Eda Yildirim-Ayan, Ph.D.

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A) PROFESSIONAL PREPARATION

Ege University, Izmir, Turkey	Mechanical Engineering	B.S., 2001
Izmir Institute of Technology, Izmir, Turkey	Mechanical Engineering	M.Sc., 2005
Drexel University, Philadelphia, PA	Mechanical Engineering	Ph.D., 2010

B) APPOINTMENTS

12/2010 – present Assistant Professor, Dept. of Bioengineering, University of Toledo
12/2010 – present Director of Engineered Bio-system Laboratory (EBSL), University of Toledo

C) PUBLICATIONS

(i) Relevant Five Publications

1. Agarwal A., Palepu V., Agarwal AK., Goel VK., Yildirim-Ayan E. (2013), "Biomechanical evaluation of an endplate-conformed polycaprolactone-hydroxyapatite intervertebral fusion graft and its comparison with a typical non-conformed cortical graft", Journal of Biomechanical Engineering, , Vol.135, Is. 6.
2. Bialorucki C., Subramanian G., Elsaadany M., Yildirim-Ayan E. (2014), "In Situ Osteoblast Mineralization Mediates Post-Injection Mechanical Properties of Osteoconductive Material", Journal of the Mechanical Behavior of Biomedical Materials, Vol. 38, 2014.
3. Subramanian G., Bialorucki C., Yildirim-Ayan E. (2015), "Nanofibrous yet Injectable Polycaprolactone-Collagen Bone Tissue Scaffold with Osteoprogenitor Cells and Controlled Release of Bone Morphogenetic Protein-2", Material Science and Engineering C, Vol. 51, 1.
4. Elsaadany M., Subramanian G., Ayan H., Yildirim-Ayan E. (2015), "Exogenous nitric oxide (NO) generated by NO-plasma treatment modulates osteoprogenitor cells early differentiation", Journal of Physics D: Applied Physics Vol 48.
5. Ayan H., Yildirim E, Pappas D., and Sun W., (2011) "Development of a cold atmospheric pressure microplasma jet for freeform cell printing", Applied Physics Letter, Vol 99.

(ii) Other Five Selected Publications

6. Yildirim E.D., Besunder R., Pappas D., Allen F., Sun W. (2010), "Accelerated Osteoblast Differentiation on 3D Polycaprolactone Scaffolds", Biofabrication, Vol.2, Issue 1.
7. Yildirim E.D., Yin X., Nair K., Sun W. (2008) "Fabrication, characterization and biocompatibility of single-walled carbon nanotube reinforced alginate composite scaffolds manufactured using freeform fabrication technique", Journal of Biomedical Material Research, Vol.87B.
8. Yildirim E., Pappas D., Guceri S., Sun W. (2011) "Enhanced Cellular Functions on Polycaprolactone Tissue Scaffolds by O2 Plasma Surface Modification", Plasma Processes and Polymers, Vol.8, Is. 3
9. Baylan N., Bhat S., Ditto M., Lawrence JG., Lecka Czernik B., **Yildirim-Ayan E.,** (2013) "Polycaprolactone Nanofiber Interspersed Collagen Type-I Scaffold for Bone Regeneration: A Unique Injectable Osteogenic Scaffold", Biomedical Materials, Vol.8, Is. 4

10. Yildirim E.D., Ayan H., Vasilets V.N., Fridman A., Guceri S., Sun W. (2008), "Effect of Dielectric Barrier Discharge Plasma on The Attachment And Proliferation of Osteoblasts Cultured over Poly (e-Caprolactone) Scaffolds", Plasma Processes and Polymers , Vol.5, Issue 1, p:58-66.

D) **SYNERGISTIC ACTIVITIES**

- Chair of Biomanufacturing Technical Committee under ASME Manufacturing Engineering Division (2014-)
- Vice Chair of Biomanufacturing Technical Committee under ASME Manufacturing Engineering Division (2012-2014)
- Organizing ASME *Advances in Biomedical Manufacturing Symposium* under ASME Manufacturing Science and Engineering Conference (MSEC), June10-13, 2013, University of Wisconsin-Madison
- NSF Biomedical Engineering, CBET and CAREER Proposal Panel Reviewer
- Session Chair (Cell adhesion session) in BMES Conference 2011
- Scientific Article Reviewer for Journals including Acta Biomaterialia, Biofabrication, Nanotechnology, Journal of Applied Physics, Applied Physics Letter.

E) **COLLABORATORS & OTHER AFFILIATIONS**

(i) Collaborators

A. Agarwal, MD, University of Toledo, College of Engineering
R. Chang, PhD, Stevens Institute of Technology, School of Engineering and Science
K. Eisenmann, PhD, University of Toledo College of Medicine and Life Sciences
A. Fridman, PhD, Drexel University, College of Engineering
V. Goel, PhD, University of Toledo, College of Engineering
M. Khan ,MD, University of Toledo, College of Medicine and Life Sciences
B. Lecka-Czernik, PhD, University of Toledo, College of Medicine, and Life Sciences
J. Nesamony, PhD, University of Toledo, College of Pharmacy and Pharmaceutical Sciences
B. Starly, PhD, North Carolina State University, College of Engineering
W. Sun, PhD, Drexel University, College of Engineering
K.C. Yan, The College of New Jersey, School of Engineering

(ii) Graduate Advisor

Ph.D. Advisor: Wei Sun, Drexel University

(iii) Thesis Advisor Sponsor (Total Trainees: 2 Ph.D. students, 3 Masters Students, 3 Undergraduate students)

Current Ph.D. Advisees: Ms. Gayathri Subramanian (U of Toledo), Mr. Mostafa Elsaadany (U of Toledo)

Current Masters Student Trainees: Nilofar Sinaai (Co-advisor)

Current Undergraduate Student Trainees: Andrew Trumbull, Rebecca Shaheen

Former Trainees (U of Toledo)**:** Maggie Ditto (MS), Matt Harris (MS), Andrew Jones (BS), Aaakash Agarwal (MS), Maryam Nabuyani (MS), Kristopher Roger (BS), Amanda Blakeslee (BS), Rohan Takkar (BS).