Taravat Khodaei CV

Date of Birth: November 09, 1994 **Skype ID:** taravatkhodaii **Linkedin:** Taravat Khodaei
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Personal Summary

- More than four years of experience in Academic Research and Laboratory Work
- Experienced in Cell Culturing, In Vitro Analysis, Polymeric Hydrogel, Bioactive Glass and Nanoparticle Synthesis and Modification
- Skilled in Team Working, Time Managing, Teaching and Creative Researching
- Several Publication on Cancer Immunotherapy, Immunometabolism and Wound healing

Scientific & Research Interests

- Cancer and Autoimmune Researches
- Wound Healing
- Drug Delivery
- Nano-/Macro-scale Particles
- Metabolism Engineering
- Hydrogel synthesis

Academic History

January 2023- Present **Ph.D. Student in Bioengineering and Biomedical Engineering** **Arizona State University (ASU)**

- Specialization: Immune Engineering
- Proposal Topic: Understanding the Immunometabolism-Epigenetic Crosstalk in Dendritic Cells
- Supervisor: Dr. Abhinav P. Acharya

Sept 2017 – March 2021 **M.Sc. in Biomedical Engineering** **University of Tehran (UT)**

- Specialization: Tissue Engineering
- GPA: 18.96/20 (4.0/4.0) / Full Thesis Grade
- *Thesis: Self-Healing and Antibacterial Hydrogel based on Polysaccharides, Including Carrageenan*
- Supervisors: Dr. Jhamak Nourmohammadi, Dr. Azade Ghaee

Sept 2013 - July 2017 **B.Sc. in Materials Science and Engineering** **Khajeh Nasir Toosi University of Technology (KNTU)**

- GPA: 17.50/20 (3.82/4.0), Last two years: 3.98/4
- *Thesis: The Effect of Fluoride on the Biological Behaviour of Silicate Glasses*
- Supervisor: Dr. Erfan Salahinejad

Professional Skills

- **Biological Characterizations**: Intracellular and Surface Flow staining, Intracellular staining for cytokines, IVIS Imaging, Toxicity Assay, Cell Culturing, MTT Assay, Alamar Blue Assay, Cell Staining (AOPI), Cell Adhesion Assay, Collagen Assay, Antibacterial Assay, Antioxidant Assay
- **Animal Handling**: Balb/C Mice Handling, Organ Harvesting, Euthanization and Anesthetizing.
- **Calorimetry Assay:** Toluidine Blue (TBO) Colorimetry for Carboxyl and Sulfonate Groups, Methyl Orange Calorimetry for Aldehyde Assessment, Folin–Ciocalteu Assay for Total Phenol Assessment, Ninhydrin Assay

- **Characterization:** IVIS, HPLC, Fluorescent Microscopy, Fluorescent Spectroscopy, ELISA, FTIR, SEM, XRD, DSC, Raman, ICP, 1H- NMR, Rheology and Self-Healing Test Interpretation, UV-vis Characterization, Degradation Tests, Water Uptake, Swelling Test and Release Kinetics

- **Bio Conjugation & Chemical Skills:** Co-precipitation Method for Diopside Nanoparticles, Synthesis of Oxidized Carrageenan and Self-Healing Hydrogels based on Carrageenan, Hydrogel Synthesis in N2 Protection Environment, Polymer Crosslinking with Ions and Dopamine, Synthesis of Nano-/Macro-particles based on metabolites. Synthesis of metabolite-incorporated alginate hydrogels. Spray drying technique for particle generation. Polymer generation from alpha-ketoglutarate and succinic acid. Particle preparation with Oil-in-water emulsion.

- **Computer Skills:** Graphpad, Flowjo, ChemOffice, Origin, X'Pert High Score, ImageJ, MestReNova (Mnova), and SPSS

- **General Computer Skills:** Adobe Photoshop, Adobe Illustrator, C++ Programming Language Skills, SOLIDWORKS, COMSOL, and ANSYS Software Skills

Publications

1. Sahil Inamdar, Abhirami P. Suresh, Joslyn L. Mangal, Nathan D. Ng, Alison Sundem, Hoda Shokrollahzadeh Behbahani, Thomas E. Rubino, Jordan R. Yaron, Taravat Khodaei, Matthew Green, Marion Curtis, Abhinav P. Acharya,"*Succinate in the tumor microenvironment affects tumor growth and modulates tumor associated macrophages", Biomaterials, Volume 301, 2023*
2. Sahil Inamdar, Abhirami P Suresh, Joslyn L Mangal, Nathan D Ng, Alison Sundem, Christopher Wu, Kelly Lintecum, Abhirami Thumsi, Taravat Khodaei, Michelle Halim, Nicole Appel, Madhan Mohan Chandra Sekhar Jaggarapu, Arezoo Esrafili, Jordan R Yaron, Marion Curtis, Abhinav P Acharya "Rescue of dendritic cells from glycolysis inhibition improves cancer immunotherapy in mice". Nature Communications, 2023
3. Madhan Mohan Chandra Sekhar Jaggarapu, Abhirami Thumsi, Richard Nile, Brian D Ridenour, Taravat Khodaei, Abhirami P Suresh, Arezoo Esrafili, Kailong Jin, Abhinav P Acharya," Orally delivered 2D covalent organic frameworks releasing kynurenine generate anti-inflammatory T cell responses in collagen induced arthritis mouse model"Biomaterials,Volume 300, 2023
4. Taravat Khodaei[#], Elizabeth Schmitzer[#], Abhirami P. Suresh, Abhinav P. Acharya "*Immune response differences in degradable and non-degradable alloy implants*" Bioactive Materials (Jan 2023) .
5. Taravat Khodaei, Jhamak Nourmohammadi, Azadeh Ghaee, Zohreh Khodaii (2023). "An antibacterial and self-healing hydrogel from aldehyde-carrageenan for wound healing applications." Carbohydrate Polymers (2023).
6. Taravat Khodaei, Sahil Inamdar, Abhirami P. Suresh, Abhinav P. Acharya "Drug delivery for metabolism targeted cancer immunotherapy." Advanced Drug Delivery Reviews (2022).
7. Shahidian, A., Ghassemi, M., Mohammadi, J., & Hashemi, M. (2020). "Bio-Engineering Approaches to Cancer Diagnosis and Treatment." Academic Press.
   - Our names have been mentioned in the acknowledgment part.
8. Khodaei Taravat, Sadri Bahareh, Nouraein Shirin and Mohammadi Javad et al. "*Cancer vaccination: Various Platforms and Recent advances*" J Immuno Biol 5 (2020): 151. Doi: 10.37421/ jib.2020.5.151.
9. Sadri Bahareh, Nouraein Shirin, Khodaei Taravat and Mohammadi, Javad et al. "Antibody-Based Targeted Therapy: A Novel Cancer Treatment" J Immuno Biol 5 (2020): 150. Doi: 10.37421/jib.2020.5.150.
10. Esmati, N., Khodaei, T., Salahinejad, E., & Sharifi, E. *"Fluoride doping into SiO2-MgO-CaO bioactive glass nanoparticles: bioactivity, biodegradation and biocompatibility assessments."* Ceramics International, (2018).

Submitted Papers

1. *Wound Healing Applications of Natural Polymers* (Book Chapter)
   Banafshe Pishva, Parand Shokrani, **Taravat Khodaei**, Zhamak Nourmohammadi
   - Submitted and is going to be published by the Elsevier Publication

2. *Crystallinity of Covalent Organic Frameworks Controls Immune Responses*
   Arezoo Esrafili1, Abhirami Thumsi2, Madhan Mohan Chandra Sekhar Jaggarapu1, Gabriel Nile1, Joshua Kupfer1, Abhirami P. Suresh2, Taravat Khodaei3, Srivatsan J. Swaminathan4, Kelly Lintecum2, Kailong Jin1, Abhinav P. Acharya1,2,3,5,6,7*
   - Corresponding Author: Dr. Abhinav P Acharya
   - Submitted to Nature Communication

Conferences

1. Taravat Khodaei, Abhirami P. Suresh, Sahil Inamdar, Abhinav P. Acharya, Succinate-based Nanoparticles for Cancer Immunotherapy, Biomedical Engineering Society, October 2023 Seattle, USA, Poster and Podium Presentation
2.
3. Taravat Khodaei, Abhirami P. Suresh, Abhinav P. Acharya, Metabolically active CAR – macrophages for treatment of lymphoma, Controlled Release Society, July 2023, Las Vegas, USA, Poster Presentation

4. Taravat Khodaei, Jhamak Nourmohammadi, Nafiseh Niknejadi, Fabrication of silk fibroin Nanoparticles for drug delivery applications, 8th International Conference on Science and Development of Nanotechnology, August 2022, Georgia, Poster Presentation

5. Taravat Khodaei, Jhamak Nourmohammadi, A. Ghaee, Facile One-step protocol for oxidation of Carrageenan, 14th International Seminar on Polymer Science and Technology (ISPST), November 2020, Tehran, Iran, Poster Presentation

Research Experiences

Jan 2023- Present **Graduate Research Assistant** **Arizona State University**

July 2021- July 2022 **Research Assistant** **University of Tehran (UT)**

- Managing two students in writing a chapter book on wound healing applications of natural Polymers
- Attending an international conference on the Science and Development of Nanotechnology

Sept 2018 - March 2021 **M.Sc. Thesis Project** **University of Tehran (UT)**

- Research on self-healing and antibacterial hydrogel based on carrageenan for wound-healing applications
- Oxidation of k-Carrageenan and cross-linking with Dopamine and Zn Ions
- Characterizations (1H-NMR, DSC, XRD and FTIR) confirmed material Oxidation and successful Schiff base reaction
- Using Zn Ions to improve the Hydrogel performance both mechanically and biologically
- Cytotoxicity, Collagen Assay, ICP, Antibacterial, Swelling, Rheology, and other tests proved hydrogel efficiency for wound-healing usage

Apr 2018 – June 2021 **Cancer Immunology** **University of Tehran (UT)**

- Co-author of a book and a series of review articles.

Apr 2016 – July 2017 **B.Sc. Thesis Project** **Khajeh Nasir Toosi University of Technology (KNTU)**

- Fabrication and characterization of SiO2-MgO-CaO bioactive glass nanoparticles doped with different levels of fluoride
- Assessment of its bioactivity, biodegradation and biocompatibility

Teaching & Professional Experiences

Jan 2022-Jan 2022	**Seminar Series**	**Johns Hopkins Medicine**

- Advances in Immunoengineering: Fundamentals and Cutting Edge Advances

July 2020-July 2021	**e-Seminar Series**	**Translational Biomedical Engineering Seminars 2020**
Nov 2020 – Dec 2020	**Mentor & Manager**	**University of Tehran (UT)**

- Manager and Advisor of cell culture techniques and cell culture room

May 2017 – Aug 2017	**Medical Intern**	**Genetic Laboratory of Erfan Hospital**

- Cell culture section

Feb 2017 – July 2017	**Senior Teacher Assistant**	**Khajeh Nasir Toosi University of Technology (KNTU)**

- Materials Science (Instructor: Dr. Hossein Siadati)

June 2013 - Apr 2016	**R&D Consultant**	**Solaleh Kids House (Kindergarten)**

- Voluntary work at the R&D center and publishing a book
- I was serving as a creativity teacher, mainly to teach children how to deal with technology and be creative

Honors & Awards

1. **Ranked first among undergraduate students of Materials Science and Engineering**

2. **Granted Straight entrance of:**
   - M.Sc. of Metal Forming at Sharif University of Technology (SUT).
   - M.Sc. in Identification and Selection of Engineering Materials at Khajeh Nasir Toosi University of Technology (KNTU).

Languages

Farsi **German:** Intermediate student

English : Advanced student & ready for the IELTS exam

- IELTS Test Result 2018: Reading: 6.5, Listening: 6.5, Speaking: 6.5, Writing: 6, Overall score: 6.5
- Duolingo Test Result June 2021: Literacy: 125, Comprehension: 130, Conversation: 105, Production: 100, Overall: 125