ir/opac-prod/search/briefListSearch.do?command=FULL_VIEW&id=4849404&pageStatus=0&sortKeyValue1=sortkey_title&sortKeyValue2=sortkey_author)

### **Journal articles**

1. E. Choupani, M.M. Gomari, S. Zanganeh, S. Nasser, K. Haji-allahverdipoor, N. Rostami, Y. Hernandez, S. Najafi, N. Saraygord-Afshari, **Newly Developed Targeted Therapies Against Androgen Receptor in Triple-Negative Breast Cancer: A Review**, Pharmacological Reviews (2022).
2. E. Choupani, Z. Madjd, N. Saraygord-Afshari, J. Kiani, A. Hosseini, **Combination of androgen receptor inhibitor enzalutamide with the CDK4/6 inhibitor ribociclib in triple negative breast cancer cells**, Plos one 17(12) (2022) e0279522.
3. N. Saraygord-Afshari, S. Ghayem, R. Foudazi, M. Safa, **Drivers of consumers' behavioral intention toward private umbilical cord blood banking: a review**, Cell and Tissue Banking (2022) 1-11.
4. S. Shahrivari, N. Aminoroaya, R. Ghods, H. Latifi, S.A. Afjei, N. Saraygord-Afshari, Z. Bagheri, **Toxicity of trastuzumab for breast cancer spheroids: Application of a novel on-a-chip concentration gradient generator**, Biochemical Engineering Journal 187 (2022) 108590.
5. A. Sohrabi, N. Saraygord-Afshari, M. Roudbari, **The Application of Bi-clustering and Bayesian Network for Gene Sets Network Construction in Breast Cancer Microarray Data**, Middle East Journal of Cancer (2022).
6. G. Rahimi, B. Rahimi, M. Panahi, S. Abkhiz, N. Saraygord-Afshari, M. Milani, E. Alizadeh, **An overview of Betacoronaviruses-associated severe respiratory syndromes, focusing on sex-type-specific immune responses**, International immunopharmacology 92 (2021) 107365.
7. B. Rahimi, M. Panahi, N. Saraygord-Afshari, N. Taheri, M. Bilici, D. Jafari, E. Alizadeh, **The secretome of mesenchymal stem cells and oxidative stress: challenges and opportunities in cell-free regenerative medicine**, Molecular Biology Reports 48(7) (2021) 5607-5619.
8. M.S. Farahani, N. Saraygord-Afshari, M.M. Farajollahi, **Optimizing the Preparation Procedure of Recombinant PSCA, as a Practical Biomarker in Prostate Cancer**, Iranian Journal of Biotechnology 19(2) (2021) e2631.

9. M. Panahi, B. Rahimi, G. Rahimi, T. Yew Low, N. Saraygord-Afshari, E. Alizadeh, **Cytoprotective effects of antioxidant supplementation on mesenchymal stem cell therapy**, Journal of cellular physiology 235(10) (2020) 6462-6495.
10. P.Y. Lee, N. Saraygord-Afshari, T.Y. Low, **The evolution of two-dimensional gel electrophoresis-from proteomics to emerging alternative applications**, Journal of Chromatography A 1615 (2020) 460763.
11. M.M. Gomari, N. Saraygord-Afshari, M. Farsimadan, N. Rostami, S. Aghamiri, M.M. Farajollahi, **Opportunities and challenges of the tag-assisted protein purification techniques: Applications in the pharmaceutical industry**, Biotechnology Advances 45 (2020) 107653.
12. S. Shahrivari, Z. Bagheri, N. Saraygord-Afshari, H. Latifi, **Three-Dimensional Cell Cultures in Anticancer Drug Researches: From Traditional Methods to Emerging Microfluidic Technology**, Journal of Isfahan Medical School 37(535) (2019) 845-856.
13. N. Saraygord-Afshari, M. Naderi, H. Naderi-Manesh, **Probable Influence of Fasting on the Dry Eye Syndrome Occurrence by Integrating Data Published on Tear Proteome Change in Fasting People, Patients with Diabetes, Smokers, and Dry Eye Patients**, Qurān va ṭib (Quran and Medicine) 3(3) (2018) 175-182.
14. H. Abbasi, N. Saraygord-Afshari, N. Mohammadi, M.M. Farajollahi, R. Falak, **Improving proteome coverage for HS578T breast cancer cell-line due to efficient interfering removal**, Journal of Isfahan Medical School 36(471) (2018) 216-220.
15. N.E. Roudi, N. Saraygord-Afshari, M. Hemmaty, **Protein nano-cages: Novel carriers for optimized targeted remedy**, F1000Research 6 (2017) 1541.
16. Mahboobeh Shahrabi-Farahani, Nasiseh Taromi, Neda Saraygord-Afshari\*, Mohammad-morad Farajollahi; **Diagnosis of Prostate Cancer, from Conventional Methods Towards the New Promising CTCs**; Alborz University Medical Journal, 2016, 5(1): 53-58.
17. N. Saraygord-Afshari, H. Naderi-Manesh, M. Naderi, **Increasing proteome coverage for gel-based human tear proteome maps: towards a more comprehensive profiling**, Biomedical Chromatography 29(7) (2015) 1056-1067.
18. Z. Pashandi, N. Saraygord-Afshari, H. Naderi-Manesh, M. Naderi, **Comparative proteomic study reveals the molecular aspects of delayed ocular symptoms induced by sulfur mustard**, International journal of proteomics 2015 (2015).
19. N. Saraygord-Afshari, H. Naderi-Manesh, M. Naderi, **Enhanced reproducibility of the human gel-based tear proteome maps in the presence of di-(2-hydroxyethyl) disulfide**, Biotechnology and Applied Biochemistry 61(6) (2014) 660-667.
20. N. Saraygord-Afshari, H. Naderi-manesh, M. Naderi, **Evaluation of the chaotropes, ionic, nonionic and zwitterionic detergents as tear proteome solubilizers during the IEF process**, Modares Journal of Biotechnology 3(2) (2012) 67-78.
21. N. Saraygord-Afshari, F. Abbasizadeh, P. Abdolmaleki, M. Ghiassi-Nejad, A. Attarilar, **Determination of 90Sr in milk and milk powder in Tehran and estimation of annual effective dose**, The Environmentalist 31(3) (2011) 308-314.
22. N. Saraygord-Afshari, H. Naderi-manesh, M. Naderi, **Effect of reductant concentration on gel based proteomic analysis of the human tear proteome**, clinical biochemistry, pergamon-elsevier science ltd the boulevard, langford lane, kidlington, 2011, pp. S317-S317.

23. Neda Saraygord-Afshari, Fereshteh Abbasislar, Parviz Abdolmaleki\* and Mahdi Ghiassi-Nejad; **Determination of <sup>40</sup>K concentration in milk samples consumed in Tehran-Iran and estimation of its annual effective dose;** Iranian journal of radiation research, 2009; 7 (3):159-164.

#### **Conference Presentations (Invited Speaker)**

1. **Recent scientific revolutions and the development of personal dentistry;** The 9<sup>th</sup> dental congress; Olympic hotel, Tehran, Iran; **2018**.
2. **Different OMICS technologies and their determinant role in the progressive development of systems biology and new medicine;** 3<sup>rd</sup> Congress on novel and innovative laboratory technology Razi international conference hall, Iran University of Medical Sciences, Tehran, Iran; **2015**.

#### **Selected Conference Oral & Poster Presentations**

1. **Application of mesenchymal stem cell-based gene therapy in personalized treatment of gastrointestinal cancers;** The 2<sup>nd</sup> international personalized medicine congress of Iran; Razi international conference hall, Iran University of Medical Sciences, Tehran, Iran; **2018**, (Oral).
2. **Microfluidic 3D cell-Culture platforms for drug response monitoring: potential applications for individualized cancer treatment;** International congress on biomedicine (ICB); Milad tower conference hall, Tehran, Iran; **2017**, (Oral).
3. **Oxidative stress and mitochondrial dysfunctions in personalized cancerous signaling pathway;** The 2<sup>nd</sup> international personalized medicine congress of Iran; Razi international conference hall, Iran University of Medical Sciences, Tehran, Iran; **2018**, (Poster).
4. **The emergence of micro-isolator devices for high throughput exosome analysis: A technological leap towards personalized cancer treatment;** The 2<sup>nd</sup> international personalized medicine congress of Iran; Razi international conference hall, Iran University of Medical Sciences, Tehran, Iran; **2018**, (Poster).
5. **Personal tumor neoantigens and cancer immunotherapy;** The 2<sup>nd</sup> international personalized medicine congress of Iran; Razi international conference hall, Iran University of Medical Sciences, Tehran, Iran; **2018**, (Poster).
6. **Personalized micro-RNA profiling and their individualized theranostic applications in cancer treatment;** The 2<sup>nd</sup> international personalized medicine congress of Iran; Razi international conference hall, Iran University of Medical Sciences, Tehran, Iran; **2018**, (Poster).
7. **Enhancing extraction efficiency of heterologously expressed recombinant prostate stem cell antigen in *E.coli*;** The 2<sup>nd</sup> conference on protein and peptide sciences; Isfahan university, Isfahan, Iran; **2016**, (Poster).
8. **The art of Metastasis-On-Chip platforms to create metastasis models and developing cancer understandings;** 9<sup>th</sup> International congress on laboratory and clinics; Imam Khomeini International Conference Hall; Tehran, Iran, **2017**, (Poster).
9. **Application of microfluidics for high-throughput proteome analyses; 4<sup>th</sup> Congress on Novel & Innovative Laboratory Technologies,** Razi international conference hall, Iran University of Medical Sciences, Tehran, Iran, **2016**, (Poster).

10. **MALDI Imaging Mass Spectrometry and advances in the diagnosis of cancer;** 4th Congress on Novel & Innovative Laboratory Technologies, Razi international conference hall, Iran University of Medical Sciences, Tehran, Iran, **2016**, (Poster).
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## Patents

1. **A valve less circular-star-shaped microfluidic concentration gradient generator device with the capability to be linked to the 2D and 3D cell culture chambers.** Application number: 140050140003004375; Patent number: 105840; Publication date: 2021/8/23.
  2. **A compact Microfluidic gradient maker, with the capability to be linked to the cell culture chambers.** Inventors: Shabnam Shahrivari, Neda Saraygord-Afshari, Zeinab Bagheri, Hamid Latifi; Application number: 139850140003009807; Patent number: 104235; Publication date: 2020/1/22.
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## Teaching experiences

### University programs

1. **Protein engineering**, IUMS, Department of medical biotechnology, a course of Ph.D. program.
2. **Computational and systems biology**, IUMS, Department of medical biotechnology, a course of Ph.D. program.
3. **Bioengineering and Biotechnology**, IUMS, Department of medical biotechnology, a course of Ph.D. program.
4. **Practical genetic engineering**, IUMS, Department of medical biotechnology, a course of Ph.D. program.
5. **Scaffolding in tissue engineering**, IUMS, Department of medical biotechnology, a course of Ph.D. program.
6. **Electrochemistry**, IUMS, Department of medical biotechnology, a course of Ph.D. program.
7. **Principles of research methodology**, IUMS, Department of medical biotechnology, a course of Ph.D. program.
8. **Bioethics**, IUMS, Department of medical biotechnology, a course of Ph.D. program.
9. **Methods for research in neuroscience**, IUMS, Department of medical neuroscience, a course of Ph.D. program.
10. **Molecular and cellular biology**, IUMS, Department of Immunology, a course of Ph.D. program.
11. **Bioinformatics**, IUMS, Department of tissue engineering, a course of Ph.D. program.
12. **Bioinformatics**, IUMS, Department of molecular medicine, a course of Ph.D. program.
13. **Advanced Biochemistry**, IUMS, Department of medical biotechnology, a course of M.Sc. program.
14. **Immunochemistry**, IUMS, Department of medical biotechnology, a course of M.Sc. program.
15. **Nanobiotechnology**, IUMS, Department of medical biotechnology, a course of M.Sc. program.
16. **Bioinformatics**, IUMS, Department of medical biotechnology, a course of M.Sc. program.

17. **Advanced techniques in biotechnology**, IUMS, Department of medical biotechnology, a course of M.Sc. program.
18. **Biological safety, ethics and rights**, IUMS, Department of medical biotechnology, a course of M.Sc. program.
19. **Molecular and cellular biology**, IUMS, Department of hematology, a course of M.Sc. program.
20. **Molecular and cellular biology**, IUMS, Department of immunology, a course of M.Sc. program.
21. **Molecular and cellular biology**, IUMS, Department of radiobiology, a course of M.Sc. program.
22. **Medical information systems**, IUMS, Department of operating room, a course of M.Sc. program.
23. **Cellular biology**, IUMS, Department of radiology, a course of B.Sc. program.
24. **Biophysics**, IUMS, Department of Medical laboratory scientist, a course of B.Sc. program.
25. **Biophysical chemistry**, Islamic azad university, Department of biology, a course of B.Sc. program.
26. **Biophysics**, Islamic azad university, Department of biology, a course of B.Sc. program.
27. **Radiation biology**, Islamic azad university, Department of biology, a course of B.Sc. program.

### **Workshops**

1. **Artificial Intelligence (AI) in medical sciences**, IUMS, Education Development Center (EDC), A national workshop.
2. **Problem based learning (PBL)**, IUMS, Faculty of allied medical sciences, a course for faculty members.
3. **How to write a research proposal?** IUMS, Faculty of allied medical sciences, a course for masters and Ph.D. students.
4. **Proteomics**, Tarbiat Modares University, Faculty of biological sciences, a course for masters and Ph.D. students.
5. **Proteomics**, Held in The 17th National & 5th International Iranian Biology Conference.

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### **As an Editorial Board**

- Pharmacogenomics and Omics Technologies Journal

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### **Memberships**

- Iranian Proteomics Society (IPS)
- Iranian Biology Society

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### **Honors and Awards**

- Ranked 1<sup>st</sup> in the 23<sup>th</sup> vernacular Festival of IQNA; division of essay writing; **2018**.
- Ranked 1<sup>st</sup> in Tarbiat Modares University, Tehran, Iran, Ph.D. graduate class of **2012**.
- Ranked 1<sup>st</sup> in Tarbiat Modares University, Tehran, Iran, Ph.D. entrance exam, **2006**.
- Outstanding graduate student of the Tarbiat Modares University, Tehran, Iran, M.Sc. class of **2006**.
- Ranked 1<sup>st</sup> in Razi University, Kermanshah, Iran, B.Sc. graduate class of **2003**.

## Grants Received as The Principal Investigator

- IUMS Research grant, Code No.: 1400-2-5-21726.
- IUMS Research grant, Code No.: 1400-1-5-21224.
- IUMS Research grant, Code No.: 1400-1-5-21079.
- IUMS Research grant, Code No.: 99-2-5-19061.
- IUMS Research grant, Code No.: 99-1-5-18434.
- IUMS Research grant, Code No.: 99-1-5-17916.
- IUMS Research grant, Code No.: 98-2-5-15426.
- IUMS Research grant, Code No.: 97-4-5-13615.
- IUMS Research grant, Code No.: 97-1-31-33309.
- IUMS Research grant, Code No.: 96-03-31-31905.
- IUMS Research grant, Code No.: 96-03-31-31318.
- IUMS Research grant, Code No.: 96-02-31-31328.
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  - o This project is also partially granted by the Tabriz University of Medical Sciences, Code No:58916
- IUMS Research grant, Code No.: 96-03-31-31318.
  - o This project is also partially granted by the Tabriz University of Medical Sciences, Code No:58915
- IUMS Research grant, Code No.: 96-03-31-31905.
- IUMS Research grant, Code No.: 95-04-31-30076.
- IUMS Research grant, Code No.: 95-03-31-29452.
  - o This project is also partially granted for free service in the Shahid Beheshti University
- IUMS Research grant, Code No.: 94-05-31-26867.
- IUMS Research grant, Code No.: 94-05-31-26849.
- IUMS Research grant, Code No.: 94-02-31-26083.