

## Assoc. Prof. Ali AKPEK

### Personal Information

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### International Researcher IDs

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Yoksis Researcher ID: 220980

### Biography

Dr. Akpek was born in Karsiyaka, Turkey. He received his B.Eng degree from department of biomedical engineering of Baskent University as one of the first biomedical engineers of the country. During his education, he mainly focused on biomedical electronics. After graduation he expanded his research interest to biotechnology and obtained a Master of Science degree in Biotechnology from Ege University. He mainly focused on microbiology and nanoionics during his master training. In 2010, he is awarded with Monbukagakusho scholarship from Japan and worked as a research scientist in Bionanotechnology Laboratory at Department of Bioengineering of University of Tokyo. His main research theme was "Nanochannel Fabrication Methodologies for Cell Fusion". He started his Dr. Eng training in Tokyo Institute of Technology in 2011. His main doctoral researches were "Non-Uniform Temperature Field in Viscosity Measurement" and "Adapting a Magnetic Levitating Artificial Blood Pump as a Vibrational Viscometer". This research is supervised by Prof. Toshiharu Kagawa. During his doctoral training, he is mainly focused on Fluid Engineering and Heat & Mass Transfer phenomena.

Dr. Akpek is also an entrepreneur and a managing partner of one of the first angel investment & consulting firm of Turkey that is primarily focused on biotech. The company helped the initiation of more than twenty bio related start-ups in Turkey and raised more than 14,000,000\$.

### Education Information

Post Doctorate, Harvard University, Tıp Fakültesi, Tıp Fakültesi, United States Of America 2015 - 2016

Post Doctorate, Massachusetts Institute of Technology, Division of Health Science and Technology, Division of Health Science and Technology, United States Of America 2015 - 2016

Doctorate, Tokyo Institute of Technology, Graduate School of Science and Engineering, Mechano-Micro Engineering, Japan 2011 - 2014

Postgraduate, Ege University, Fen Bilimleri Enstitüsü, Biyoteknoloji, Turkey 2008 - 2009

Undergraduate, Baskent University, Faculty Of Engineering, Department Of Biomedical Engineering, Turkey 2001 - 2006

### Foreign Languages

English, C2 Mastery

Japanese, B2 Upper Intermediate

## Dissertations

Postgraduate, Design and development of a personalized medicine oriented microfluidic organ on a chip platform, Gebze Technical University, Institute Of Biotechnology, Department Of Biotechnology (Interdisciplinary), 2020

Postgraduate, Elektrikli lineer eyleyiciyle oluşturulan mekanik sistem ile TPR 20/10 doz ölçümü ve standart değerler ile karşılaştırılması , Istanbul Yeni Yuzyil University, Institute Of Science, Biyomedikal Mühendisliği Bölümü, 2018

## Research Areas

Biomedical Engineering, Engineering and Technology

## Academic Titles / Tasks

Associate Professor, Yildiz Technical University, Faculty Of Electrical & Electronics, Biomedical Engineering, 2021 - Continues

Associate Professor, Gebze Technical University, Faculty Of Engineering, Department Of Bioengineering, 2018 - 2021

Assistant Professor, Gebze Technical University, Faculty Of Engineering, Department Of Bioengineering, 2017 - 2018

Assistant Professor, Istanbul Yeni Yuzyil University, Faculty Of Engineering-Architecture, Department Of Biomedical Engineering, 2014 - 2017

Assistant Professor, Harvard University, 2015 - 2016

Assistant Professor, Massachusetts Institute of Technology, 2015 - 2016

Research Assistant, Tokyo Institute of Technology, Graduate School of Science and Engineering, Mechano-Micro Engineering, 2011 - 2014

Researcher, Tokyo University, Bioengineering, Bionanotechnology, 2010 - 2011

## Courses

Biomechanics II, Undergraduate, 2021 - 2022

Therapeutic and Prosthetic Devices, Undergraduate, 2021 - 2022

Fluid Mechanics, Undergraduate, 2021 - 2022, 2020 - 2021, 2019 - 2020, 2018 - 2019

Biomechanics I, Undergraduate, 2021 - 2022

Introduction to Bioengineering, Undergraduate, 2020 - 2021, 2019 - 2020, 2018 - 2019

## Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Eggshell integrated GelMA/CSMA/HyMA hybrid hydrogels for cell therapy/tissue engineering**  
Yüce-Erarslan E., İzbudak B., Kızılkurtlu A. A., Topal M., AKPEK A., Bal-Öztürk A.  
Journal of Applied Polymer Science, vol.140, no.34, 2023 (SCI-Expanded)
- II. **Characterization of a Decellularized Sheep Pulmonary Heart Valves and Analysis of Their Capability as a Xenograft Initial Matrix Material in Heart Valve Tissue Engineering**  
İnal M. S., DARCAN C., AKPEK A.  
Bioengineering, vol.10, no.8, 2023 (SCI-Expanded)
- III. **Current Strategies for the Regeneration of Skeletal Muscle Tissue**  
ALARÇIN E., Bal-ozturk A., AVCI H., GHORBANPOOR H., DOĞAN GÜZEL F., AKPEK A., Yesiltas G., Canak-Ipek T., Avci-Adali M.  
INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES, vol.22, no.11, 2021 (SCI-Expanded)
- IV. **Tissue adhesives: From research to clinical translation**  
Bal-Ozturk A., Cecen B., Avci-Adali M., Topkaya S. N., ALARÇIN E., YAŞAYAN G., Li Y. E., Bulkurcuoglu B., AKPEK A.,

Avci H., et al.

NANO TODAY, vol.36, 2021 (SCI-Expanded)

- V. **Analysis of Surface Properties of Ag and Ti Ion-Treated Medical Textiles by Metal Vapor Vacuum Arc Ion Implantation**  
AKPEK A.  
COATINGS, vol.11, no.1, 2021 (SCI-Expanded)
- VI. **3D Bioprinting: from Benches to Translational Applications**  
Heinrich M. A., Liu W., Jimenez A., Yang J., Akpek A., Liu X., Pi Q., Mu X., Hu N., Schiffelers R. M., et al.  
SMALL, vol.15, no.23, 2019 (SCI-Expanded)
- VII. **A novel design of an electromagnetically levitated vibrational viscometer for biomedical and clinical applications**  
Akpek A.  
TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.27, no.2, pp.819-831, 2019 (SCI-Expanded)
- VIII. **Development of a heart assist device as a vibrational viscometer that estimates blood viscosity**  
Akpek A.  
JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY, vol.34, no.1, pp.235-246, 2019 (SCI-Expanded)
- IX. **Recent advances in organ-on-a-chip technologies and future challenges: a review**  
AVCI H., DOĞAN GÜZEL F., EROL S., Akpek A.  
TURKISH JOURNAL OF CHEMISTRY, vol.42, no.3, pp.587-610, 2018 (SCI-Expanded)
- X. **Lung on a Chip for Drug Screening and Design**  
Kizilkurtlu A. A., Polat T., Aydin G. B., Akpek A.  
CURRENT PHARMACEUTICAL DESIGN, vol.24, no.45, pp.5386-5396, 2018 (SCI-Expanded)
- XI. **Analysis of biocompatibility characteristics of stereolithography applied three dimensional (3D) bioprinted artificial heart valves**  
Akpek A.  
JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY, vol.33, no.3, pp.929-938, 2018 (SCI-Expanded)
- XII. **3D Printed Anchoring Sutures for Permanent Shaping of Tissues**  
Wei W., Li Y., Yang H., Nassab R., Shahriyari F., Akpek A., Guan X., Liu Y., Taranejoo S., Tamayol A., et al.  
MACROMOLECULAR BIOSCIENCE, vol.17, no.12, 2017 (SCI-Expanded)
- XIII. **Extrusion Bioprinting of Shear-Thinning Gelatin Methacryloyl Bioinks**  
Liu W., Heinrich M. A., Zhou Y., Akpek A., Hu N., Liu X., Guan X., Zhong Z., Jin X., Khademhosseini A., et al.  
ADVANCED HEALTHCARE MATERIALS, vol.6, no.12, 2017 (SCI-Expanded)
- XIV. **4D bioprinting: the next-generation technology for biofabrication enabled by stimuli-responsive materials**  
Li Y., Zhang Y. S., Akpek A., Shin S. R., Khademhosseini A.  
BIOFABRICATION, vol.9, no.1, 2017 (SCI-Expanded)
- XV. **Effect of non-uniform temperature field in viscosity measurement**  
Akpek A.  
JOURNAL OF VISUALIZATION, vol.19, no.2, pp.291-299, 2016 (SCI-Expanded)
- XVI. **Modification of anti-bacterial surface properties of textile polymers by vacuum arc ion source implantation**  
Nikolaev A. G., Yushkov G. Y., Oks E. M., Oztarhan A., Akpek A., Hames-Kocabas E., Urkac E. S., Brown I. G.  
APPLIED SURFACE SCIENCE, vol.310, pp.51-55, 2014 (SCI-Expanded)

## Books & Book Chapters

- I. KİŞİSELLEŞTİRİLMİŞ TIP TEKNOLOJİSİ VE UYGULAMALARI

Akpek A.

in: SAĞLIKTA SON TRENDLER, Can ÖZLÜ, Editor, Akademi Kitabevi Yayınları, İstanbul, pp.663-680, 2021

## II. Polimerlerin Medikal Amaçlı Kullanımları

Akpek A.

in: Polimerler: Özellikleri ve Uygulamaları, Hüseyin AVCI, Editor, ESOĞU Basımevi, Eskişehir, pp.205-224, 2021

## III. Yapay Organlar

Akpek A.

in: Biyomedikal Mühendisliği ve Uygulamaları, Onur Koçak; Osman Eroğlu, Editor, Elektrik Mühendisleri Odası Yayınevi, Ankara, pp.525-542, 2019

## Refereed Congress / Symposium Publications in Proceedings

- I. **Three Dimensional (3D) Fabrication of Multilayered Heart Valve Tissues by Stereolithography technique**  
Akpek A.  
21st National Biomedical Engineering Meeting (BIYOMUT), İstanbul, Turkey, 24 November - 26 December 2017
- II. **Three Dimensional Bioprinting of Tissue Engineered Artificial Heart Valves by Stereolithography**  
Akpek A.  
21st National Biomedical Engineering Meeting (BIYOMUT), İstanbul, Turkey, 24 November - 26 December 2017
- III. **Design of a System That Measures the Effect of Environmental Temperature on Ultrasonic Nebulizers**  
Sari S., Akpek A.  
National Conference on Electrical, Electronics and Biomedical Engineering (ELECO), Bursa, Turkey, 1 - 03 December 2016, pp.491-495
- IV. **A Medical Waste Management Model for Public Private Partnership Hospitals**  
Kocak O., Kurtuldu H., Akpek A., Kocoglu A., Eroglu O.  
Medical Technologies National Conference (TIPTEKNO), Antalya, Turkey, 27 - 29 October 2016
- V. **New Concept Design of an Insulin Pen for Visually Impaired or Blind Diabetus Mellitus Patients**  
Ucar T., Kocak O., Akpek A.  
Medical Technologies National Conference (TIPTEKNO), Antalya, Turkey, 27 - 29 October 2016
- VI. **A New Algorithm for Segmentation and Fracture Detection in X-Ray Images**  
Bulut S., Ozcinar A., Ciftcioglu C., Akpek A.  
Medical Technologies National Conference (TIPTEKNO), Bodrum, Turkey, 15 - 18 October 2015
- VII. **Remote Control of Centrifuge and Injection Systems via MATLAB and ARDUINO**  
Ciftcioglu C., Kocak O., Akpek A.  
Medical Technologies National Conference (TIPTEKNO), Bodrum, Turkey, 15 - 18 October 2015
- VIII. **Electronic Pillbox Design for Demantia Patients.**  
Cebeci S. A., Ciftcioglu C., Kocak O., Akpek A.  
Medical Technologies National Conference (TIPTEKNO), Bodrum, Turkey, 15 - 18 October 2015
- IX. **Design and Analysis of an Autoclave Simulation Using MATLAB/Simulink**  
Altinsu B., Kocak O., Akpek A.  
Medical Technologies National Conference (TIPTEKNO), Antalya, Turkey, 27 - 29 October 2016
- X. **Temperature Measurement Control Problem of Vibrational Viscometers Considering Heat Generation and Heat Transfer Effect of Oscillators**  
Akpek A., Youn C., Kagawa T.  
9th Asian Control Conference (ASCC), İstanbul, Turkey, 23 - 26 June 2013

## Supported Projects

Akpek A., TUBITAK Project, Tmleik bir ip st Kardiyovaskler Sistem Platformunun Tasarımlanması ve Gelitirilmesi, 2021 - 2024

Akpek A., TUBITAK Project, KOZMETİK VE İLA GELİTİRME ALIMALARI İİN İP ST DERİ SİSTEMİ TASARLANMASI VE GELİTİRİLMESİ, 2022 - 2023

Akpek A., Bozkurt E., TUBITAK Project, Mikroekstrzyon biyoyazıcı aracılıđı ile in situ kemik doku biyofabrikasyonu, 2022 - 2023

Akpek A., Kaya Ő., TUBITAK Project, Mısır niastası ve kolajen bazlı viskoelastik özellikleri ayarlanabilir, dk maliyetli, enkejte edilebilir doku yapıtırıcısı gelitirilmesi, 2022 - 2023

Akpek A., TUBITAK Project, AđIR YANIK, AđIR YARALANMA YA DA DERİ HASTALIKLARI TEDAVİSİ İİN KULLANILACAK DERİ EDEĐERİ BİYOFABRİKASYONU, 2021 - 2023

Akpek A., Tiryaki A., TUBITAK Project, Yapay kemik uygulamaları iin yeni nesil biyomalzeme gelitirilmesi, 2021 - 2022

Akpek A., zelik A., TUBITAK Project, In situ biyobaskı yntemi ile 3B yara rts biyofabrikasyonu, 2021 - 2022

Akpek A., Ync N. Ő., TUBITAK Project, Yapay deri uygulamaları iin yeni nesil biyomalzeme gelitirilmesi, 2020 - 2021

Akpek A., ztrk A. B., TUBITAK Project, Kıkırdak ve Kemik Rejenerasyonu İin 3-Boyutlu Biyoyazıcı Teknolođisi ile Biyomimetik Nanohibrit Doku İskelelerinin Gelitirilmesi ve in vivo Osteokondral Hasar Modelinde Deđerlendirilmesi, 2018 - 2021

Akpek A., Alarin E., TUBITAK Project, Kemik Hasarlarının Tedavisi İin  Boyutlu Baskılama Yntemi İle İla Taıyıcı Doku İskelelerinin Hazırlanması, In Vitro Karakterizasyonu Ve In Vivo Kalvaryal Kemik Hasarı Modelinde Deđerlendirilmesi, 2018 - 2021

Akpek A., Akharman E., TUBITAK Project, Kalp dokusu iin yeni nesil biyomalzeme gelitirilmesi, 2019 - 2020

Akpek A., - -, TUBITAK Project, Masast Delta Tipi Sratli Multimateryal 3B Biyoyazıcının Gelitirilmesi, 2018 - 2019

Akpek A., Project Supported by Higher Education Institutions, 3B Biyonik kol nitesine deri dokusu retimi gerekletirilmesi, 2018 - 2019

Akpek A., TUBITAK Project, ok Katmanlı Deri Dokularının 3b Biyoyazıcılar Aracılıđı İle retilmesi, Mikroakkan Biyoreaktrler İle Gelitirilmesi, ip zerine Deri Uygulamaları İin Deđerlendirilmesi Ve Biyonik Kol Uygulamaları İin Olası Kullanımlarının Aratırılması, 2018 - 2019

Akpek A., Universities of Other Countries Supported Project, Stereolitografi aracılıđı ile 3B kalp kapakıkları tasarımı ve gelitirilmesi, 2015 - 2016

Akpek A., Project Supported by Other Official Institutions, Medikal Alanlar iin Hava Sterilizasyon nitesi Tasarımı, 2015 - 2016

## Metrics

Publication: 36

Citation (WoS): 587

Citation (Scopus): 642

H-Index (WoS): 7

H-Index (Scopus): 7