Serkan Dikici

CONTACT

Izmir Institute of Technology
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Urla, Izmir / Turkey
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http://bit.ly/serkan_dikici

LANGUAGES

English
(C1 – Upper-intermediate)
French
(B1 – Pre-intermediate)
Turkish
(Native Language)

COMPUTER SKILLS

MS Office Word, Excel, PowerPoint, Publisher ●●●●●
3DP, Cura, Repetier Host ●●●●●
SolidWorks, Autodesk Inventor ○●●●●
FlexScan3D, Geomagic ○●●●●
Adobe Illustrator & Photoshop, ImageJ ○●●●●
GraphPad Prism, Origin ○●●●●
Ansys Workbench ○○○●●
MATLAB ○○○●●

RESEARCH INTERESTS

Biomaterials
Tissue Engineering
Cell Culture & 3D Tissue Models
In vitro & *In vivo* Angiogenesis Models
Chick Chorioallantoic Membrane Assay
Endothelial Cell & Flow Interaction
Angiogenesis Promoters/Inhibitors
3D Scanning & Additive Manufacturing
Computer-Aided Design
Biomedical Device Design

EDUCATION

2019
Massachusetts Institute of Technology
Visiting PhD student
Harvard-MIT Health Sciences Technology

2016 – 2020
The University of Sheffield
PhD
Department of Materials Science and Engineering, Biomaterials and Tissue Engineering

2013 – 2016
Izmir Katip Celebi University
MSc
Graduate School of Natural and Applied Science, Department of Biomedical Technologies (GPA: 3.94 / 4.00)

2009 – 2013
Ege University
BSc
Engineering Faculty, Department of Bioengineering (GPA: 3.50 / 4.00)

International Publications

2020 **Dikici S.,** Bullock AJ., Yar M., Claeyssens F., MacNeil S., **"2-deoxy-D-ribose (2dDR) upregulates vascular endothelial growth factor (VEGF) and stimulates angiogenesis",** Microvascular Research, 131, 104035, https://doi.org/10.1016/j.mvr.2020.104035

2020 **Dikici S.,** Claeyssens F., MacNeil S., **"Pre-seeding of Simple Electrospun Scaffolds with a Combination of Endothelial Cells and Fibroblasts Strongly Promotes Angiogenesis",** Tissue Engineering and Regenerative Medicine, 17 (4), https://doi.org/10.1007/s13770-020-00263-7

2020 Andleeb A., **Dikici S.,** Waris T.S., Bashir M.M., Akhter S., Chaudhry A.A., MacNeil S., Yar M., **"Developing affordable and accessible pro-angiogenic wound dressings; incorporation of 2-deoxy-D-ribose (2dDR) into cotton fibres and wax-coated cotton fibres",** Journal of Tissue Engineering and Regenerative Medicine, 14 (6) : 1-16, https://doi.org/10.1002/term.3072

2020 **Dikici S.,** Claeyssens F., MacNeil S., **"Bioengineering vascular networks to study angiogenesis and vascularisation of physiologically relevant tissue models in vitro",** ACS Biomaterials Science & Engineering, 6 (6) : 3513–3528, https://doi.org/10.1021/acsbiomaterials.0c00191

2020 **Dikici S.*,** Aldemir Dikici B*. *(*equally contributed authors)*, Bhaloo SI., Balcells M., Edelman ER., MacNeil S., Reilly GC., Sherborne C., Claeyssens F., **"Assessment of the angiogenic potential of 2-deoxy-D-ribose using a novel in vitro 3D dynamic model in comparison with established in vitro assays",** Frontiers in Bioengineering and Biotechnology, 7 : 451, https://doi.org/10.3389/fbioe.2019.00451

2019 Aldemir Dikici B.*, **Dikici S***. *(*equally contributed authors)*, Reilly GC., MacNeil S., Claeyssens F., "**A Novel Bilayer Polycaprolactone Membrane for Guided Bone Regeneration: Combining Electrospinning and Emulsion Templating"**, Materials, 12 (16) : 2643, https://doi.org/10.3390/ma12162643

2019 **Dikici S**., Claeyssens F., MacNeil S., "**Decellularised baby spinach leaves and their potential use in tissue engineering applications: studying and promoting neovascularisation"**, Journal of Biomaterials Applications, 34 (4) : 546-559, https://doi.org/10.1177/0885328219863115

2019 Azam M., **Dikici S**., Roman S., Mehmood A., Chaudhry Anwar A., Rehman IU., MacNeil S., Yar M., "**Addition of 2-deoxy-D-ribose to clinically used alginate dressings stimulates angiogenesis and accelerates wound healing in diabetic rats"**, Journal of Biomaterials Applications, 34 (4) : 463-475, https://doi.org/10.1177/0885328219859991

2019 Mangir N., **Dikici S**., Claeyssens F., MacNeil S., "**Using ex ovo chick chorioallantoic membrane (CAM) assay to evaluate the biocompatibility and angiogenic response to biomaterials"**, ACS Biomaterials Science & Engineering, 5 (7) : 3190-3200, https://doi.org/10.1021/acsbiomaterials.9b00172

2019 **Dikici S**., Mangir N., Claeyssens F., Yar M., MacNeil S., "**Exploration of 2-deoxy-D-ribose and 17β-Estradiol as alternatives to exogenous VEGF to promote angiogenesis in tissue-engineered constructs"**, Regenerative medicine, 14 (3) : 179-197, https://doi.org/10.2217/rme-2018-0068

2018 Ulu M., Soylu E., Kelebek S., **Dikici S**., Oflaz H., "**Comparative study of biomechanical stability of resorbable and titanium fixation systems after sagittal split ramus osteotomy with a novel designed in-vitro testing unit"**, Journal of Cranio-Maxillofacial Surgery, 46 (2), 299-304, https://doi.org/10.1016/j.jcms.2017.11.024

2017 **Dikici S.**, Aldemir Dikici B., Eser H., Gezgin E., Baser O.,Savas S., Yilmaz B., Oflaz H., "**Development of a 2-dof Uterine Manipulator with LED Illumination System for Gynecological Surgeries"**, Minimally Invasive Therapy & Allied Technologies, Jun 27 (3) : 177-185, https://doi.org/10.1080/13645706.2017.1341927

2017 Aldemir Dikici B., **Dikici S.**, Karaman O., Oflaz H., "**The Effect of Zinc Oxide Doping on Mechanical and Biological Properties of 3D Printed Calcium Sulfate Based Scaffolds"**, Biocybernetics and Biomedical Engineering, 37 (2017) : 733–741, https://doi.org/10.1016/j.bbe.2017.08.007

2015 Toman M., Toksavul S., Sabancı S., Kıran B., **Dikici S.**, Sarıkanat M., Oflaz H., "**Three-dimensional finite element analysis of stress distribution of two retainer and single retainer all-ceramic resin-bonded fixed partial dentures"**, Quintessence International, 46 (8) : 691-696, https://doi.org/10.3290/j.qi.a34177

National Publications

2017 Oflaz H., Aldemir Dikici B., **Dikici S.**, "**The Effect of Heat Treatment on Physical, Chemical and Structural Properties of Calcium Sulfate Based Scaffolds"**, Journal of Natural and Applied Science, 21 (1) : 241-246, https://doi.org/10.19113/sdufbed.97485

2014 **Dikici S.**, Aldemir B., Gezgin E., Baser Ö., Sahin S., Eser H., Ercan U.K., Yılmaz B., Kelekci S., Oflaz H., "**Development of transvaginal uterus amputation device for laparoscopic hysterectomies in gynecologic surgeries",** Journal of Natural and Applied Science, 18 (3) : 52-27, https://doi.org/10.19113/sdufbed.30269

2014 Aldemir B., **Dikici S.**, Öztürk Ş., Karaman O., Ürkmez A. Ş., Oflaz H. "**3D tissue scaffold printing on custom artificial bone applications",** Journal of Natural and Applied Science, 18 (3), https://doi.org/10.19113/sdufbed.12317

Conference Papers

2016 Oflaz H., **Dikici S.**, Aldemir Dikici B., Eser H., Gezgin E., Baser Ö., Sahin S., Yilmaz B., "**Designing and Prototyping A New Uterine Manipulator with two plane motion mechanism and LED Marker Illumination System",** IEEE Biomedical Engineering Meeting, 20th National.

2016 Sahin S., Eser H., **Dikici S.**, Sahin KE., Oguz DO., Oflaz H., "**Implementation of Multi-Probe Electrocautery for Laparoscopic Surgery",** IEEE Biomedical Engineering Meeting, 20th National.

2015 **Dikici S.**, Eser H., Aldemir B., Gezgin E., Baser Ö., Sahin S., Oflaz H. "**Designing and prototyping of a new uterine manipulator which will overcome drawbacks of conventional uterine manipulators and assist laparoscopic hysterectomies",** IEEE Biomedical Engineering Meeting, 19th National.

2015 Ulu M., Kelebek S., **Dikici S.**, Akcay H., Oflaz H., "**Biomechanical comparison of stability of resorbable plate-screw fixation systems in different configurations after sagittal split ramus osteotomy",** IEEE Biomedical Engineering Meeting, 19th National.

2015 Aldemir B., **Dikici S.**, Karaman O., Oflaz H., "**Development, 3D printing and characterization of calcium sulfate based scaffolds for bone tissue engineering",** IEEE Biomedical Engineering Meeting, 19th National.

Oral Presentations

2020 **2-Deoxy-D-Ribose: A Sweet Alternative to VEGF to Stimulate Angiogenesis and Wound Healing,** Future Leaders Virtual Conference 2020 (UKSB), Jun 24-25, United Kingdom

2020 **2-Deoxy-D-Ribose as an alternative to the use of exogenous VEGF to induce angiogenesis in tissue-engineered constructs,** TCES Virtual Seminar Series 2020, Jun 18, United Kingdom

2019 **Stimulating angiogenesis in tissue-engineered scaffolds using alternative pro-angiogenic agents: 2-deoxy-D-ribose (2dDR) and 17β-Estradiol (E2),** BiTEG 2019, Dec 16, York, United Kingdom

2019 **Developing approaches and in vitro systems for studying and promoting angiogenesis and for regenerative medicine applications,** The University of Sheffield, Department of Materials Science and Engineering, 3rd Year Presentation, Oct 30, Sheffield, United Kingdom

2019 **A novel 3D in vitro angiogenesis model for investigating endothelial cell migration in response to multiple stimulants,** BioMedEng 19, Sep 5-6, London, United Kingdom

2019 **2-Deoxy-D-Ribose (2dDR) and 17β-Estradiol (E2) Releasing Functional Scaffolds for Stimulating Angiogenesis in *ex-ovo* CAM Assay,** Tissue Engineering & Regenerative Medicine International Society (TERMIS) EU 2019, May 27-31, Rhodes, Greece

2018 **2-deoxy-D-ribose (2dDR) and 17β-Estradiol (E2) loaded scaffolds for stimulating angiogenesis in *ex-ovo* CAM assay,** International Eurasian Conference on Science, Engineering and Technology, November 22-23, Ankara, Turkey

2018 **Use of decellularised spinach leaves as a tissue-engineering scaffold for promoting angiogenesis in *ex-ovo* CAM assay,** International Eurasian Conference on Science, Engineering and Technology, November 22-23, Ankara, Turkey

2018 **Approaches to Ensure Rapid Neovascularisation in Tissue Engineered Constructs,** The Engineering Researcher Symposium, June 26, Sheffield, United Kingdom

2017 **Developing pseudovasculature to study aspects of neovascularisation,** The University of Sheffield, Department of Materials Science and Engineering, 1st Year Presentation, Apr 3, Sheffield, United Kingdom

2014 **Development of transvaginal uterus amputation device for laparoscopic hysterectomies in gynecologic surgeries,** Internationally Participated VII. National Biomechanics Congress, October 16-18, Isparta, Turkey

2014 **3D tissue scaffold printing on custom artificial bone applications,** Internationally Participated VII. National Biomechanics Congress, October 16-18, Isparta, Turkey

Poster Presentations

2020 **Development of a physiologically relevant model to reduce the use of animals in research: a novel 3D dynamic in vitro angiogenesis model,** Sheffield 3Rs Symposium, 2020, Jan 14, Sheffield, United Kingdom, Poster Presentation

2019 **Development of a novel 3D dynamic in vitro angiogenesis model for investigating endothelial proliferation and migration in response to multiple stimulants,** BiTEG 2019, Dec 16, York, United Kingdom

2019 **Promoting neovascularisation in tissue engineering constructs: 2-deoxy-D-ribose (2dDR) and 17β-Estradiol (E2) as alternatives to VEGF,** BioMedEng 19, Sep 5-6, London, United Kingdom

2019 **Development of a Bifunctional PCL-Based Barrier Membrane for Guided Tissue Engineering,** Tissue Engineering & Regenerative Medicine International Society (TERMIS) EU 2019, May 27-31, Rhodes, Greece

2018 **Approaches to Ensure Rapid Neovascularisation in Tissue-Engineered Constructs,** The University of Sheffield, Department of Materials Science and Engineering, 2nd Year Presentation, May 15, Sheffield, United Kingdom

2018 **Functionalised scaffolds for promoting angiogenesis and bone regeneration: Two potent alternatives to the use of VEGF,** Tissue Engineering & Regenerative Medicine International Society (TERMIS) WC 2018, September 4-7, Kyoto, Japan

2018 **A Novel Biphasic Bioresorbable Scaffold for Guided Tissue Regeneration,** Tissue Engineering & Regenerative Medicine International Society (TERMIS) WC 2018, September 4-7, Kyoto, Japan

2018 **Development and characterisation of a novel, bilayer PCL-based barrier membrane for guided tissue engineering,** BiTEG 20th Annual White Rose Meeting, December 17, Sheffield, United Kingdom

2015 **Design of transvaginal uterus amputation device with 2-axis motion capacity and led illumination system for laparoscopic hysterectomies,** 21st International Biomedical Science and Technology Symposium, BIOMED, October 22-24, Antalya, Turkey

2015 **Development, production and characterization of calcium sulfate-based 3D scaffolds,** 21st International Biomedical Science and Technology Symposium, BIOMED, October 22-24, Antalya, Turkey

2015 **Development, 3D printing and characterization of calcium sulfate-based scaffolds for bone tissue engineering,** 19th National Meeting of Biomedical Engineering, BİYOMUT, November 5-6, Istanbul, Turkey

2015 **Biomechanical comparison of stability of resorbable plate-screw fixation systems in different configurations after sagittal split ramus osteotomy,** 19th National Meeting of Biomedical Engineering, BİYOMUT, November 5-6, Istanbul, Turkey

2015 **Designing and prototyping of a new uterine manipulator which will overcome drawbacks of conventional uterine manipulators and assist laparoscopic hysterectomies,** 19th National Meeting of Biomedical Engineering, BİYOMUT, November 5-6, Istanbul, Turkey

Academic Honors, Rewards & Scholarships

2018 **The University of Sheffield**

Highly Commended Poster Award in Biomaterials Category

2016 **Republic of Turkey The Ministry of National Education**

Scholarship for Study Abroad Program

2015 **The Scientific and Technological Research Council of Turkey**

Student Funding for MSc degree (Grant No. 113M523)

2015 **19th National Meeting of Biomedical Engineering**

Best Poster Presentation Award

2014 **The Scientific and Technological Research Council of Turkey**

Final Degree, 2238 University Level Entrepreneurship Competition

2013 **Ege University**

2nd highest-ranking student, Department of Bioengineering

2005 – 2013 **Bornova Anadolu High School Education Foundation**

Student Success Scholarship

2005 – 2013 **Izmir Rotary Club**

Student Success Scholarship

Teaching

(2020-2021, Spring) **BE206** • Fluid Mechanics

(2020-2021, Spring) **BE413** • Scientific Research Techniques

Academic Services

2021 – Present **Reviewer** • Acta Biomaterialia

2020 – Present **Reviewer** • Journal of Biomaterials Applications

2020 – Present **Reviewer** • ACS Biomaterials Science & Engineering

Professional Experiences

2021 **Lecturer, Izmir Institute of Technology, Izmir, Turkey**

2019 **Visiting PhD Student, Massachusetts Institute of Technology, Massachusetts, United States**

Collaborative project with MIT as a part of my PhD project

2017 - 2020 **Graduate Teaching Assistant, The University of Sheffield, United Kingdom**

Graduate teaching assistant and laboratory demonstrator

2013 - 2016 **Research Assistant, Izmir Katip Celebi University, Turkey**

Development of a transvaginal uterus amputation device for total laparoscopic hysterectomies, MSc Project

2013 **Bioengineer, PHONUS Trade. & Ind. Inc., Turkey**

Fungal bioremediation, biological water treatment

2012 **Intern, Foot and Mouth Disease Research Institute, Turkey**

Vaccine production process, animal cell culture, virus culture, virus inactivation, vaccine tests, quality control

2011 **Intern, Ege University, Medical Biology Department, Turkey**

Basic animal culture techniques, gene silencing by siRNA transfection, gel electrophoresis, PCR, DNA isolation, translocation tests

2011 - 2012 **Intern, Basic Laboratory Education, Ebiltem, Turkey**

Engineering applications, animal cell and tissue culture, plant cell and tissue culture laboratories

Research Projects

2016 - 2020 **Developing systems for studying and promoting angiogenesis and for tissue engineering applications**

Researcher, The University of Sheffield, PhD Project

2016 **Additive manufacturing and electromechanical control of custom made EMG controlled prosthesis for patients with upper extremity transradial amputations**

Researcher, Izmir Katip Celebi University, General Research Project

2015 **Developing a New Uterine Manipulator for Total Laparoscopic Hysterectomies in Gynecological Surgeries**

Researcher, Izmir Katip Celebi University, MSc Project (Grant No. 2015-TYL-FEBE-0017)

2015 **Development, Manufacturing and Characterization of Ceramic Based 3D Tissue Scaffolds**

Researcher, Izmir Katip Celebi University, General Research Project, (Grant No. 2015-TYL-FEBE-0016)

2011 - 2014 **Transvaginal Uterus Amputation Device Development**

Research Student, Scientific and Technological Research Council of Turkey

2013 **Preparation of Competent Cells for Recombinant DNA Applications**

Researcher, Ege University, BSc Project

Team Work Activities

2020 **BioMedEng21, Sheffield, United Kingdom,** Member of Local Organization Committee

2016 **20th National Biomedical Engineering Meeting (Biyomut 2016), Izmir, Turkey,** Member of Organization Committee

2014 **International Symposium on Innovations in Intelligent Systems and Applications, Izmir Turkey,** Member of Organization Committee

2014 **1st International Personal Prosthesis, Orthesis and Implant Design Workshop, Izmir, Turkey,** Member of Organization Committee

2013 **Cittaslow (Slow City) Annual General Meeting, Izmir, Turkey,** Volunteering, Guide & Interpreter

2011 **EBILTET Tissue Engineering Symposium, Izmir, Turkey,** Member of Organization Committee

2009 **EBILTET Vaccine Symposium, Izmir, Turkey.** Member of Organization Committee