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ACADEMIC POSITIONS

Assistant Professor, *Bilkent University*, Institute of Materials Science and Nanotechnology, Life Sciences Section, PI of Synthetic Biosystems Research Group., Ankara, Turkey. **January 2014-Ongoing**

Adjunct Professor, *Bilkent University*, Neuroscience Graduate Program. **June 2017- Ongoing**

Postdoctoral Research Associate at *Massachusetts Institute of Technology*, Department of Biological Engineering, Synthetic Biology Research Center, Biological Engineering. Cambridge MA , USA, **Nov 2011- January 2014**

Postdoctoral Research Fellow at *Nanyang Technological University*, School of Electrical and Electronics Engineering and School of Physics and Mathematics Department of Applied Physics, Singapore, **Apr 2010- September 2011.**

Research Assistant *University of Washington*, Genetically Engineered Materials Science and Engineering Center, Seattle, WA, USA. **September 2004-July 2007**

EDUCATION

PhD, Molecular Biology-Genetics and Biotechnology Program, 2009

Istanbul Technical University, Istanbul, Turkey. (*Advanced Technologies Program Fellowship*)

Visiting Graduate Student at Genetically Engineered Materials Science and Engineering Center, University of Washington, Seattle , WA. **10. 2004-07.2007** (*UW Washington Graduate Student Fellowship*)

MSc, Molecular Biology-Genetics and Biotechnology Program, 2003

Istanbul Technical University, Istanbul, Turkey. (*Advanced Technologies Program Fellowship*)

Bsc, Faculty of Engineering, Food Engineering, 2001

Hacettepe University, Ankara, Turkey.

AWARDS and FELLOWSHIPS

TÜSEB Aziz Sancar Encouragement Award- Health Institutes of Turkey, 2018

Turkish Academy of Sciences Outstanding Young Scientist Award (TUBA-GEBIP) , 2014

METU Parlar Foundation Research Encouragement Award, Turkey, 2018

Distinguished Young Scientist Award (BA-BAGEP), Science Academy Foundation, 2016

Distinguished Young Investigator Award, FABED, Fevzi Akkaya Science Fund, 2015.

Postdoctoral Research Associate Stipend from MIT, Massachusetts Institute of Technology, Synthetic Biology Research Center, Biological Engineering (2011- 2014)

Postdoctoral Research Fellowship, Nanyang Technological University, Physics and Applied Physics, NRF-RF-2009-09, with a Performance Bonus for the work done (7000 USD). 2011

NSF Research Assistantship, NSF-MRSEC Program through the University of Washington Genetically Engineered Materials Science and Engineering Center (DMR 0520567)

European Science Foundation (ESF) Travel Grant (Probing Interactions Between Nanoparticles/Biomaterials and Biological Systems, Sant Feliu de Guixols, Spain, November 2007.)

JOURNAL PUBLICATIONS

Total citations: 812 times (as of June 2018-according Google Scholar 1239 times),

H Index: 12

Underlines indicate corresponding authorship

1. Ahan, R. E., Kırpat, B. M., Saltepe, B., Seker, U. O. S., A self-actuated protein delivery machine, *ACS Synthetic Biology*, 2019, accepted.
2. Saltepe, B., Haciosmanoglu, N., Seker U. O. S., Genetic Circuits to Detect Nanomaterial Triggered Toxicity through Engineered Heat Shock Response Mechanism, *ACS Synthetic Biology*, 2019, in revision.
3. Duman, E., Yuca, E., Ahan, R., Seker U. O. S., Controlled Biomineralization of Calcium Phosphate Crystals Through Protein-Protein Interactions for Bone Regeneration, *ACS Biomaterials Science & Engineering*, 2019, in revision.
4. Apaydin, O., Ahan, R., Saltepe, B., Seker U. O. S., Protein Nanofibers Supported Engineered Cellular Biocatalysts for Prolonged and Durable Enzymatic Activity, *ChemBioChem*, 2019, accepted
5. Olmez, T. T., Kehribar, E. S., İsilak, M. E., Seker U. O. S., Engineered Cells with Synthetic Gene Circuits for Programmed Nanomaterial Synthesis, *PNAS*, 2019, submitted
6. Onur, T., Yuca, E.; Olmez, T. T., Seker U. O. S., Self-Assembled Recombinant Biofilm Proteins as Functional Materials, *Journal of Colloid and Interface Science*, 2018, 520, pp145-154.
7. Saltepe, B., Kehribar, E., Yirmibesoglu, S. S., Seker, U. O. S., Cellular Biosensors with Engineered Genetic Circuits, *ACS Sensors*, 2018, 3 (1), pp 13–26
8. Olmez, T. T., Yuca, E., Catalak, H. B., Kalyoncu, E., Seker U. O. S., Engineered Protein Based Bio-dots, *ACS Omega*, 2018, 3 (1), pp 585-594.

9. Abdelwahab, M. T., Kalyoncu, E., Onur, T., Baykara, M. Z., **Seker U. O. S.**, Genetically-Tunable Mechanical Properties of Bacterial Functional Amyloid Nanofibers, *Langmuir*, 2017, 33 (17), pp 4337–4345
10. Kalyoncu, E., Ahan R. E., Olmez, T. T., **Seker U. O. S.**, Genetically encoded conductive protein nanofibers secreted by engineered cells, *RSC Advances*, 2017, 7, pp32543-32551.
11. **Seker U. O. S.**, Chen, A. Y., Citorick, R., Lu, T. K., Synthetic Biogenesis of Bacterial Amyloid Nanomaterials with Tunable Inorganic-Organic Interfaces and Electrical Conductivity, *ACS Synthetic Biology*, 2017, 6 (2), pp 266–275
12. Kabay, G., Kaleli, G., Sultanova, Z., Olmez, T. T., **Seker U. O. S.**, Mutlu, M., Biocatalytic protein membranes, *Reactive and Functional Polymers*, 2016, 6, 26
13. Chen, A. Y. D. Zhong, N. Billing, **Seker U. O. S.**, Michelle Y. Lu, Citorik, R. J., Zakeri, B., Lu, T. K. Synthesizing and Patterning Tunable Multiscale Amyloid Materials with Synthetic Biofilms, *Nature Materials*, 2014, 13(5), pp515–523.
14. **Seker U. O. S.**, Mutlugun, E., Hernandez- Martinez, P., Sharma, V., Eychmüller, A., Demir H. V., Bio-Nanohybrids of Photoproteins and Quantum Dots Facilitating Energy Transfer for Biosensing, *Nanoscale*, 2013, 5, pp7034-7040.
15. **Seker U. O. S.**, Sharma, V. K., Akhavan, S., Demir, H. V. Genetically Engineered Peptides for Nano-hybrid Assemblies, *Langmuir*, 2014, 30 (8),pp 2137-2143.
16. **Seker U. O. S.**, Ozel, T., Demir, H. V., Peptide-Mediated Constructs of Quantum Dot Nanocomposites for Enzymatic Control of Nonradiative Energy Transfer, *Nano Letters*, 2011, 11 (4), pp1530-1539.
17. **Seker U. O. S.**, Zengin, G., Tamerler, C., Sarikaya, M., Demir, H. V., Assembly Kinetics of Nanocrystals via Peptide Hybridization, *Langmuir*, 2011, 27 (8), pp 4867-4872.
18. Demir, H. V., **Seker, U. O. S.**, Zengin, G., E. Mutlugun, E. Sari, C. Tamerler, M. Sarikaya, Spatially Selective Assembly of Quantum Dot Light Emitters in an LED using Engineered Peptides, *ACS Nano*, 2011, 5 (4), pp 2735-2741.
19. **Seker, U. O. S.**, Wilson, B. R., Kulp, J. L., Evan, J. S., Tamerler, C., Sarikaya, M., Thermodynamics of Engineered Gold Binding Peptides- Establishing Structure-Activity Relationship, *Biomacromolecules*, 2014, 15 (7), pp 2369–2377
20. Yuca, E., Karatas, A., **Seker, U. O. S.**, Gungormus, M., Dinler, G., Sarikaya, M., Tamerler, C., In vitro labeling of hydroxyapatite minerals by an engineered protein, *Biotechnology and Bioengineering*, 108 (5), pp 1021-1030, 2011.
21. **Seker, U. O. S.**, Demir, H. V., Material Binding Peptides for Nanotechnology, *Molecules*, (Invited review paper for Special issue of “Phage Display of Combinatorial Libraries” Ed. Brendan P. Orner) **16 (1)**, pp 1426-1451, 2011.
22. **Seker, U. O. S.**, Wilson, B. R., Sahin, S., Tamerler, C., Sarikaya, M., Quantitative Affinity of Genetically Engineered Repeating Polypeptides to Inorganic Solids, *Biomacromolecules*, 10 (2), pp 250-257, 2009
23. Hnilova, M., Oren, E. E., **Seker, U. O. S.**, Evans, J. S., Tamerler, C., Sarikaya, M., Effect of Conformation on Adsorption Behavior of Gold Binding Peptides, *Langmuir*, **24 (21)**, pp 12440-

12445, 2008

24. **Seker, U. O. S.**, Wilson, B. R., Dincer, S., Kim, I. W., Oren, E. E., Evans, J. S., Tamerler, C., Sarikaya, M., Adsorption Behavior of Genetically Engineered Platinum Binding Peptides, *Langmuir*, 23 (15), pp 7895-7900, 2007
25. Oren, E. E., Tamerler, C., Sahin, D., Hnilova, M., **Seker, U. O. S.**, Sarikaya, M., Samudrala, R., A Novel Informatics-Based Approach to Design Inorganic Binding Peptides, *Bioinformatics*, 24 (21), pp 2816-2822, 2007
26. Cakar, Z. P., **Seker, U. O. S.**, Tamerler, C., Sonderegger, M., Uwe Sauer, Evolutionary Engineering of Multiple Stress Resistant *Saccharomyces cerevisiae*, *FEMS Yeast Research*, (6-7), pp 569-578, 2005
27. Erdag, B., Balcioglu, B. K., Bahadir, A. O., Serhatli, M., Kacar, O., Bahar, A., **Seker, U. O. S.** et al., Identification of Novel Neutralizing Single-Chain Antibodies Against Vegfr-2, *Biotechnology and Applied Biochemistry*, 58 (16), 2011
28. Boyaci, I. H., **Seker, U. O. S.**, Bas, D., Topcu, A., Tamerler, C., Statistical Modeling of Product Inhibition Effect on β -Galactosidase Enzyme During Lactose Hydrolysis, *Food Biotechnology*, 20 (1), pp 79-91, 2006
29. **Seker, U. O. S.**, Catal, T., Taptık, Y., Tamerler, C., Bermek, H., Enhanced production of manganese peroxidase by the white rot fungus *Bjerkandera adusta* using media engineering. *Biotechnology and Biotechnological Equipment*, 22 (3), pp 844-848, 2008
30. Boyaci, I. H., **Seker, U. O. S.** and Mutlu, M., Determination of β -glucan content of cereals with amperometric glucose electrode, *European Food Research and Technology*, 15, pp 538-541, 2002

INVITED BOOKS and BOOK CHAPTERS

1. Applied Synthetic Biology: From Medicine to Bio-Nanotechnology, Editor: Urartu Seker. Springer- contract is signed (Invited by the Springer Editor of Life Sciences). The whole book is assembled by Synthetic Biosystems Lab members.
2. **Seker, U. O. S.**, Genetically Engineered Protein Nanomaterials, Springer Briefs in Nanoscience and Nanotechnology, ISBN 978-981-10-4894-4, (contract signed, will be published in June 2019)
3. **Seker, U. O. S.**, H. Volkan Demir, "Biomedical and Biochemical Approaches Using Quantum Dot Nanocrystals Enabled Förster Resonance Energy Transfer", *UV-VIS and Photoluminescence Spectroscopy for Nanomaterials Characterization*, Chp13 (531-561) Ed. Challa Kumar, Springer Verlag, 2013. ISBN 978-3-642-27593-7.

INVITED TALKS and SEMINARS

1. Genetic Circuits for Whole Cell Based Diagnosis, 4th International Congress on Biosensors, 9-11 July 2019, Çanakkale Turkey. (*Invited talk*)
2. "Synthetic Biology : A Tool for Biomedical Engineering", Hacettepe University Medical School, Institute of Neurological Sciences, 7 January 2019. (*Invited seminar*)

3. Self-Actuated Cellular Devices, Gebze Technical University, 14 November 2018. (*Invited seminar*)
4. Genetic Circuit Design for Bottom -Up Biosystem Assembly, Bosphorus (Boğaziçi) University, Department of Molecular Biology and Genetics, 13 April 2018. (*Invited seminar*).
5. Custom Made Organisms With Synthetic Biology: An Intro to Life Engineering, Science Academy Popular Science Talks, 20 January 2018 (*Invited seminar*)
6. Synthetic Biology at the Nano-Bio Interface, Seker, U. O. S., Weizmann Institute of Science, Turkish-Israel Workshop on Nanoscience and Nanotechnology, 19-21 December 2017. (*Invited talk*)
7. Synthetic Biogenesis of Engineered Bacterial Biofilms, Seker, U. O. S., Ben Gurion University, Department of Chemistry, Beer Sheva, Israel, 18 December 2017. (*Invited seminar*)
8. Engineered Bacterial Functional Amyloids, COST NPG-Net : Non-Globular Proteins Symposium, **Seker, U. O. S.**, Kosice, Slovakia, 2017. (*Invited talk*)
9. Synthetic Genetic Circuits at the Bio-Nano Interface, **Seker, U. O. S.**, IEEE - Nano/Micro Engineered and Molecular Systems (NEMS) 2017 Conference at UCLA, April 2017 (*Invited talk*)
10. Synthetic Biology : An Emerging Engineering Discipline, Seker, U.O.S., IWANN 2017, 7th International Workshop on Applications of Nanoscience and Nanotechnology, Ankara, Turkey, July 3-14 2017. (*Invited talk*)
11. Bacterial functional amyloids based supramolecular assemblies, **Seker, U. O. S.**, Systems Chemistry 2017, ENS Paris, February 2017. (*Invited talk*)
12. Self-Assembled Bacterial Biofilm Proteins As Functional Biomaterials, Onur, T., Olmez, T. T., Kalyoncu, E., **Seker, U. O. S.**, SysChem 2016, , Valtice, Czech Republic, May 5-12 . (*Invited talk*)
13. Synthetic Genetic Circuits Operated Whole Cell Biosensors, Seker, U. O. S. International Biosensors Congress, Hacettepe University, Ankara, Turkey, June 2016. (*Invited talk*)
14. Synthetic Genetic Circuits at the Bio-Nano Interface, **Seker, U. O. S.**, Middle East Technical University, Biological Sciences Department, Ankara, Turkey, May 2016 . (*Invited seminar*)
15. Genetically Encoded Conductive Synthetic Biofilms for Electro-genetic Transcription, **Seker, U. O. S.**, Physical, Biological and Chemical Foundations of Bioelectronics, Biophotonics and Biosensors, IZTECH, İzmir, Turkey. (*Invited talk*)
16. Nanophotonics of Quantum Dot-Protein Composites, **Seker, U. O. S.**, IEEE Photonics Conference 2013, Seattle USA, 8 - 12 September 2013, (*Invited Talk*)
17. Synthetic Biogenesis of Bacterial Amyloid Nanomaterials, **Seker, U. O. S.**, Koc University, College of Sciences, February 26, 2015 (*Invited seminar*)
18. Synthetic Biology : An Emerging Bioengineering Discipline, **Seker, U. O. S.**, Hacettepe University, Chemical Engineering Department, Beytepe, Ankara, Turkey, September 2014. (*Invited seminar*)

SELECTED CONFERENCE PRESENTATIONS (Full list available upon request)

1. A self-actuated biological device for Nanomaterial synthesis, Olmez, T. T., **Seker, U. O. S.**, 4th Applied Synthetic Biology in Europe, 24-26 October 2018, Toulouse France. (*Oral presentation*)

2. Multi-Input Whole Cell-Based Biosensors With Engineered Genetic Logic Circuits For Biomedical Applications, Kose, S., Ahan, R. E., Koksaldi, C. I., **Seker, U. O. S.**, 4th Applied Synthetic Biology in Europe, 24-26 October 2018, Toulouse France. (*Poster presentation*)
3. Functional Amyloids as Scaffolds for Cell Adhesion and Proliferation, Kehribar, E. S., , İsilak, E. M., , **Seker, U. O. S.**, 4th Applied Synthetic Biology in Europe, 24-26 October 2018, Toulouse France. (*Poster presentation*)
4. Glycosylation of Biofilm Proteins using an Engineered Protein Glycosylation System for Mammalian Cell Adhesion Applications, İsilak, E. M., Kehribar, E. S., **Seker, U. O. S.**, 4th Applied Synthetic Biology in Europe, 24-26 October 2018, Toulouse France. (*Poster presentation*)
5. Engineered Protein Circuits For Nanomaterial Processing, Kirpat, B., Ahan, R. E., **Seker, U. O. S.**, 4th Applied Synthetic Biology in Europe, 24-26 October 2018, Toulouse France. (*Poster presentation*)
6. Synthetic biology is an emerging tool for bio/nano-materials, **Seker, U. O. S.**, 256th ACS National Meeting, Division of Chemical Biology, Early Career Scientists Section, Boston, USA 19-23 August, 2018. (*Oral presentation*)
7. Synthetic quorum sensing wired cell consortia for controlled release of proteins from cell surface, Ahan, R. E., **Seker, U. O. S.**, 42nd FEBS 2017 (Federation of European Biochemistry Societies), Jerusalem, Israel, 10-14 September 2017.
8. Theranostic microrobots: programmable biofilm secretion for in vivo drug delivery and cancer immunotherapy, Sahin-Kehribar, E., **Seker, U. O. S.**, , 42nd FEBS 2017 (Federation of European Biochemistry Societies), Jerusalem, Israel, 10-14 September 2017.
9. Genetically Engineered Fluorescent Silica Binding Bifunctional Proteins-Made Bio-Dot Nanoparticles, Olmez, T. T., Yuca, E., Eyupoglu, E., Catalak, H. B., Sahin, O., **Seker, U. O. S.**, E-MRS, Strasbourg, May 2017 MRS, Strasbourg, May 2017 (*Oral presentation*)
10. Genetically Programmed Functional Bacterial Biofilms, Kalyoncu, E., Olmez, T. T., **Seker U. O. S.**, American Chemical Society (ACS) Fall Meeting at Pennsylvania Convention Center, Philadelphia, PA, USA, August 2016. (*Oral Presentation*)
11. Probing the Nano-Bio Interface Using Synthetic Biology, **Seker, U. O. S.**, 3rd Applied Synthetic Biology Conference in Europe, Lisbon, February 2016. (*Oral Presentation*)
12. Engineered Bacterial Functional Amyloids, Onur, T., Olmez, T. T., **Seker, U. O. S.**, , Materials Research Society (MRS), Phoenix, Arizona, USA, 28 March-1 April 2016 (*Oral Presentation*)
13. Sensing Nanotoxicity via Synthetic Biology, Saltepe, B., **Seker, U. O. S.**, American Chemical Society, ACS 2015 Spring Meeting, Boston, USA
14. Synthetic Biogenesis of Bacterial Amyloid Nanomaterials with Tunable Inorganic-Organic Interfaces, **Seker, U. O. S.**, Materials Research Society Fall Meeting, Boston USA, 28 November-4 December 2014
15. Functional quantum dot-protein nano bio-assembly for superior light harvesting applications, Mutlugun, E., **Seker, U. O. S.**, Hernandez-Martinez, P. L., Sharma, V., Lesnyak, V., Gaponik, N.,

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- Eychmuller, A., Demir, H. V., American Physical Society Meeting, ; Baltimore, Maryland, USA March 2013 (**Oral Presentation**)
16. Peptide-Mediated Constructs of Quantum Dot Nanocomposites for Enzymatic Control of Nonradiative Energy Transfer, **Şeker, U. O. S.**, Demir, H. V., 7th International Conference on Quantum Dots, Santa Fe, New Mexico, USA, May 2012
 17. Hydroxyapatite Binding Peptide Genetically Fused to Green Fluorescent Protein for Monitoring Mineralization, Yuca, E., **Şeker, U. O. S.**, Gungormus, M., Karatas, A. Y., Sarikaya, M., and Tamerler, C., Society for Biomaterials, 2010 Annual Meeting, Seattle, USA. (**Oral Presentation**)
 18. SPR Investigation of Fibrillation Kinetics of Huntington Protein Immobilized using Solid Binding Peptides, Cetinel, S., **Şeker, U. O. S.**, So, C., Tamerler, C., Muchowski, P., and Sarikaya, M., Materials Research Society, MRS 2009 Spring Meeting, Boston, USA.
 19. Material Selectivity of Genetically Engineered Peptides for Inorganics, Wilson, B. R., **Şeker, U. O. S.**, Tamerler, C. and Sarikaya, M., Materials Research Society, MRS 2009 Fall Meeting, Boston, USA. (**Oral Presentation**)
 20. Supramolecular Self-Assembly of a Metal-binding Polypeptide and Implications for Molecular Recognition, So, C., Oren, E. E., **Şeker, U. O. S.**, Wilson, B. R., Kulp, J., Tamerler, C., Evans, J. S. and Sarikaya, M. Materials Research Society, MRS 2007 Fall Meeting, Boston, USA (**Oral Presentation**)
 21. Adsorption Behavior of Linear and Cyclic Genetically Engineered Platinum Binding Peptides, **Şeker, U. O. S.**, Wilson, B. R., Tamerler, C. and Sarikaya, M., Materials Research Society, MRS 2007 Fall Meeting, Boston, USA.-(**Oral Presentation**)
 22. Molecular Structures of Engineered Inorganic-Binding Peptides, Evans, . J. S., Kim, W., Kulp, J. L. S., Collino, Delak, K., **Şeker, U. O. S.**, So, C., Oren, E. E., Tamerler, C., and Sarikaya, M., Materials Research Society, MRS 2007 Fall Meeting, Boston, USA.-(**Oral Presentation**)
 23. Thermodynamic Analysis of the Gold Surface Recognition by a Gold Binding Peptide, **Şeker, U. O. S.**, Wilson, B. R., Tamerler, C., and Sarikaya, M., American Chemical Society, ACS 2007 Spring Meeting, Chicago, USA.-(**Oral Presentation**)
 24. Molecular Erectors: Directed Enzyme Immobilization via Genetically Engineered Peptides, **Şeker, U. O. S.**, Wilson, B. R., Tamerler, C. and Sarikaya, M., Materials Research Society, MRS 2007 Spring Meeting, San Francisco, USA.

CONFERENCE & WORKSHOP ORGANIZATIONS

Organizer, Bilkent UNAM Advanced Molecular Cloning Hands-On Training Series 2018.

Organizer, Bilkent UNAM Nano Colloquium Series 2017-2018 Fall and Spring

Organizer, Bilkent Synthetic Biology Day (2016, 2017, 2018)

Organizer, NanoDay 2018 (annual NanoDay meeting organized at Bilkent University)

Co-organizer, NanoDay 2017 (annual NanoDay meeting organized at Bilkent University)

Co-Organizer, Biological and Chemical Foundations of Bioelectronics, Biophotonics and Biosensors, ICTP, IZTECH Izmir 2016

Scientific Committee Member, Future Technologies in Biotechnological Drug Development Symposium 2018, organized by TÜSEB (Health Institutes of Turkey), 19-21 Nisan 2018

Scientific Committee Member, Designer Biology 2018, European Federation of Biology, 19-21 Nisan 2019