M. Özgen ÖZTÜRK ÖNCEL, PhD

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RESEARCH AREAS

My research interests focus on the development of functional, biomimetic biomaterials for regenerative medicine applications. I have been working on tissue microenvironment-specific design parameters for cell substrates and scaffolds to enhance *in vitro* behavior of target cell types (stem cells, bone, cartilage, tendon, corneal and endothelial cells). Developed innovative approaches can be easily adapted to various cell types, rendering very promising tools for further cell-based therapies, microfluidics, drug screening, and organ-on-chip platforms. My latest research involves the biofabrication of hierarchical fibrillar structures using embedded 3D bioprinting to investigate tendon regeneration and pathophysiology.

WORK EXPERIENCE

03.2024 – Present *Assistant Professor*. Marmara University Department of Bioengineering. İstanbul, Turkey.

01.2022 – 02.2023 *Postdoctoral Researcher*. 3B'S Research Group - Research Institute on Biomaterials, Biodegradables and Biomimetics & Headquarters of the European Institute of Excellence on Tissue Engineering and Regenerative Medicine. Guimarães, Portugal.

02.2020 – 07.2020 *Part-time Lecturer*. Bahçeşehir University Biomedical Engineering. İstanbul, Turkey.

01. 2015 – 01.2020 *Research Assistant*. Boğaziçi University Biomedical Engineering Institute. İstanbul, Turkey.

2013 – 2017 (3 months) *Visiting Researcher*. University of Cologne, Institute of Neurophysiology (TÜBİTAK – BMBF IntenC project), Cologne, Germany.

EDUCATION

2014 - 2021 *Ph.D.***,** Boğaziçi University, Institute of Biomedical Engineering, İstanbul, Turkey.
Thesis: Biomimetic Polydimethylsiloxane Cell Substrate Design for Enhanced in vitro Cellular Behavior

2012 -2014 *M.Sc.*, Boğaziçi University, Institute of Biomedical Engineering, İstanbul, Turkey.
Thesis: Preparation and Characterization of Cartilage Mimicked Structures

2006 - 2011 *B.S.*, Hacettepe University, Chemical Engineering, Ankara, Turkey.
Thesis: Biotechnological Production and Optimization of Lactic Acid-based Biofilms

2008 - 2009 *Erasmus Exchange Student*, Rheinisch Westfalische Technische Hochschule (RWTH), Chemical Process Engineering and Biomedical Engineering, Aachen, Germany.

PUBLICATIONS

1. Pardo Alberto, Gomez-Florit Manuel, Davidson Matthew D., **Öztürk Öncel Meftune Özgen**, Domingues Rui M. A., Burdick Jason A., Gomes Manuela E. Review: Hierarchical Design of Tissue-Mimetic Fibrous Hydrogel Scaffolds. Submitted to ***Advanced Healthcare Materials***, 2303167, 2024.

2. **Öztürk Öncel Meftune Özgen**, Leal-Martinez Baltazar Hiram, Monteiro Rosa F., Gomes Manuela E., Domingues Rui M. A. Mini Review: A dive into the bath: Embedded 3D bioprinting of freeform in vitro models. ***Biomaterials Science***, 11, 5462-5473. 2023.

3. Eren Demirbüken Sezin, Aktaş Bengü, **Öztürk Öncel Meftune Özgen**, Uzun Lokman, Garipcan Bora. Protein adsorption on amino-acid-conjugated self-assembled molecule-modified SiO2 surfaces. ***Surface Innovations*** 10, 2022.

4. Karasu Tunca, Erkoç-Biradlı Fatma Zehra, **Öztürk Öncel Meftune Özgen**, Armutcu Çorman Canan, Uzun Lokman, Garipcan Bora, Çorman Mehmet Emin. Synthesis and characterization of stimuli-responsive hydrogels: evaluation of external stimuli influence on L929 fibroblast viability. ***Biomedical Physics & Engineering Express*** 8. 2022.

5. **Öztürk Öncel Meftune Özgen**, Erkoç-Biradlı Fatma Zehra, Rasier Rifat, Marçalı Merve, Elbüken Çağlar, Garipcan Bora. Rose Petal Topography Mimicked Poly(dimethylsiloxane) Substrates for Enhanced Corneal Endothelial Cell Behavior. ***Materials Science and Engineering: C,*** 126, 2021.

6. **Öztürk Öncel Meftune Özgen**, Heras Bautista Carlos, Uzun Lokman, Hür Deniz, Hescheler Jurgen, Pfannkuche Kurt, Garipcan Bora. Impact of Polydimethylsiloxane Surface Modification with Conventional and Amino Acid Conjugated Self-Assembled Monolayers on the Differentiation of Induced Pluripotent Stem Cells into Cardiomyocytes. ***ACS Biomaterials Science & Engineering***, 7, 2021.

7. Erkoç Biradli Fatma Zehra, Özgün Alp, **Öztürk Öncel Meftune Özgen**, Marçali Merve, Elbüken Çağlar, Bulut Osman, Rasier Rifat, Garipcan Bora Bioinspired Hydrogel Surfaces to Augment Corneal Endothelial Cell Monolayer Formation. ***Tissue Engineering and Regenerative Medicine***, 15. 2021.

8. **Öztürk Öncel Meftune Özgen**, Odabaş Sedat, Uzun Lokman, Hür Deniz, Garipcan Bora. A facile surface modification of poly(dimethylsiloxane) with amino acid conjugated self-assembled monolayers for enhanced osteoblast cell behavior. ***Colloids and Surfaces B: Biointerfaces***, 2020.

CONFERENCES - INTERNATIONAL

1. **32st Annual Meeting of the European Orthopaedic Research Society. 2023 – Porto, Portugal.**

Öztürk Öncel Meftune Özgen, Monteiro Rosa, Bakht Syeda Mahwish, Domingues Rui, Gomes Manuela. Embedded Coaxial 3D Bioprinting of Multicellular Tendon in vitro Models. Poster presentation.

2. **ACHILLES - Advancing Tendon Regenerative Therapies. 2022 – Guimaraes, Portugal.**

Öztürk Öncel Meftune Özgen, Bakht Syeda Mahwish, Monteiro Rosa, Reis Rui L., Domingues Rui, Gomes Manuela. Coaxial 3D Bioprinting of Tendon-mimetic Hierarchial Models to Investigate Multicellular Crosstalk in Tendon Injury and Healing Mechanisms. Poster presentation.

3. **30th Annual Conference of the European Society for Biomaterials. 2019 - Dresden, Germany.**

Öztürk Öncel Meftune Özgen, Heras Bautista Carlos, Uzun Lokman, Hür Deniz, Pfannkuche Kurt, Garipcan Bora. Effect of Conventional Self-Assembled Molecules with Different Functional Groups on Cardiac Differentiation of Induced Pluripotent Stem Cells. Oral and poster presentation.

4. **The European Orthopaedic Research Society Meeting. 2018 - Galway, Ireland.**

Öztürk Öncel Meftune Özgen, Hür Deniz,Uzun Lokman,Garipcan Bora. Preparation and Characterization of Novel Polydimethylsiloxane Cell Substrates to Enhance Osteoblast Behavior in vitro. Oral presentation.

5. **The annual meeting of the Scandinavian Society for Biomaterials. 2018 - Fiskebackskil, Sweden.**

Öztürk Öncel Meftune Özgen, Bautista Carlos,Uzun Lokman, Pfannkucke Kurt, Hür Deniz,Garipcan Bora. Enhancement of Polydimethylsiloxane's Surface Properties for the Expansion of Murine Induced Pluripotent Stem Cells. Poster presentation.

6. **28th Annual Conference of the European Society for Biomaterials. 2017 – Athens, Greece.**

Öztürk Öncel Meftune Özgen,Heras Bautista Carlos, Uzun Lokman, Hür Deniz, Pfannkuche Kurt, Garipcan Bora. Surface engineered substrates for the differentiation of murine induced pluripotent stem cell into cardiomyocytes. Poster presentation.

7. **22nd International Biomedical Science & Technology Symposium, BIOMED. 2017 - Ankara, Turkey.**

Öztürk Öncel Meftune Özgen, Heras Bautista Carlos, Pfannkuche Kurt, Garipcan Bora. Influence of surface engineered substrates on the cardiac differentiation of murine induced pluripotent stem cells. Poster presentation.

8. **Euro Bio-inspired Materials. 2016, Potsdam – Germany.**

Garipcan Bora, **Öztürk Meftune Özgen**, Erkoç Fatma Zehra, Marcali Merve, Elbüken Çağlar, Rasier Rıfat. Development of Artificial Corneal Endothelium Microenvironment by Biomimetic and Bioinspired Approaches. Poster presentation.

9. **Embo Workshop, Stem Cell Mechanobiology in Development and Disease. 2015 – Capri, Italy.**

Öztürk Meftune Özgen, Hür Deniz, Uzun Lokman, Çelebi Saltık Betül, Kılıç Emine, Çetinkaya Fahriye Duygu, Garipcan Bora. Bioinspired cartilage surfaces for chondrogenic stem cell differentiation Poster presentation.

10. **World Conference on Regenerative Medicine. 2015 – Leipzig, Germany.**

Öztürk Meftune Özgen, Hür Deniz, Uzun Lokman, Çelebi Saltık Betül, Kılıç Emine, Çetinkaya Fahriye Duygu, Garipcan Bora**.** Surface Engineered Substrates for Chondrogenic Stem Cell Differentiation. Oral presentation.

11. **EURO BioMAT. 2015 - Weimar, Germany.**

Öztürk Meftune Özgen, Hür Deniz, Uzun Lokman, Çelebi Saltık Betül, Kılıç Emine, Çetinkaya Fahriye Duygu, Garipcan Bora**.** Cartilage Mimicked Surfaces. Oral presentation.

12. **9th International Conference on Cell and Stem Cell Engineering. 2014 – Aachen, Almanya.**

Öztürk Meftune Özgen, Hür Deniz, Uzun Lokman, Çelebi Saltık Betül, Kılıç Emine, Çetinkaya Fahriye Duygu, Garipcan Bora**.** Cartilage Mimicked Structures for Chondrogenic Stem Cell Differentiation. Poster presentation.

CONFERENCES – NATIONAL

1. **55. Ulusal Türk Oftalmoloji Kongresi. 2021 – Antalya, Turkey.**

Rasier Rifat, Erkoç-Biradlı Fatma Zehra, **Öztürk Öncel Meftune Özgen**, Marçalı Merve, Elbüken Çaglar, Garipcan Bora. Küçük ve Büyük Hücre Desenli Yapay Kornea Endotel Tabakası Mikro-Çevresinin Karsılastırılması. Poster presentation.

2. **23. Biyomedikal Bilim ve Teknoloji Sempozyumu (BIOMED2018-TR). 2018 – İstanbul, Turkey.**

Erenay Berkay, **Öztürk Öncel Meftune Özgen**, Garipcan Bora, Odabaş Sedat. Hücre metabolizmasını geliştirmek amacıyla manyetik nanopartikül gömülü içeren PDMS membranların hazırlanması. Poster presentation.

3. **XX. Ulusal Biyomedikal Mühendisliği Ulusal Toplantısı BİYOMUT. 2016 - İzmir, Turkey.**

Öztürk Öncel Meftune Özgen, Özgün Alp, Arslan Onur, Marçalı Merve, Rasier Rıfat, Elbüken Çağlar, Garipcan Bora. Kornea Endotelyum Mikroçevresi Benzeri Yüzeylerin Biyotaklitve Biyoesinlenme Yaklaşımları ile Hazırlanması. Oral presentation.

4. **18. Ulusal Biyomedikal Mühendisliği Ulusal Toplantısı, BİYOMUT. 2014 - İstanbul, Turkey.**

Öztürk Meftune Özgen, Hür Deniz, Uzun Lokman, Garipcan Bora. Biyoesinlenmiş Kıkırdak Yapılarının Sentezi ve Karakterizasyonu. Oral presentation.

5. **2. Biyomalzeme Günü. 2014 – Ankara, Turkey.**

Öztürk Meftune Özgen, Hür Deniz, Uzun Lokman, Garipcan Bora. Kıkırdak Taklidi Yapıların Sentezi ve Karakterizasyonu. Poster presentation.

ACADEMICAL ORGANIZATIONS

1. National : 1. Biyomalzeme Günü. 2014 – İstanbul, Turkey.
2. International : ACHILLES - Advancing Tendon Regenerative Therapies. 2022 – Guimaraes, Portugal.
3. International : 32st Annual Meeting of the European Orthopaedic Research Society. 2023 – Porto, Portugal.

BOOK CHAPTERS

1. **Öztürk Öncel Meftune Özgen**, Garipcan Bora, İnci Fatih. Biomedical Applications: Liposomes and Supported Lipid Bilayers for Diagnostics, Theranostics. Imaging, Vaccine Formulation, and Tissue Engineering. Book Chapter: Biomimetic Lipid Membranes: Fundamentals, Applications, and Commercialization. Springer, ISBN:978-3-030-11595-1. 2019.

2. **Öztürk Öncel Meftune Özgen**, Garipcan Bora. Stem Cell Behavior on Microenvironment Mimicked Surfaces. Book Chapter: Advanced Surfaces for Stem Cell Research Wiley, ISBN: 9781119242642. 2016.

HONOURS AND AWARDS

2021	Prof. Dr. Necmi Tanyolaç Award – Institute of Biomedical Engineering, Boğaziçi University Outstanding Doctoral Research Award
2008 – 2009	EU-funded Erasmus scholarship for 1 year – RWTH Aachen, Germany.