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Academic Position

Professor	Marmara University , Istanbul, TR Department of Bioengineering June 2013 to present
Associate Professor	Marmara University , Istanbul, TR Department of Bioengineering February 2008 to 2013
Assistant Professor	Marmara University , Istanbul, TR Department of Bioengineering November 2007 to February 2008
Assistant Professor	Marmara University , Istanbul, TR Chemical Engineering Department December 2001 to November 2007
BS/MSc/PhD/PostDoc	Boğaziçi University , Istanbul, TR Chemical Engineering Department 1989 to 2001

Research Interests

- Fructans and Levan polysaccharide
- Isolation and identification of industrially important microorganisms and extremophiles.
- Systems biology of Microbial biopolymer production
- Metabolic Network-based analysis of Microbial communities: case studies on cheese starter cultures
- Reconstruction and modeling of genome scale metabolic models for design and improvement of bioproduct formation: Case studies on biopolymers and bioethanol.
- Development of production processes for biopolymers that have potential industrial applications. Case study on production of biopolymers from extremophiles.

- Reconstruction and analysis of biological networks (metabolic, protein interaction, transcriptional regulation, etc.) to understand the mechanism behind the cellular processes.
- Production and characterization of bioactive nanostructured drug delivery systems, coatings and nanofibers for biomedical applications.
- Functional foods and ingredients, prebiotics and probiotics.

Research Projects (2005 -)

Development of Levan Based Bioadhesives, 2515-Tübitak Project, 116M838, **Coordinator**, 2017 – 2020.

ENBA - European Network of Bioadhesion Expertise: Fundamental Knowledge to Inspire Advanced Bonding Technologies, COST Action 15216, **Partner**, 2016 – 2020.

Production of Levan-based Functional Food Ingredients, Tübitak Project, TOVAG-115O495, **Coordinator**, 2015 – 2017.

Investigation of extremophilic QS and QQ metabolites to combat bacterial virulence, Turkey/Italy Joint Project, 315S092, **Partner**, 2017-2019.

Development of Low-cost Microbial Production Processes for Levan Polysaccharide, Tübitak Project, MAG-114M239, **Coordinator**, 2014 – 2016.

Development of Nanostructured Functional Biosurfaces by Laser Direct Writing Technologies, Romania/Turkey Joint Project, **Coordinator** (Turkish side), 2013 – 2015.

Extremophiles for Next Generation Biofuels, Turkey/Italy Joint Project, **Coordinator** (Turkish side), 2012 – 2014.

High-performing Cell Factories for Next Generation Biofuels, UK/Turkey Knowledge Partnership Programme, **Partner**, 2012 – 2013.

Biological Adhesives: From Biology to Biomimetics, COST Action TD0906, **Researcher**, 2009 – 2013.

Biological Activities of Levan-based Polymers: In Vitro and In Silico Investigations, Tübitak Project, 111M232, **Coordinator**, 2011 – 2014.

Bioethanol - A Source Of Renewable Energy From Extremophiles, Turkey/Italy Joint Project, TBAG-U/192 (106T756), **Coordinator** (Turkish side), 2007 – 2011.

Production of Exopolysaccharides from Thermophilic Microorganisms, Tübitak Project, TBAG-110T016, **Coordinator**, 2011 – 2012.

System-based Optimization of Microbial Biopolymer Production, Tübitak Project, MAG-110M613, **Supervisor**, 2011 – 2014.

Investigation of Potential Industrial Applications of a Novel Microbial Biopolymer, Tübitak Project, MAG-108M193, **Coordinator**, 2008 – 2010.

Extremophiles as sources of polysaccharides, Tübitak/Italy Joint Project, TBAG-U/122(104T263), **Coordinator** (Turkish side), 2006 – 2008.

Development of Exopolysaccharide Production Processes Using Halophilic Microorganisms, Tübitak Project, MAG-105M335, **Coordinator**, 2006 - 2007

A new generation of nanostructured coatings for biomedical implants applications, Turkey/Romania Joint Project, TBAG-109T614, **Researcher**, 2010 - 2012.

Development of Amylolytic Saccharomyces cerevisiae Strains and Fermentation Strategies for Direct Production of Bioethanol from Starch, Marmara University Research Fund Project, FEN-BGS-290506-0128, **Coordinator**, 2006 – 2008

Development of Exopolysaccharide Production Processes Using Halophilic Microorganisms, Marmara University Research Fund Project, FEN-YYP-270206-0029, **Coordinator**, 2006 – 2007

Industrial Production of Taq DNA Polymerase for Diagnosis, Tübitak Project, AGY100.RevB, **Supervisor**, 2004 - 2008

Development of System Based in-silico Models for High Yield Biofuel Production and Rational Design of Fuel Cells, MAG-106M444, **Researcher**, 2007 - 2010.

Improving Cellular Production Yields by Rational Design using Metabolic and Genomic Tools, DPT Project, 03K-120250, **Researcher**, 2005 - 2007.

Identification of Extremophilic Microorganisms isolated from Turkey and Determination of Their Extremozyme Production Profiles, Tübitak Project, TBAG-2321 (103T069), **Researcher**, 2003- 2006

Transformation and Expression of Genes in Yeast Cells, Marmara University Research Fund Project, BSE 076/131102, **Coordinator**, 2002 – 2006.

Publications

Book Chapters

- Merve Erginer Hasköylü, Songul Yasar Yildiz, Tuğba Demirci, Juergen Hemberger and Ebru Toksoy Oner, Ch 6 - Glycan-Based Nanocarriers in Drug Delivery, in Book: **Drug Delivery Approaches and Nanosystems, Volume 2: Drug Targeting Aspects of Nanotechnology**, Edited By Raj K. Keservani, Anil K. Sharma, Rajesh K. Kesharwani, 15 November 2017, Apple Academic Press (NY), Pages 167-205, ISBN 9781351846677.
- Merve Erginer Hasköylü, Songul Yasar Yildiz and Ebru Toksoy Oner, Fructan rich diet to improve gut microbiota in disease and health, in Book: **Science within Food: Up-to-date Advances on Research and Educational Ideas**, Edited by A. Méndez-Vilas, Formatex (Spain), Nov 2017, pages 120-131, ISBN-13 Collection: 978-84-947512-1-9
- Ozlem Ateş and Ebru Toksoy Oner, 2017, Microbial Xanthan, Levan, Gellan, and Curdlan as Food Additives, in Book: **Microbial Functional Foods and Nutraceuticals** (eds V. K. Gupta, H. Treichel, V.Shapaval, L. Antonio de Oliveira and M. G. Tuohy), 2017/12/26, John Wiley & Sons, Ltd, Chichester, UK. Pages 149-173, doi: 10.1002/9781119048961.ch7
- Onur Kirtel, Gülben Avşar, Burak Adnan Erkorkmaz and Ebru Toksoy Oner, Ch 12 - Microbial Polysaccharides as Food Ingredients, In Book: **Microbial Production of Food Ingredients and Additives Edited by:Alexandru Mihai Grumezescu and Alina Maria Holban**, Elsevier, Pages 347-383, 15 Aug 2017, <https://doi.org/10.1016/B978-0-12-811520-6.00012-X>, ISBN: 978-0-12-811520-6
- Margarita Kambourova, E. Toksoy Oner, Annarita Poli (2015), Chapter 15: Exopolysaccharides from Prokaryotic Microorganisms—Promising Sources for White Biotechnology Processes, **Industrial Biorefineries and White Biotechnology**, A. Pandey, R. Höfer, M. Taherzadeh, K. M. Nampoothiri and C Larroche (Eds), Pages 523-554, Elsevier USA, ISBN: 978-0-444-63453-5.
- Emrah Özcan and Ebru Toksoy Oner Chapter6: Microbial Production of Extracellular Polysaccharides from Biomass Sources, **Polysaccharides**, Edited by Kishan Gopal Ramawat, Jean-Michel Mérillon, 01/2015: chapter 6: pages 161-184; Springer International Publishing Switzerland., ISBN: 978-3-319-16297-3.
- G. Tommonaro, G.R. Abbamondi, Toksoy Oner, E and Nicolaus B, 2015. Investigating the Quorum Sensing System in Halophilic Bacteria, **Halophiles – Biodiversity and Sustainable Exploitation**, D.K. Maheshwari and M Saraf (Eds), Springer, pp.189-207.
- Songul Yasar Yildiz and Ebru Toksoy Oner (2014). Mannan as a Promising Bioactive Material for Drug Nanocarrier Systems, **Application of Nanotechnology in Drug Delivery**, PhD. Ali Demir Sezer (Ed.), ISBN: 978-953-51-1628-8, InTech, DOI: 10.5772/58413. Available from: Mannan as a Promising Bioactive Material for Drug Nanocarrier Systems | InTechOpen
- H. Kazak, Aneli Barbosa, Boran Baregzay, Mario A. Alves da Cunha, Ebru Toksoy Oner, Robert Dekker, Neelam Khaper (2014) “Chapter: 8. Biological Activities of Bacterial Levan and Three Fungal β -glucans, Botryosphaeran and Lasiodiplodan Under High Glucose Condition in the Pancreatic β -cell line INS-1E” in book: **Adaptation Biology and Medicine (Volume 7: New Challenges)**, Narosa Publishing House, Editors: Laurentiu M. Popescu, Alan R. Hargens, Pawan K. Singal, pp.105-115
- Mihailescu, Ion N., Adriana Bigi, Eniko Gyorgy, Carmen Ristoscu, Felix Sima and Ebru Toksoy Oner “Biomaterial Thin Films by Soft Pulsed Laser Technologies for Biomedical Applications” in **Lasers in**

Materials Science E Castillejo, Marta E Ossi, Paolo M.E Zhigilei (Eds), Springer Series in Materials Science, Volume 191, 2014, 271-294.

- E. Toksoy Öner “Microbial Production of Extracellular Polysaccharides from Biomass” in Z. Feng (Ed.) **Pretreatment Techniques for Biofuels and Biorefineries**, Springer, 35-56, 2013.
- H. Kazak, E. Toksoy Öner and R.F.H. Dekker. “Extremophiles as Sources of Exopolysaccharides”. **Carbohydrate Polymers: Development, Properties and Applications**, (F. Columbus Ed.) Nova Science Publishers, Inc. NY (USA), 605-619, 2010.

Reviews

- Versluys, Maxime, Onur Kirtel, Ebru Toksoy Öner, and Wim Van Ende. "**The Fructan Syndrome: Evolutionary Aspects and Common Themes Among Plants and Microbes.**" *Plant, cell & environment* (2017), 8 Nov 2017, 41(1), 16-38, DOI: 10.1111/pce.13070.
- Eroglu M.S., Toksoy Öner E., Cansever Mutlu E., Sennaroğlu Bostan M., (2016). "**Sugar Based Biopolymers in Nanomedicine; New Emerging Era for Cancer Imaging and Therapy**, Current Topics in Medicinal Chemistry, Vol 16, 1-10. DOI: 10.2174/1568026616666161222101703.
- Toksoy Öner, E., Hernández, L., Combie, J., **Review of Levan polysaccharide: From a century of past experiences to future prospects**, *Biotechnology Advances*, 34, 827-844, doi:10.1016/j.biotechadv.2016.05.002.
- Yasar Yildiz,S, Pinar Kuru, Ebru Toksoy Oner, and Mehmet Agirbasli. "**Functional Stability of Plasminogen Activator Inhibitor-1**" *The Scientific World Journal*, Volume 2014, Article ID 858293, 11 pages, <http://dx.doi.org/10.1155/2014/858293>.
- Barbara Nicolaus, Margarita Kambourova and Ebru Toksoy Oner. "**Exopolysaccharides from extremophiles: From fundamentals to biotechnology**".*Environmental Technology*, 31 (10), 1145-1158 (2010).

Peer-Reviewed Journal Articles

- Queiroz, Eveline A.I.F., Zuleica B. Fortes, Mário A.A. da Cunha, Hande Kazak Sarilmiser, Aneli M. Barbosa Dekker, Ebru Toksoy Öner, Robert F.H. Dekker, Neelam Khaper, Levan promotes antiproliferative and pro-apoptotic effects in MCF-7 breast cancer cells mediated by oxidative stress, In *International Journal of Biological Macromolecules*, Volume 102, 2017, Pages 565-570, ISSN 0141-8130, <https://doi.org/10.1016/j.ijbiomac.2017.04.035>.
- Berg, Albrecht, Ebru Toksoy Oner, Joan Combie, Bernd Schneider, Renate Ellinger, Jürgen Weisser, Ralf Wyrwa, Matthias Schnabelrauch, Formation of new, cytocompatible hydrogels based on photochemically crosslinkable levan methacrylates, In *International Journal of Biological Macromolecules*, Volume 107, Part B, 2018, Pages 2312-2319, ISSN 0141-8130, <https://doi.org/10.1016/j.ijbiomac.2017.10.120>.
- Osman, A., Ebru Toksoy Oner, Mehmet S. Eroğlu, (2017). Novel levan and pNIPA temperature sensitive hydrogels for 5-ASA controlled release, *Carbohydrate Polymers*, Volume 165, 2017, 61–70.
- Mutlu, Esra Cansever, Fatemeh Bahadori, Muge Sennaroglu Bostan, Abdurrahim Kocyigit, Ebru Toksoy Oner, Mehmet S. Eroğlu, (2016). Lecithin-acrylamido-2-methylpropane sulfonate based crosslinked phospholipid nanoparticles as drug carrier, *Journal of Applied Polymer Science*, 133(42), 1-12. DOI: 10.1002/app.44105.
- Erginer, M., Akcay, A., Coskuncan, B., Morova, T., Rende, D., Bucak, S., Baysal, N., Ozisik, R., Eroglu, M. S., Agirbasli, M., Toksoy Oner, E., Sulfated levan from *Halomonas smyrnensis* as a bioactive, heparin-mimetic glycan for cardiac tissue engineering applications, *Carbohydrate Polymers*, Volume 149, 2016, 289–296 (2016).
- Abbamondi G.R., Suner S., Cutignano A., Grauso L., Nicolaus B., Toksoy Oner E. and Tommonaro G. Identification of N-Hexadecanoyl-L-homoserine lactone (C16-AHL) as signal molecule in halophilic bacterium *Halomonas smyrnensis* AAD6. (2016) *Annals of Microbiology*, DOI: 10.1007/s13213-016-1206-6.
- Ceyda Kasavi, Serpil Eraslan, Ebru T Oner, Betül Kirdar: An integrative analysis of transcriptomic response of ethanol tolerant strains to ethanol in *Saccharomyces cerevisiae*. *Molecular BioSystems*, Jan 26;12(2):464-76, 01/2015; 10.1039/C5MB00622H (2016).

- Kasavi C., Eraslan, S., Toksoy Oner E., and Kirdar B The global transcriptional response of a raw starch degrading amyolytic *Saccharomyces cerevisiae* strain to oxygen limitation and genetic modification. *Turkish Journal of Biology*, DOI: 10.3906/biy-1505-6 (2016).
- Sezer, Ali Demir, Hande Kazak Sarılmışer, Erkan Rayaman, Adile Çevikbaş, Ebru Toksoy Öner, Jülide Akbuğa: Development and characterization of vancomycin-loaded levan-based microparticulate system for drug delivery. *Pharmaceutical Development and Technology* 11/2015; DOI:10.3109/10837450.2015.1116564 (2015).
- Diken, E., Tugba Ozer, Muzaffer Arikian, Zeliha Emrence, Ebru Toksoy Oner, Duran Ustek and Kazim Yalcin Arga, Genomic analysis reveals the biotechnological and industrial potential of levan producing halophilic extremophile, *Halomonas smyrnensis* AAD6T, SpringerPlus 2015, 4:393 doi:10.1186/s40064-015-1184-3 (2015).
- Yasar Yildiz S., Radchenkova N, Arga KY, Kambourova M, E Toksoy Oner, Genomic analysis of *Brevibacillus thermoruber* 423 reveals its biotechnological and industrial potential. *Applied Microbiology and Biotechnology*, 10.1007/s00253-015-6388-5, 99(5):2277-89 (2015).
- Kazak Sarilmiser H, Ates O, Ozdemir G, Arga KY, Toksoy Oner E. Effective stimulating factors for microbial levan production by *Halomonas smyrnensis* AAD6T. *Journal of Bioscience and Bioengineering*, 119(4):455-63, (2015).
- Kazak Sarilmiser H, Toksoy Oner E. Investigation of anti-cancer activity of linear and aldehyde-activated levan from *Halomonas smyrnensis* AAD6T *Biochemical Engineering Journal*, 92:28-34 (2014).
- Finore I, Donato PD, Poli A, Kirdar B, Kasavi C, Toksoy Oner E., Nicolaus B, Lama L. (2014) Use of Agro Waste Biomass for α -Amylase Production by *Anoxybacillus amyolyticus*: Purification and Properties. *J Microb Biochem Technol* 6(6): 320-326. doi:10.4172/1948-5948.1000162
- Arrizon, J., Hernández-Moedano, A., Toksoy-Oner, E., González-Avila, M. (2014). In vitro prebiotic activity of fructans with different fructosyl linkage for symbiotics elaboration. *International Journal of Probiotics and Prebiotics*, 9(3) 69.
- Kasavi C, Eraslan S, Arga KY, Toksoy Oner E, Kirdar B. A System Based Network Approach to Ethanol Tolerance in *Saccharomyces cerevisiae*. *BMC Systems Biology*, 8:90, (2014). doi:10.1186/s12918-014-0090-6.
- Axente E. Sima F, Sima L , Erginer M, Eroğlu M. S, Serban N, Ristoscu C, Petrescu S, Toksoy Oner E, Mihailescu I. N, Combinatorial MAPLE gradient thin film assemblies signalling to human osteoblasts, *Biofabrication*, 28;6(3):035010 (2014).
- Sennaroglu Bostan M, Esra Cansever Mutlu, Hande Kazak, S. Sinan Keskin, Ebru Toksoy Oner, Mehmet S. Eroglu Comprehensive characterization of chitosan/PEO/levan ternary blend films, *Carbohydrate Polymers*, 102:993-1000 (2014).
- Agirbasli, M., Mesut Eren, Songul Yasar, Kenan Delil, Fatih Goktay, Ebru Toksoy Oner, Douglas E Vaughan Functionally stable plasminogen activator inhibitor-1 in a family with cardiovascular disease and vitiligo. *Journal of Thrombosis and Thrombolysis* 38:50-56 DOI: 10.1007/s11239-013-1021-x (2014).
- Yasar Yildiz S., Gianluca Anzelmo, Tugba Ozer, Nadia Radchenkova, Seval Genc, Paola Di Donato, Barbara Nicolaus, Ebru Toksoy Oner, Margarita Kambourova, *Brevibacillus themoruber*: A Promising Microbial Cell Factory for EPS Production. *Journal of Applied Microbiology* 116(2) 314-324 doi: 10.1111/jam.12362 (2014).
- Yasar Yildiz S., Margarita Kambourova, Arga KY, Ebru Toksoy Oner, Draft Genome Sequence of Exopolysaccharide-Producing Thermophilic Bacterium *Brevibacillus thermoruber* Strain 423. *Genome announcements ASM*, doi: 10.1128/genomeA.00774-13 (2013).
- Ateş, Ö., Arga KY, Toksoy Öner, E., The stimulatory effect of mannitol on levan biosynthesis: lessons from metabolic systems analysis of *Halomonas smyrnensis* AAD6(T.) *Biotechnology Progress* 29(6):1386-97 (2013).
- Costa, R. R., Neto, A. I., Calgeris, I., Correia, C. R., Pinho, A. C., Fonseca, J., E. Toksoy Oner ve Mano, J. F. Adhesive nanostructured multilayer films using a bacterial exopolysaccharide for biomedical applications. *Journal of Materials Chemistry B.*, 1, 2367-2374 (2013).

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- Kasavi, C., I. Finore, L. Lama, B. Nicolaus, S.G. Oliver, E. Toksoy Oner, B. Kirdar. Evaluation of Industrial *Saccharomyces cerevisiae* Strains for Ethanol Production from Biomass. *Biomass and Bioenergy*, 45, 230-238, (2012).
- Sogutcu, E., Zeliha Emrence, Muzaffer Arikan, Aris Cakiris, Neslihan Abaci, Ebru Toksoy Oner, Duran Ustek, ve Kazim Arga. Draft Genome of *Halomonas smyrnensis* AAD6^T. *Journal of Bacteriology*, 194 (20), 5690-5691, (2012).
- Sima, F., Esra Cansever Mutlu, Mehmet S. Eroglu, Livia E. Sima, L.E., Serban, N.; Carmen Ristoscu, Stefana M. Petrescu, Ebru Toksoy Oner, Ion N. Mihailescu, Levan Nanostructured Thin Films by MAPLE Assembling, *Biomacromolecules*, 12, 2251–2256, (2011).
- Finore, İ., Ceyda Kasavi, Annarita Poli, Ida Romano, Ebru Toksoy Oner, Betul Kirdar, Laura Dipasquale, Barbara Nicolaus, Licia Lama, “Purification, biochemical characterization and gene sequencing of a thermostable raw starch digesting α -amylase from *Geobacillus thermoleovorans* subsp. *stromboliensis* subsp. nov.” *World Journal of Microbiology and Biotechnology*, 27 (10), 2425-2433 (2011).
- Ateş, Ö., Toksoy Öner, E., Arga KY, “Genome-scale Reconstruction of Metabolic Network for a Halophilic Extremophile, *Chromohalobacter salexigens* DSM 3043” *BMC Systems Biology*, 5:12 (2011).
- Küçükaşık, F., Kazak, H., Güney, D., Finore, I., Poli, A., Yenigün, O., Nicolaus, B., Toksoy Öner, E. “Molasses as Fermentation Substrate for Levan production by *Halomonas* sp.” *Applied Microbiology and Biotechnology*, 89, 1729-1740 (2011).
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- Toksoy, E., Önsan Z.I. ve B. Kırdar, “High-level Production of *Taq I* Restriction Endonuclease by Three Different Expression Systems in *Escherichia coli* Cells Using T7 Phage Promoter,” *Applied Microbiology and Biotechnology*, 59, 239-245 (2002).
- Toksoy, E., Önsan Z.I. ve B. Kırdar, “Expression of a Thermostable Restriction Endonuclease in Recombinant *Escherichia coli* Cells and Optimization of Fermentation Conditions,” *World Journal of Microbiology and Biotechnology*, 18, 23-27 (2002).
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