

## Doç. Dr. ERKAN TUNCAY

### Kişisel Bilgiler

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### Uluslararası Araştırmacı ID'leri

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Publons / Web Of Science ResearcherID: AAG-8065-2020

ScopusID: 21935388400

Yoksis Araştırmacı ID: 126723

### Eğitim Bilgileri

Doktora, Ankara Üniversitesi, Sağlık Bilimleri Enstitüsü, Biyofizik (Dr) (Tıp), Türkiye 2008 - 2014

Yüksek Lisans, Ankara Üniversitesi, Sağlık Bilimleri Enstitüsü, Biyofizik (YI) (Tezli) (Tıp), Türkiye 2005 - 2008

Lisans, Gazi Üniversitesi, Fen Fakültesi, Fizik Bölümü, Türkiye 2001 - 2005

### Yabancı Diller

İngilizce, C1 İleri

### Sertifika, Kurs ve Eğitimler

Sağlık ve Tıp, ESC7: Single Molecule Approaches, Groninngen University, 2023

### Yaptığı Tezler

Doktora, Kalp fonksiyon bozukluğunda rol oynayan hücre içi Zn<sup>2+</sup> derişimi ve kontrolsüz sarkoplazmik retikulum Ca<sup>2+</sup> sızıntısı arasındaki ilişkinin elektrofizyolojik ve biyokimyasal tekniklerle incelenmesi, Ankara Üniversitesi, Sağlık Bilimleri Enstitüsü, Biyofizik (Dr) (Tıp), 2014

Yüksek Lisans, Diyabetik kardiyomiyopatide seçici olmayan beta blokör etkilerinin elektrofizyolojik yöntemlerle incelenmesi, Ankara Üniversitesi, Sağlık Bilimleri Enstitüsü, Biyofizik (YI) (Tezli) (Tıp), 2008

### Araştırma Alanları

Biyofizik, Biyolojik Spektroskopi, Hücre Zarı ve Lipozomlar, Moleküler Biyofizik, Nörobiyofizik, Radyasyon Biyofiziği, Yapısal Biyofizik

### Akademik Unvanlar / Görevler

Doç. Dr., Ankara Üniversitesi, Sağlık Bilimleri Enstitüsü, Sınır Bilimleri Anabilim Dalı, 2021 - Devam Ediyor  
Doç. Dr., Ankara Üniversitesi, Tıp Fakültesi, Temel Tıp Bilimleri Bölümü, 2020 - Devam Ediyor  
Araştırma Görevlisi, Aksaray Üniversitesi, Fen-Edebiyat Fakültesi, Fizik Bölümü, 2009 - 2013  
Araştırma Görevlisi, Aksaray Üniversitesi, Sağlık Yüksekokulu, Hemşirelik Bölümü, 2007 - 2009

## Akademik İdari Deneyim

Deney Hayvanları ve Araştırma Laboratuvarı Komisyon Başkanı, Ankara Üniversitesi, Tıp Fakültesi, Temel Tıp Bilimleri Bölümü, 2023 - Devam Ediyor  
Anabilim Dalı Akademik Kurul Üyesi, Ankara Üniversitesi, Tıp Fakültesi, Temel Tıp Bilimleri Bölümü, 2020 - Devam Ediyor

## Verdiği Dersler

Doku Biyolojisi, Lisans, 2022 - 2023, 2021 - 2022  
Biyofizikte temel elektrofizyolojik yöntemler, Lisans, 2022 - 2023, 2021 - 2022  
Vücut yapısı ve işlev bilgisi, Lisans, 2022 - 2023, 2021 - 2022  
Advances in Cardiovascular System Biophysics , Lisans, 2022 - 2023, 2021 - 2022  
Tissue Biology, Lisans, 2022 - 2023  
Dolaşım ve Solunum Sistemleri, Lisans, 2022 - 2023  
Dolaşım biyofiziği, Yüksek Lisans, 2022 - 2023, 2021 - 2022, 2020 - 2021  
BASIC ELEKTROPHYSIOLOGICAL APPLICATIONS IN BIOPHYSICS, Lisans, 2022 - 2023, 2021 - 2022, 2020 - 2021  
Vücut Yapı ve İşlev Bilgisi I , Lisans, 2022 - 2023  
Tez Çalışması, Yüksek Lisans, 2021 - 2022  
Cell biology, Lisans, 2022 - 2023, 2021 - 2022  
Nöronal Haberleşme, Doktora, 2022 - 2023, 2021 - 2022, 2020 - 2021  
Uzmanlık alan dersi YL, Yüksek Lisans, 2021 - 2022  
Uzmanlık alan dersi, Doktora, 2022 - 2023  
Hücre Biyolojisi, Lisans, 2022 - 2023  
Seminer, Doktora, 2022 - 2023  
Medikal Fizik, Lisans, 2016 - 2017  
Biyofizik, Lisans, 2016 - 2017

## Yönetilen Tezler

, Tuncay E., İnsülin Direnci Geliştirilmiş H9C2 Hücre Hatlarında Epigenetik Değişimlerin ÇinkoTransporterları Üzerindeki Rolü, Yüksek Lisans, İAKTAY(Öğrenci), 2022

## Jüri Üyelikleri

Tez Savunma (Doktora), Tez Savunma (Doktora), Ankara Üniversitesi, Haziran, 2024  
Tez Savunma (Doktora), Tez Savunma (Doktora), Ankara Üniversitesi, Haziran, 2024  
Doktora Yeterlik Sınavı, Doktora Yeterlik Sınavı, Gazi Üniversitesi, Mayıs, 2023  
Doktora Yeterlik Sınavı, Doktora Yeterlik Sınavı, Çukurova Üniversitesi, Mart, 2023  
Doktora Tez İzleme Komitesi (TİK) Üyeliği, Doktora Tez İzleme Komitesi (TİK) Üyeliği, Ankara Üniversitesi, Ocak, 2023  
Doktora Tez İzleme Komitesi (TİK) Üyeliği, Doktora Tez İzleme Komitesi (TİK) Üyeliği, Ankara Üniversitesi, Ocak, 2023  
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## SCI, SSCI ve AHCI İndekslerine Giren Dergilerde Yayınlanan Makaleler

- I. **Antibacterial efficacy of silver nanoparticles, sodium hypochlorite, chlorhexidine, and hypochlorous acid on dentinal surfaces infected with *Enterococcus faecalis***  
ÖNCÜ A., ÇELİKTEK B., AYDIN B., AMASYA ÇELİKTEK G., TUNCAY E., Eskiler G. G., AÇIK L., SEVİMAY F. S.  
MICROSCOPY RESEARCH AND TECHNIQUE, sa.9, ss.2094-2102, 2024 (SCI-Expanded)
- II. **An Overexpression of SLC30A6 Gene Contributes to Cardiomyocyte Dysfunction via Affecting Mitochondria and Inducing Activations in K-Acetylation and Epigenetic Proteins**  
Aktay I., BİLLUR D., TUNCAY E., TURAN B.  
Biochemical Genetics, cilt.62, sa.4, ss.3198-3214, 2024 (SCI-Expanded)
- III. **Cardioprotective role of a magnolol and honokiol complex in the prevention of doxorubicin-mediated cardiotoxicity in adult rats**  
Aktay I., BİTİRİM C. V., OLĞAR Y., DURAK A., TUNCAY E., BİLLUR D., AKÇALI K. C., TURAN B.  
Molecular and Cellular Biochemistry, cilt.479, sa.2, ss.337-350, 2024 (SCI-Expanded)
- IV. **Clinical evaluation of DIAGNOVIR SARS-CoV-2 ultra-rapid antigen test performance compared to PCR-based testing**  
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SCIENTIFIC REPORTS, cilt.13, sa.1, 2023 (SCI-Expanded)
- V. **An increase in intercellular crosstalk and electrotonic coupling between cardiomyocytes and nonmyocytes reshapes the electrical conduction in the metabolic heart characterized by short QT intervals in ECGs.**  
Billur D., Olgar Y., Durak A., Yozgat A. H., Unay S., Tuncay E., Turan B.  
Cell biochemistry and function, cilt.41, sa.8, ss.1526-1542, 2023 (SCI-Expanded)
- VI. **Overexpression of Slc30a7/ZnT7 increases the mitochondrial matrix levels of labile Zn<sup>2+</sup> and modifies histone modification in hyperinsulinemic cardiomyoblasts**  
TUNCAY E., Aktay I., TURAN B.  
Journal of Trace Elements in Medicine and Biology, cilt.78, 2023 (SCI-Expanded)
- VII. **The cardioprotective role of sirtuins is mediated in part by regulating K(ATP) channel surface expression.**  
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- VIII. **Editorial: Insulin resistance and cardiovascular disease**  
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Frontiers in Endocrinology, cilt.14, 2023 (SCI-Expanded)
- IX. **Comparisons of pleiotropic effects of SGLT2 inhibition and GLP-1 agonism on cardiac glucose intolerance in heart dysfunction**  
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MOLECULAR AND CELLULAR BIOCHEMISTRY, cilt.477, sa.11, ss.2609-2625, 2022 (SCI-Expanded)
- X. **Functional evaluation of the tachycardia patient-derived iPSC cardiomyocytes carrying a novel pathogenic SCN5A variant**  
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JOURNAL OF CELLULAR PHYSIOLOGY, cilt.237, sa.10, ss.3900-3911, 2022 (SCI-Expanded)
- XI. **Bimodal Effects of P2Y(12) Antagonism on Matrix Metalloproteinase-Associated Contractile Dysfunction in Insulin-Resistant Mammalian Heart**  
OLĞAR Y., TUNCAY E., BİLLUR D., Turan B.  
BIOLOGICAL TRACE ELEMENT RESEARCH, cilt.200, sa.5, ss.2195-2204, 2022 (SCI-Expanded)
- XII. **STIM1-Orai1 interaction mediated calcium influx activation contributes to cardiac contractility of**

**insulin-resistant rats**

DURAK A., OLĞAR Y., Genc K., TUNCAY E., AKAT F., DEĞİRMENCİ S., Turan B.  
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- XIII. **Astaxanthin Enhances Gingival Wound Healing following High Glucose-Induced Oxidative Stress**  
Aras Tosun D., Önder C., Akdogan N., Kurgan Ş., Aktay I., Tuncay E., Orhan K.  
BIOMED RESEARCH INTERNATIONAL, cilt.2022, 2022 (SCI-Expanded)
- XIV. **Insulin acts as an atypical KCNQ1/KCNE1-current activator and reverses long QT in insulin-resistant aged rats by accelerating the ventricular action potential repolarization through affecting the beta(3)-adrenergic receptor signaling pathway**  
OLĞAR Y., DURAK A., Bitirim C. V., TUNCAY E., Turan B.  
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- XV. **Insulin-induced recovery in KCNQ1/KCNE1-current accelerates the ventricular action potential repolarization in insulin-resistant aged-rats via affecting beta(3)-adrenergic receptors**  
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BIOPHYSICAL JOURNAL, cilt.121, sa.3, ss.87, 2022 (SCI-Expanded)
- XVI. **Modulatory role of OKG on delayed rectifier potassium channels in ventricular cardiomyocytes from metabolic syndrome rats**  
TUNCAY E., OLĞAR Y., DURAK A., BİTİRİM C. V., Turan B.  
BIOPHYSICAL JOURNAL, cilt.121, sa.3, 2022 (SCI-Expanded)
- XVII. **Glucagon-like peptide-1 receptor agonist treatment of high carbohydrate intake-induced metabolic syndrome provides pleiotropic effects on cardiac dysfunction through alleviations in electrical and intracellular Ca<sup>2+</sup> abnormalities and mitochondrial dysfunction**  
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CLINICAL AND EXPERIMENTAL PHARMACOLOGY AND PHYSIOLOGY, cilt.49, ss.46-59, 2022 (SCI-Expanded)
- XVIII. **Ticagrelor alleviates high-carbohydrate intake induced altered electrical activity of ventricular cardiomyocytes by regulating sarcoplasmic reticulum-mitochondria miscommunication**  
OLĞAR Y., DURAK A., Degirmenci S., TUNCAY E., BİLLUR D., ÖZDEMİR S., Turan B.  
MOLECULAR AND CELLULAR BIOCHEMISTRY, cilt.476, sa.10, ss.3827-3844, 2021 (SCI-Expanded)
- XIX. **Molecular and Electrophysiological Role of Diabetes-Associated Circulating Inflammatory Factors in Cardiac Arrhythmia Remodeling in a Metabolic-Induced Model of Type 2 Diabetic Rat**  
Zayas-Arrabal J., Alquiza A., TUNCAY E., Turan B., Gallego M., Casis O.  
INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES, cilt.22, sa.13, 2021 (SCI-Expanded)
- XX. **The role of labile Zn<sup>2+</sup> and Zn<sup>2+</sup>-transporters in the pathophysiology of mitochondria dysfunction in cardiomyocytes**  
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- XXI. **Ageing-associated increase in SGLT2 disrupts mitochondrial/sarcoplasmic reticulum Ca(2+)homeostasis and promotes cardiac dysfunction**  
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- XXII. **MitoTEMPO provides an antiarrhythmic effect in aged-rats through attenuation of mitochondrial reactive oxygen species**  
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- XXIII. **Ticagrelor reverses the mitochondrial dysfunction through preventing accumulated autophagosomes-dependent apoptosis and ER stress in insulin-resistant H9c2 myocytes**  
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- XXIV. **Altered mitochondrial metabolism in the insulin-resistant heart**  
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- XXV. **Differential expression of genes participating in cardiomyocyte electrophysiological remodeling via membrane ionic mechanisms and Ca<sup>2+</sup>-handling in human heart failure**  
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- XXVI. **Azoramide improves mitochondrial dysfunction in palmitate-induced insulin resistant H9c2 cells**  
Okatan E. N., OLĞAR Y., TUNCAY E., Turan B.  
MOLECULAR AND CELLULAR BIOCHEMISTRY, cilt.461, sa.1-2, ss.65-72, 2019 (SCI-Expanded)
- XXVII. **Mitochondria-Targeting Antioxidant Provides Cardioprotection through Regulation of Cytosolic and Mitochondrial Zn<sup>2+</sup> Levels with Re-Distribution of Zn<sup>2+</sup>-Transporters in Aged Rat Cardiomyocytes**  
OLĞAR Y., TUNCAY E., Turan B.  
INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES, cilt.20, sa.15, 2019 (SCI-Expanded)
- XXVIII. **beta(3)-adrenergic receptor activation plays an important role in the depressed myocardial contractility via both elevated levels of cellular free Zn<sup>2+</sup> and reactive nitrogen species**  
TUNCAY E., OLĞAR Y., DURAK A., Degirmenci S., BİTİRİM C. V., Turan B.  
JOURNAL OF CELLULAR PHYSIOLOGY, cilt.234, sa.8, ss.13370-13386, 2019 (SCI-Expanded)
- XXIX. **Zn<sup>2+</sup>-transporters ZIP7 and ZnT7 play important role in progression of cardiac dysfunction via affecting sarco(endo)plasmic reticulum-mitochondria coupling in hyperglycemic cardiomyocytes**  
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- XXX. **A SGLT2 inhibitor dapagliflozin suppresses prolonged ventricular-repolarization through augmentation of mitochondrial function in insulin-resistant metabolic syndrome rats**  
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- XXXI. **Demonstration of subcellular migration of CK2 alpha localization from nucleus to sarco(endo)plasmic reticulum in mammalian cardiomyocytes under hyperglycemia**  
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- XXXII. **Intermittent hypoxia induces beneficial cardiovascular remodeling in left ventricular function of type 1 diabetic rat**  
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- XXXIII. **Increased free Zn<sup>2+</sup> correlates induction of sarco(endo)plasmic reticulum stress via altered expression levels of Zn<sup>2+</sup>-transporters in heart failure**  
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- XXXIV. **Cytosolic increased labile Zn<sup>2+</sup> contributes to arrhythmogenic action potentials in left ventricular cardiomyocytes through protein thiol oxidation and cellular ATP depletion**  
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- XXXV. **Onset of decreased heart work is correlated with increased heart rate and shortened QT interval in high-carbohydrate fed overweight rats**  
DURAK A., OLĞAR Y., TUNCAY E., Karaomerlioglu I., Mutlu G., ARIOĞLU İNAN E., Altan V. M., Turan B.  
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- XXXVI. **Impact of Labile Zinc on Heart Function: From Physiology to Pathophysiology**  
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- XXXVII. **European contribution to the study of ROS: A summary of the findings and prospects for the future from the COST action BM1203 (EU-ROS)**

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- XXXIX. **Hyperglycemia-Induced Changes in ZIP7 and ZnT7 Expression Cause Zn<sup>2+</sup> Release From the Sarco(endo)plasmic Reticulum and Mediate ER Stress in the Heart**  
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- XL. **Enhanced Antioxidant-Defense Preserves Cardiac Dysfunction via Regulation of Cytosolic Levels of Zn and Ca Ions in Hyperglycemic Cardiomyocytes**  
Turan B., TUNCAY E.  
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- XLI. **Both Reactive ROS and RNS Contribute to Intracellular Free Zn<sup>2+</sup> Regulation in Cardiomyocytes Via Zinc Transporter ZIP7 Under Hyperglycemia**  
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- XLII. **Interplay Between Cytosolic Free Zn<sup>2+</sup> and Mitochondrion Morphological Changes in Rat Ventricular Cardiomyocytes**  
BİLLUR D., TUNCAY E., Okatan E. N., OLęAR Y., Durak A., DEęİRMENCİ S., CAN B., Turan B.  
BIOLOGICAL TRACE ELEMENT RESEARCH, cilt.174, sa.1, ss.177-188, 2016 (SCI-Expanded)
- XLIII. **Intracellular Zn<sup>2+</sup> Increase in Cardiomyocytes Induces both Electrical and Mechanical Dysfunction in Heart via Endogenous Generation of Reactive Nitrogen Species**  
TUNCAY E., Turan B.  
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- XLIV. **Immuno-spin trapping detection of antioxidant/pro-oxidant properties of zinc or selenium on DNA and protein radical formation via hydrogen peroxide**  
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- XLV. **Profiling of cardiac beta-adrenoceptor subtypes in the cardiac left ventricle of rats with metabolic syndrome: Comparison with streptozotocin-induced diabetic rats**  
Okatan E. N., TUNCAY E., Hafez G., Turan B.  
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- XLVI. **Regulation of Cardiac beta(3)-Adrenergic Receptors in Hyperglycemia**  
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- XLVII. **Regulation of cardiac β3-adrenergic receptors in hyperglycemia**  
Turan B., TUNCAY E.  
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- XLVIII. **Beta-blocker timolol alleviates hyperglycemia-induced cardiac damage via inhibition of endoplasmic reticulum stress**  
ÇİÇEK F., Toy A., TUNCAY E., CAN B., Turan B.  
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- XLIX. **Long-term treatment with a beta-blocker timolol attenuates renal-damage in diabetic rats via enhancing kidney antioxidant-defense system**  
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- L. **Mitochondrial and ER-Targeted eCALWY Probes Reveal High Levels of Free Zn<sup>2+</sup>**  
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- LII. **Increased oxidative stress triggers marked intracellular zinc elevation in cardiomyocytes under hyperglycaemia**  
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Yayın: 101

Atıf (WoS): 1289

Atıf (Scopus): 1259

H-İndeks (WoS): 20

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