

Afsaneh MennatiE-mail: drmennati@gmail.comORCID Address: <https://orcid.org/0009-0006-5872-4468>Google Scholar Address: <https://scholar.google.com/citations?user=LiDHnRwAAAAJ&hl=en>ResearchGate Address: <https://www.researchgate.net/profile/Afsaneh-Mennati>Web of Science Researcher ID: [JDD-7155-2023](#)

Born April 18, 1986, in Tehran, Iran

Married

Academical Experience

- 20/08/2022 – 05/02/2025 **Post-Doc** at Qazvin University of Medical Sciences, Biochemistry Group (Assoc. Prof. M. Fathi) in collaboration with Washington University, Pharmacology Department (Prof. K. Rostamizadeh)
Work focus: Dual silencing of overexpressed genes involved in breast and colon cancers by using a novel hybrid lipid nanoparticle, supporting 8 master's and bachelor students (biochemistry, genetics, medicine, and anatomy) and academia (Qazvin University of Medical Sciences). Training in cellular and molecular techniques.
- 23/09/2015 – 21/09/2021 **PhD student** in Pharmaceutical Nanotechnology at Zanjan University of Medical Sciences, Biochemistry and Pharmaceutical Nanotechnology Group (Prof. H. Danafar, Assoc. Prof. M. Fathi), (Total average: 17.74 out of 20)
Work focuses and skills: Co-delivery of siRNA and anti-cancer drug encapsulated in a nanoparticle for dual silencing of insulin-like growth factor 1 receptor in MCF-7 breast cancer cell line. Also, regorafenib-resistant colon cancer therapy. *Cellular and Molecular Techniques:* Cell culture, Creating resistant cell lines to chemotherapy drugs, RNAi (gene silencing with siRNA), Cell viability and proliferation, Flow cytometry, qRT-PCR, ELISA, Gel electrophoresis, Apoptosis assay, Cell cycle assay, Bioinformatics. *Nanoparticles Synthesis:* Polymeric nanoparticles, Hybrid lipid polymeric nanoparticles, Zinc oxide nanoparticles, Copper oxide nanoparticles, Iron oxide nanoparticles, DLS for size and surface potential determination, Stability analysis of nanoparticles. *Pharmaceutical Analysis:* Formulation development, Drug delivery, Determination of nanoformulations' loading capacity, In vitro drug release study. *In Vivo Techniques:* LD50, Acute toxicity assay. Teaching laboratory analysis techniques, including Spectrophotometer and DLS devices, for three years. Advisor of 3 students, for whom this collaboration resulted in one publication.
Dissertation: "Design of hybrid nanoparticles as anti IGF-1R siRNA and lycopene codelivery carrier for receptor's gene silencing and reduction of mitogenic action of IGF-1 in breast cancer cell line (MCF-7) "leading to 2 first-author publications (Project Grade: 19.94 out of 20).
Quantitative measurement of $\alpha\beta 3$ integrin protein in the regorafenib-resistant SW48 colon cancer cell line treated with siRNA

Undergraduate Studies

- 23/09/2009 – 10/03/2012 **Academic studies** of Physical chemistry with a focus on nanotechnology | electrochemistry at Urmia Payame Noor University with M.Sc. degree (Grade: 18.81 out of 20)
- 23/09/2011 – 30/03/2012 **Master's Thesis:**
Investigation of corrosion behavior of copper and platinum electrodes in the presence of zinc oxide and copper oxide nanofluids (Asst. Prof. A. Hassanzadeh), Urmia Payame Noor University (Project Grade: 19.75 out of 20)
- 23/09/2004 – 10/06/2008 **Academic studies** of applied chemistry at Tabriz Azad University with a B.Sc. degree (Grade: 16.23 out of 20)

Additional Skills

- Software: SPSS| FlowJo| Prism-GraphPad| ChemDraw| EndNote| Adobe Illustrator| Microsoft Office| Python
- Languages: English (MHLE Test: Score 67 out of 100) | Turkish (Native)| Persian (Native)

List of Publications

1. **Mennati A**, Rostamizadeh K, Fathi M (2024): Dual silencing of integrin $\alpha\beta 3$ receptor and insulin-like growth factor 1 receptor using mPEG-PCL/DDAB hybrid nanoparticle loaded siRNA in breast cancer therapy: An in vitro study on MCF-7 cells, International Journal of Biological Macromolecules 139334, <https://doi.org/10.1016/j.ijbiomac.2024.139334> (IF in 2025: 8.5).
2. **Mennati A**, Rostamizadeh K, Manjili HK, Fathi M, Danafar H (2022): Co-delivery of siRNA and lycopene encapsulated hybrid lipid nanoparticles for dual silencing of insulin-like growth factor 1 receptor in MCF-7 breast cancer cell line, International Journal of Biological Macromolecules, 200, 335-349, <https://doi.org/10.1016/j.ijbiomac.2021.12.197> (IF in 2022: 8.2).
3. **Mennati A**, Rostamizadeh K, Manjili HK, Mousavi MA, Zhiani M, Sabouri I, Attari E, Fathi M, Danafar H (2021): Synthesis of methoxy poly (ethylene glycol)-poly (ϵ -caprolactone) diblock copolymers hybridized with DDAB cationic lipid as the efficient nanocarriers for in vitro delivery of lycopene into MCF-7 breast cancer cells, Journal of Drug Delivery Science and Technology, 66, 102806, <https://doi.org/10.1016/j.jddst.2021.102806> (IF in 2021: 5.06).
4. Zhiani M, Mousavi MA, Rostamizadeh K, Pirizadeh R, Osali A, **Mennati A**, Motlagh B, Fathi M (2021): Apoptosis induction by siRNA targeting integrin- $\beta 1$ and regorafenib/DDAB-mPEG-PCL hybrid nanoparticles in regorafenib-resistant colon cancer cells, American journal of cancer, 11, 1170, PMID: [33948352](https://pubmed.ncbi.nlm.nih.gov/33948352/), PMCID: [PMC8085858](https://pubmed.ncbi.nlm.nih.gov/PMC8085858/) (IF in 2021: 5.94).
5. Dizaj SM, **Mennati A**, Jafari S, Khezri K, Adibkia K (2015): Antimicrobial activity of carbon-based nanoparticles, Advanced pharmaceutical bulletin, 5(1),19, DOI: [10.5681/apb.2015.003](https://doi.org/10.5681/apb.2015.003) (IF in 2015: 0.5)
6. Dizaj SM, **Mennati A**, Salehi Sadaghiani AR (2011): Determine and compare the cmc point of SDS, Triton x-100 and CTAB surfactants using the conductometry method, Applied Chemistry Today, 6, 47-52, <https://doi.org/10.22075/chem.2017.584>.

h-index: 5 i10-index:4 Citations: 613

Cooperation with Scientific Associations

Articles Reviewer, "International Journal of Polymeric Materials and Polymeric Biomaterials"

Articles Reviewer of "Pharmaceutical Nanotechnology" *posters* in the 22nd Iranian Pharmacy Student

Articles Reviewer of "Pharmaceutical Nanotechnology" *articles* in the 22nd Iranian Pharmacy Student

Editor-in-Chief, Kimia at Tabriz Azad University (a. Collaborated with Tabriz Azad University faculty members, students, and staff to produce high-quality content b. Developed and implemented editorial policies and procedures to maintain the journal's standards c. Successfully managed the publication process, resulting in the release of two journals)

Main member of the Chemical Society at Tabriz Azad University

Conferences and Workshops

Presented a paper entitled "Investigation of Corrosion Behavior of Copper Electrode in the Presence of Zinc Oxide Nanofluid" at the 4th International Congress on Nanoscience and Nanotechnology.

Presented a paper entitled "Investigation of Corrosion Behavior of Copper Electrode in the Presence of Cu₂O Nanofluid" The 13th National Congress of Metal Corrosion.

Presented a paper entitled "Investigation of Corrosion Behavior of Platinum Electrode in the Presence of Cu₂O Nanofluid" at the 7th annual electrochemistry seminar at K. N. Toosi University of Technology.

Attended workshops on Recombinant protein expression, Flow cytometry, Primer design, Recombinant protein expression in the prokaryotic host, Patent in the field of health, Pharmaceutical biotechnology, Teamwork skills and successful leadership, Foreign patents and patent search tutorials, The third generation of universities, An introduction to whole exome and transcriptome sequencing data analysis, Technology services to the market, Biosafety, How to write a proposal, Access to synchrotron laboratory.

Grants

Iran National Science Foundation (INSF) for post-doctoral research, since 2022

Awards

21st rank on the national exam of Iran for the Ph.D. level (2015)

1st rank among Ph.D. students, School of Pharmacy, Zanjan (2015-2016)

Top student in Pharmaceutical Nanotechnology, Comprehensive Medical Science exam (2017)

Top scientific rank at Zanjan University of Medical Sciences (2019)

Collaborations

Biochemistry Department of Qazvin University of Medical Sciences, and Pharmacology Department of Washington University, M. Fathi, k. Rostamizadeh, since 2022, Breast Cancer Therapy, (original article)

Pharmaceutical Nanotechnology Department, Biochemistry, and Pharmaceutical Biotechnology Department of Zanjan University of Medical Sciences, H. Danafar, M. Fathi, k. Rostamizadeh, HK. Manjili, 2015-2021, Breast and Colon Cancer Therapy, Pub. 3

Pharmaceutical Nanotechnology Department of Tabriz University of Medical Sciences, K. Adibkia, S. Maleki. 2015, Antimicrobial activity of carbon-based nanoparticles, Pub. 1

Legal Medicine Organization of East Azerbaijan, Tabriz, I. Sabouri, 2021, In vivo cytotoxicity assay & histological analysis, Pub. 1

Teaching Experience

Laboratory analysis techniques, including Spectrophotometer and DLS devices (3 years)

Cell culture (2 years)

Molecular techniques (2 years)

Volunteer Experience

Rescue and Emergency Response Training (22 hours)

Voluntary Skills Training (40 hours), Iranian Red Crescent Society (gained expertise in crisis management, communication, and teamwork and plan to utilize these skills to assist vulnerable populations and advance humanitarian principles)

Referees

1. Hossien Danafar, Ph.D, Professor, Zanzan University of Medical Sciences, Email: Danafar@zums.ac.ir
2. Kobra Rostamizadeh, Professor, University of Washington, Email: Rostamizadeh@gmail.com
3. Solmaz Maleki Dizaj, Ph.D, Assistant Professor, Tabriz University of Medical Sciences
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4. Mojtaba Fathi, Ph.D, Associate Professor, Qazvin University of Medical Sciences
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5. Reza Nejatbakhsh, Associate Professor, Zanzan University of Medical Sciences, Email: reza_nejat@yahoo.com