

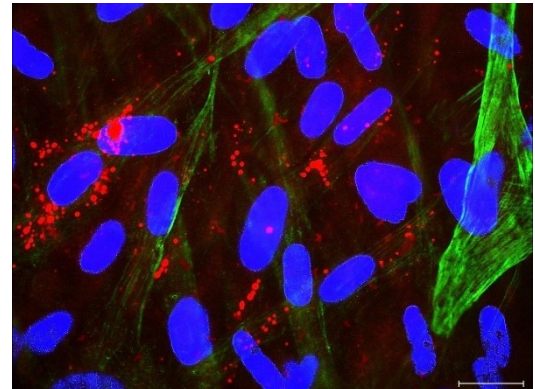


# Hücreyel Tedavi ve Kök Hücre Üretim, Uygulama ve Araştırma Merkezi ESTEM



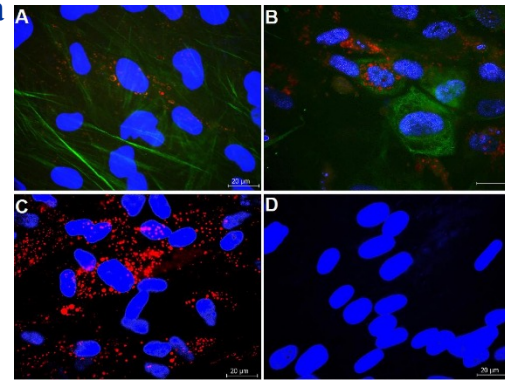
Sağlıkta Dijital Teknolojiler Çalıştayı  
8 Haziran 2023

# Hücresel Tedavi ve Kök Hücre Üretim, Uygulama ve Araştırma Merkezi ESTEM



- İnsan Kök Hücre Birimi
- Doku Mühendisliği ve Kök Hücre Kültürü
- Kanser ve İmmunofenotipleme Birimi
- Doku Mühendisliği ve Kryoprezervasyon Birimi
- İmmunohistokimya ve Mikroskopi Birimi

- Moleküler Biyoloji ve Gen Tedavileri Birimi
- Mikro-Elektromekanik Sistemler (MEMS) ve Doku Mühendisliği Birimi
  - Mikrofabrikasyon Temiz Oda Laboratuvarı
  - Mikroakışkan Laboratuvarı
  - Biyomalzeme Laboratuvarı
  - Biyosensör Laboratuvarı





# İnsan Kök Hücre Birimi

## Doku Mühendisliği ve Kök Hücre Kültürü



Omics Technologies and Bio-Engineering  
Towards Improving Quality of Life  
2018, Pages 391-429

Chapter 17 - Cell and Tissue Culture: The Base of Biotechnology

Onur Uysal, Tugba Sevimli, Murat Sevimli, Sibel Gunes, Ayla Eker Sariboyaci

Eskisehir Osmangazi University

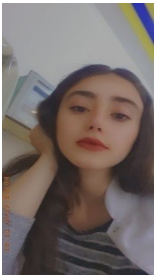
Available online 8 December 2017.

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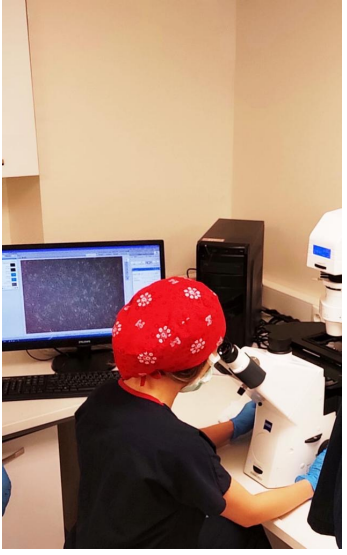
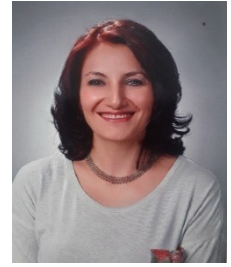
<https://doi.org/10.1016/j.oms.2017.12.001>

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# ➤ Kanser ve İmmunofenotipleme Birimi



Contents lists available at ScienceDirect

**Cytokine**

journal homepage: [www.elsevier.com/locate/cytokine](http://www.elsevier.com/locate/cytokine)

**Age-related changes in the immunomodulatory effects of human dental pulp derived mesenchymal stem cells on the CD4<sup>+</sup> T cell subsets**

Rabia Bilge Özgül Özdemir<sup>a</sup>, Alper Tunga Özdemir<sup>b,c</sup>, Cengiz Kırmaz<sup>d</sup>, Ayla Eker Sarıboyacı<sup>d</sup>, Erdal Karaoz<sup>e,f</sup>, Gülay Erman<sup>g</sup>, H. Seda Vatansever<sup>h,i</sup>, Nihal Mete Gökmen<sup>j</sup>

<sup>a</sup> Mardin City Hospital, Department of Allergy and Clinical Immunology, Mardin, Turkey  
<sup>b</sup> Merkezefendi State Hospital, Department of Medical Biochemistry, Mardin, Turkey  
<sup>c</sup> Mardin Celal Bayar University, Medical School, Department of Internal Medicine, Division of Allergy and Clinical Immunology, Mardin, Turkey  
<sup>d</sup> Kahramanmaraş Sutcuoglu University, Cellular Therapy and Stem Cell Production Application and Research Center, Kahramanmaraş, Turkey  
<sup>e</sup> Liv Hospital, Center of Regenerative Medicine and Stem Cell Research, Istanbul, Turkey  
<sup>f</sup> Jatisya University, Medical School, Department of Histology and Embryology, Istanbul, Turkey  
<sup>g</sup> Sakarya University, Medical School, Department of Medical Biology, Sakarya, Turkey  
<sup>h</sup> Mardin Celal Bayar University, Medical School, Department of Histology and Embryology, Mardin, Turkey  
<sup>i</sup> Near East University, Experimental Health Science Research Center, Nicosia, North Cyprus, Turkey  
<sup>j</sup> Ege University, Medical School, Department of Internal Medicine, Division of Immunology, Izmir, Turkey

**ARTICLE INFO**

**Keywords:**  
 Aging  
 Dental pulp  
 Mesenchymal stem cell  
 CD4<sup>+</sup> T cell  
 Immunomodulation

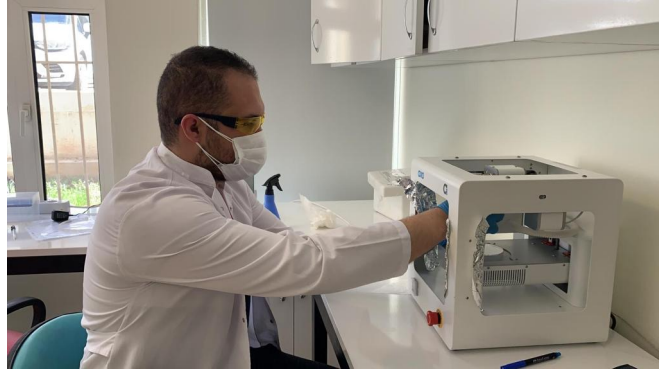
**ABSTRACT**

Mesenchymal stem cells (MSCs) are powerful immunomodulatory cells. The effects of the aging on these abilities of MSCs have not been adequately clarified. In this study, alterations in immunomodulatory abilities of MSCs caused by aging were investigated. For this, dental pulp (DP) MSCs and peripheral blood mononuclear cells (PBMCs) of elderly and young donors were co-cultured age-matched and cross. We detected that the effects of DP-MSCs on Th1 and Th2 cells and their specific cytokines IFN- $\gamma$  and IL-4 are not affected by aging. However, we observed that young and elderly DP-MSCs have different effects on Th17 and Treg cells. Th17 frequencies of young and elderly PBMCs were significantly increased only by young DP-MSCs. In contrast, Treg frequencies were significantly increased by elderly DP-MSCs. IL-6, IL-17a and HGF levels of both young and elderly PBMCs showed a significant increase only by young DP-MSCs, but TGF- $\beta$  levels were significantly increased only by elderly DP-MSCs. The oral cavity is home to a rich microflora. The interactions of dental tissues with this microflora can lead them to acquire different epigenetic modifications. Aging can affect the microflora composition of the oral cavity and change this process in different directions. According to our findings, DP-MSCs are effective cells in the regulation of CD4<sup>+</sup> T cells, and their effects on Th17 and Treg cells were not affected by





# ➤ Doku Mühendisliği ve Kryoprezervasyon Birimi



Colloids and Surfaces B: Biointerfaces 223 (2023) 113197

Contents lists available at ScienceDirect

**Colloids and Surfaces B: Biointerfaces**

journal homepage: [www.elsevier.com/locate/colsurfb](http://www.elsevier.com/locate/colsurfb)

**A multifunctional sateen woven dressings for treatment of skin injuries**

Ceren Ozel<sup>a,b,1</sup>, Elif Apaydin<sup>b,c</sup>, Ayla Eker Sariboyaci<sup>a,b</sup>, Ali Tamayol<sup>d,\*</sup>, Huseyin Avcı<sup>b,e,f,\*\*</sup>

<sup>a</sup> Department of Stem Cell, Institute of Health Sciences, Eskişehir Osmangazi University, Eskişehir 26040, Turkey  
<sup>b</sup> Cellular Therapy and Stem Cell Production Application and Research Center (ESTEM), Eskişehir Osmangazi University, Eskişehir 26040, Turkey  
<sup>c</sup> Department of Biochemistry, Institute of Health Sciences, Anadolu University, Eskişehir 26470, Turkey  
<sup>d</sup> Department of Biomedical Engineering, University of Connecticut Health Center, Farmington, CT 06269, USA  
<sup>e</sup> Department of Metallurgical and Materials Engineering, Eskişehir Osmangazi University, Eskişehir 26040, Turkey  
<sup>f</sup> Translational Medicine Research and Clinical Center (TATUM), Eskişehir Osmangazi University, Eskişehir 26040, Turkey

**ARTICLE INFO**

**Keywords:**  
Wound dressing  
Composite cell-laden fiber  
Mesenchymal stem cells  
Biotextiles  
Antimicrobial

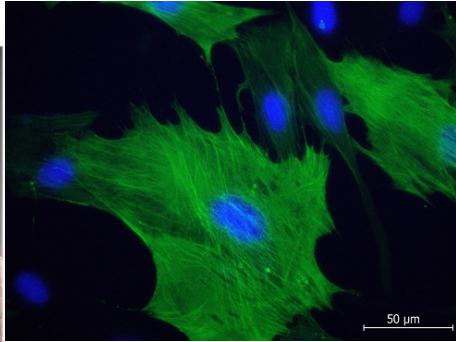
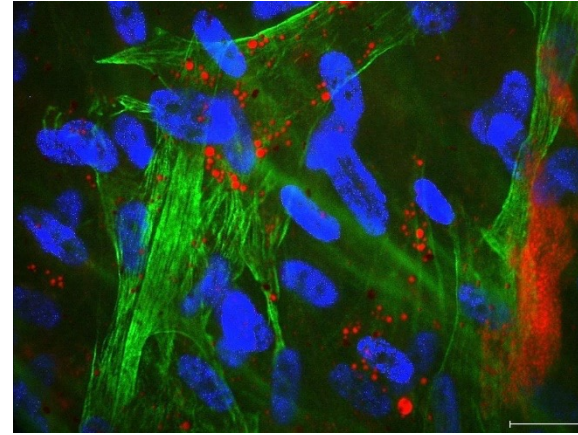
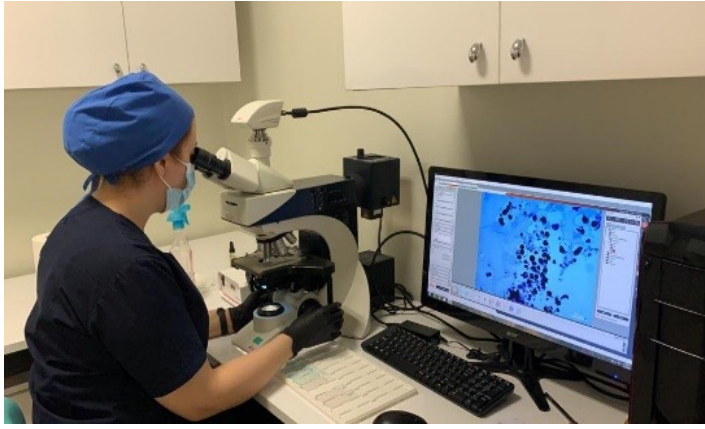
**ABSTRACT**

Cutaneous wounds with impaired healing such as diabetic ulcers and burns constitute major and rapidly growing threat to healthcare systems worldwide. Accelerating wound healing requires the delivery of biological factors that induce angiogenesis, support cellular proliferation, and modulate inflammation while minimizing infection. In this study, we engineered a dressing made by weaving of composite fibers (CFs) carrying mesenchymal stem





# ➤ İmmunohistokimya ve Mikroskopi Birimi



Article

## Differentiation Potential of Mouse Embryonic Stem Cells into Insulin Producing Cells in Pancreatic Islet Microenvironment

Authors: I. Yılmaz<sup>1,2</sup>, A. E. Sarıboycu<sup>1,3</sup>, C. Subasi<sup>1,2</sup>, E. Karaoz<sup>1,2</sup>

Affiliations:  
<sup>1</sup> Center for Stem Cell and Gene Therapies Research and Practice, Institute of Health Sciences, Stem Cell Department, Kocaeli University, Kocaeli, Turkey  
<sup>2</sup> Center for Regenerative Medicine and Stem Cell Research & Manufacturing (LivMedCell), Liv Hospital, Istanbul, Turkey  
<sup>3</sup> Vocational School of Health Services, Eskişehir Osmangazi University, Eskişehir, Turkey

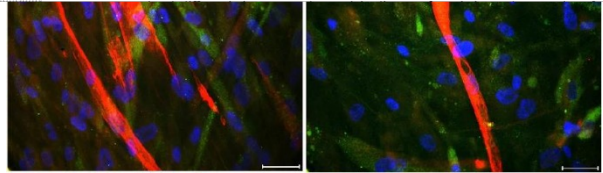
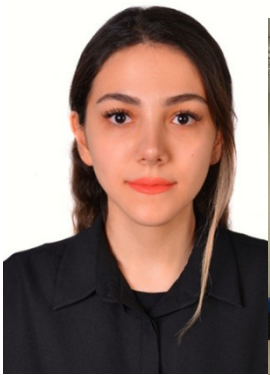
Key words:  
 differentiation  
 co-culture  
 microenvironment  
 mouse pancreatic islets  
 embryonic stem cells  
 insulin producing cells

Abstract  
 Background: The differentiation capacity of embryonic stem cells (ESCs) has great promise for type-1 diabetes for cellular treatment. Therefore, different strategies have been reported so far for derivation of insulin producing cells (IPCs) from ESCs. Providing similar microenvironmental conditions as in vivo, functional differentiation of stem cells into desired cell types could be obtained in vitro. The aim of the present research was to utilize differentiation potential of ESCs to IPCs by co-culture with mouse pancreatic islets (mPIs) for the first time.  
 Methods: We present an in-direct differentiation protocol which compared with a conven-

supplementing the differentiation media with specific growth factors. We analyzed differentiated cells in both groups by immune labelling, gene expression and protein secretion.  
 Results: IPCs were obtained with in-direct co-culture within 30 days. Differentiated ESCs were found to be positive for IPC specific markers, Pdx1, Insulin, C-peptide, Glut2 and MafA. The results of immunocytochemical and gene expression analysis showed higher differentiation efficiency in co-culture group than chemical differentiation group. These results were confirmed by the response assay to high glucose levels with ELISA for insulin.  
 Discussion: Our findings illustrate the significant effect of co-culture in different stages of dif-

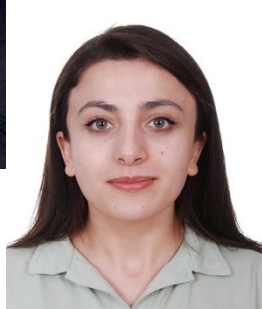
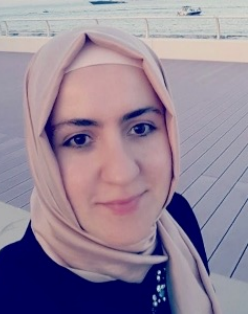
received 24.12.2014  
 first decision 30.04.2015  
 accepted 03.06.2015

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# ➤ Moleküler Biyoloji ve Gen Tedavileri Birimi



Medical Oncology (2021) 38:146  
<https://doi.org/10.1007/s12032-021-01595-7>

ORIGINAL PAPER



## Enhancement of Apo2L/TRAIL signaling pathway receptors by the activation of Klotho gene with CRISPR/Cas9 in Caco-2 colon cancer cells

Sibel Gunes<sup>1,2</sup> · Merve Nur Soykan<sup>1,2</sup> · Ayla Eker Sariboyaci<sup>1,2</sup> · Onur Uysal<sup>1,2</sup> · Tugba Semerci Sevimli<sup>1,2</sup>

Received: 28 August 2021 / Accepted: 29 September 2021 / Published online: 23 October 2021  
© Springer Science+Business Media, LLC, part of Springer Nature 2021

### Abstract

Human Klotho gene has many known functions such as anti-aging and anti-tumor, and decreased expression of this gene causes malignant formations in most types of cancer, including colon cancer. Interacting with TRAIL death receptors (DR4 and DR5) induces an apoptotic effect in cancer treatments by reducing the proliferation of cancer cells. The present study aimed to investigate downstream effect of overexpression of Klotho gene, which is known to have an antitumor effect on resistant human colon cancer cells, by examining its action on TRAIL death and decoy (DcR1 and DcR2) receptors for the first time. For this purpose, upregulation of human Klotho gene was achieved with CRISPR/Cas9-mediated system in resistant human colon cancer Caco-2 cells. To determine the effect of upregulation of Klotho gene on cancer cells evaluations with flow cytometry, WST-8, qRT-PCR, ELISA, and immunohistochemical analysis were performed. Then, Klotho gene was knocked out and its apoptotic effect was tested to find out whether it is due to overexpression of Klotho gene or not. Our results indicate that overexpression of Klotho gene in Caco-2 cells via CRISPR/Cas9-sensitized TRAIL death receptor DR4 suppresses the proliferation of cells by leading to apoptosis. Thus, this study conducted on apoptosis-resistant colon cancer cells may bring new insights about the role of Klotho gene in colon cancer.

**Keywords** Klotho · Colon cancer · Caco-2 cells · CRISPR/Cas9 · TRAIL death receptor

Introduction



T.C.  
ESKİŞEHİR OSMANGAZI ÜNİVERSİTESİ  
SAĞLIK BİLİMLERİ ENSTİTÜSÜ



## KÖK HÜCRE AD YÜKSEK LİSANS VE DOKTORA PROGRAMI

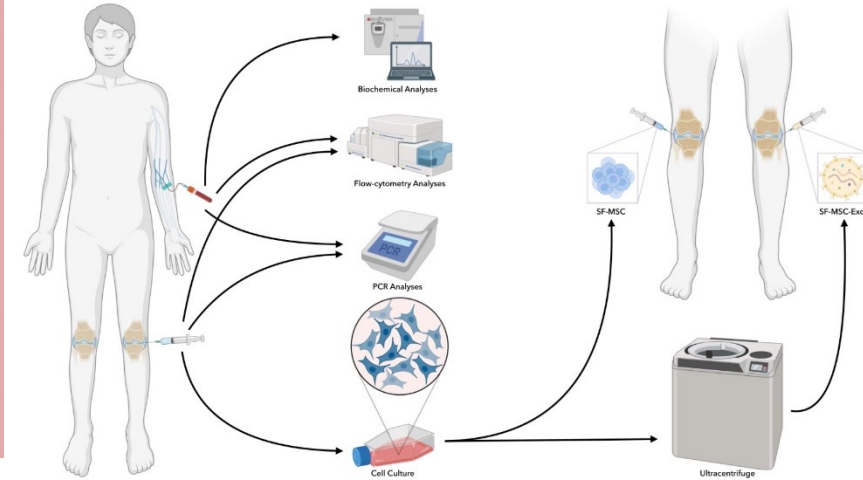
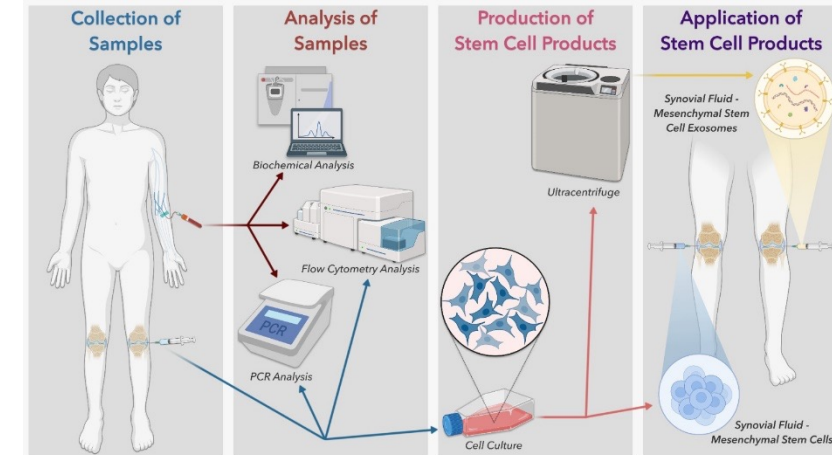
- Yüksek Lisans Programı Toplam Öğrenci Sayısı: 45
- Doktora Programı Toplam Öğrenci Sayısı: 35
- Doktora Sonrası Araştırmacı Sayısı: 9
- TÜBİTAK 2218 Programı ile Desteklenen Misafir Araştırmacı Sayısı: 5
- YÖK100/2000 Bursu ile Desteklenen Doktora Öğrenci Sayısı: 5
- TÜBİTAK BİÇABA Bursiyer Öğrenci Sayısı: 9



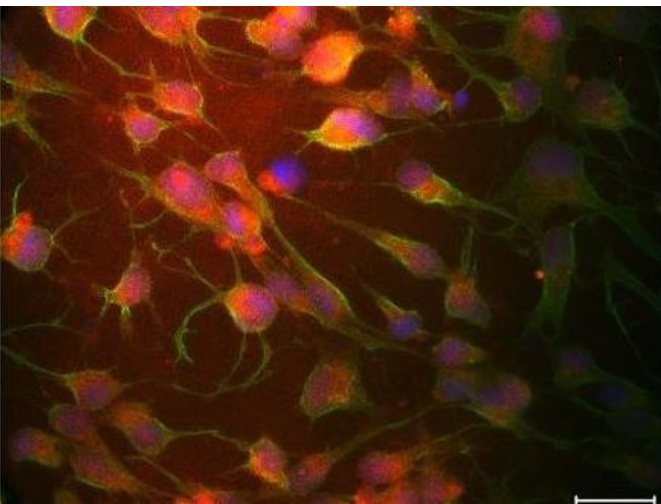


## TÜBİTAK, ULUSLARARASI İKİLİ İŞBİRLİĞİ, TÜSEB, ESOGÜ-BAP PROJELERİ

- TÜBİTAK: 25
- ULUSLARARASI İKİLİ İŞBİRLİĞİ: 1
- TÜSEB: 4
- ESOĞÜ-BAP: 30



Inclusion Criteria	Exclusion Criteria
All Genders	Patients who requiring surgical treatment
30 Years to 50 Years	Active neurological disorder
Absence of history of malignancy	Local or systemic infection
Absence of signs of unstable meniscus tear	Active heart disease
Absence of lower extremity malalignment	Presence of a pacemaker
To having degenerative meniscus damage grade 1, 2 or 3	Uncontrolled endocrine disorder
To having same degenerative meniscus grade in both knees	Active inflammatory disease
Patients who do not want surgical treatment	Active connective tissue disease
To having ongoing pain	Pregnancy or breastfeeding
Stage 0, 1 or 2 gonarthrosis	Conditions that MR-1 is contraindicated
	Congenital lesion of the knees
	Stage 3 or 4 gonarthrosis





# Menisküs hasarlı hastaların tedavisinde kök hücre kaynaklı eksozom tedavi protokolünün geliştirilmesi

**Araştırma Programı Koordinatörü Kuruluş:**  
**HücreSEL ve Kök Hücre Üretimi Uygulama ve Araştırma Merkezi (ESTEM)**  
**Eskişehir Osmangazi Üniversitesi**

**Yürütücü:**  
**Doç. Dr. Ayla Eker Sarıboyacı**

**Süre:**  
**48 Ay**

## Amacı:

THS-5 seviyesinde olan “Menisküs hasarlı hastaların tedavisinde kök hücre kaynaklı eksozom tedavi protokolü”nün, THS-7 seviyesine getirilmesi, özel sektöre transfer edilebilecek bir -teknoloji - olarak geliştirilmesi ve ticari bir tedavi protokolü olarak ruhsatlandırılmasıdır.



**T.C. SAĞLIK BAKANLIĞI**  
**TÜRKİYE İLAÇ VE**  
**TIBBİ CİHAZ KURUMU**



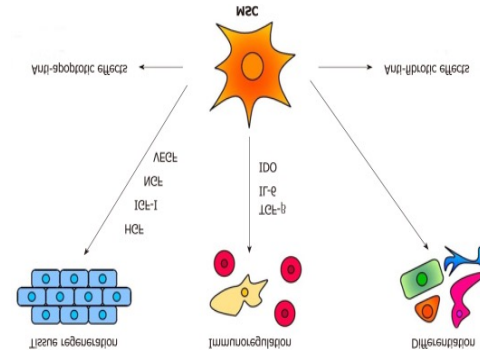
**Mevcut THS: 5**

**Hedeflenen THS: 7**



T.C.  
SAĞLIK BAKANLIĞI  
Sağlık Hizmetleri Genel Müdürlüğü

**Sayı: T.C. Sağlık Bakanlığı-29/03/2019 tarih ve 56733164/203 sayı**



# Klinik Teşhis için 3B Karaciğer Çip Kitinin Geliştirilmesi: Kişiselleştirilmiş İlaç Taraması ve Teşhisi

**Araştırma Programı Koordinatörü Kuruluş:**  
Hücreyel ve Kök Hücre Üretimi Uygulama ve Araştırma Merkezi (ESTEM)  
Eskişehir Osmangazi Üniversitesi

Mevcut THS: 3

Hedef THS: 5

**Yürütücü:**  
Doç. Dr. Hüseyin AVCI

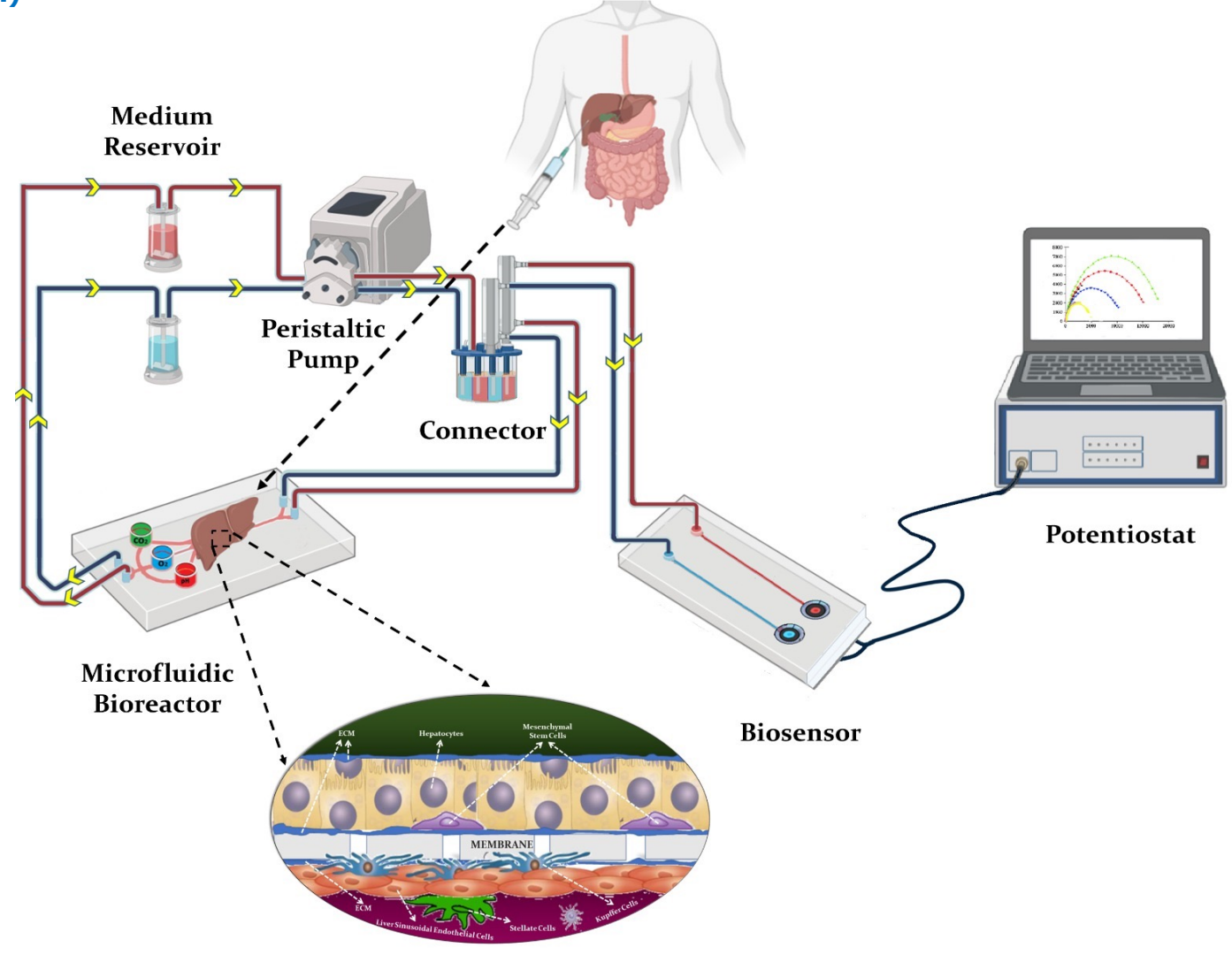
**Süre:**  
48ay

## Amaç:

İnsandakine benzer mikroyapı ve fizyolojide çip üzerinde karaciğer modelli üretimi

**İlaç kullanımı** esnasında karaciğerde oluşma ihtimali olan **hasarın klinik tanısının**

erken, hızlı, hassas ve anlık ölçümlerle, **piyasaya sürülmeden tespiti**





**Proje Başlığı: İnsan Sinoviyal Sıvı Kaynaklı Mezenkimal Kök Hücre Tedavisi Uygulanan Hastaların Tedavi Öncesi ve Sonrası Sinoviyal Sıvı ve Periferik Kanında Osteoartrit Tanı ve Tedavi Biyobelirteçlerinin Araştırılması**

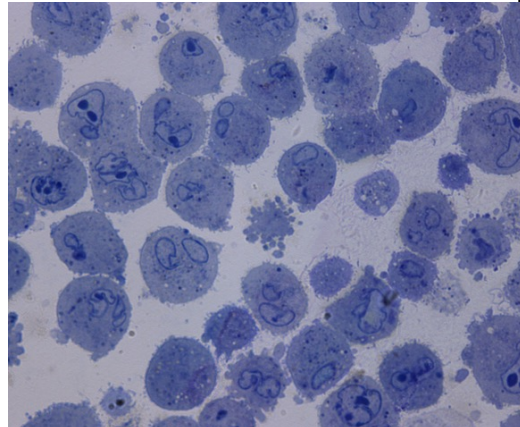
**Araştırma Programı Koordinatörü Kuruluş:**

**ESTEM**

**Eskişehir Osmangazi Üniversitesi**

**TÜBİTAK 2218**

**Yürütücü:**  
**Dr. Burcuğül Altuğ Tasa**



**Proje Başlığı: Manyetik Nanopartiküllerin Eksozom ve Anti Kanser Ajanlar ile Kombinasyonlarının Akciğer Kanser/Kök Hücrelerindeki Etkisinin Araştırılması**

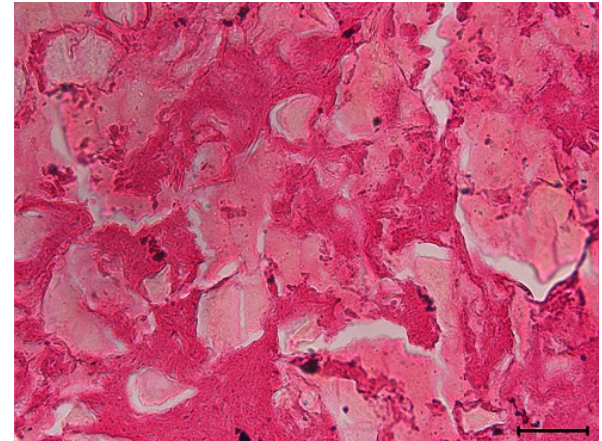
**Araştırma Programı Koordinatörü Kuruluş:**

**ESTEM**

**Eskişehir Osmangazi Üniversitesi**

**TÜBİTAK 2218**

**Yürütücü:**  
**Dr. Bahar DEMİR CEVİZLİDERE**





## Yüksek entropili TiTaHfNbZr alaşımının yüzeyinin femtosaniye lazer ile işlenerek alternatif bir ortopedik implant malzemesi olarak geliştirilmesi

**Araştırma Programı Koordinatörü Kuruluş:**  
**ESTEM**  
**Üretim Metalürjisi AD**  
**Eskişehir Osmangazi Üniversitesi**  
**TÜBİTAK 3501**

**Yürütücü:**  
**Dr. Öğr. Üyesi Sıdıka Mine Toker**

**Süre:**  
**24 Ay**

### **Amacı:**

Yeni nesil biyomedikal olarak umut vaat eden TiTaHfNbZr alaşımların yüzeyini lazer işleme yöntemleri ile pürüzlendirerek yüksek mukavemet ile elastik uyum özelliklerine ek olarak osseintegrasyon özellikleri iyileştirilmiş bir biyomedikal alaşım geliştirmek amaçlanmaktadır. Bu amaçla TiTaHfNbZr alaşımını yüzeyinde desenler oluşturularak pürüzlendirme yapılacaktır.

Oluşturulan desenlerin farklı özellikleriyle biyouyumluluk üzerindeki etkileri ex situ ve in vitro deneyler ile test edilecektir.

## Kısa barsak sendromu tedavisinde terapötik miRNA transfekte Wharton jeli kaynaklı mezenkimal kök hücre uygulaması: Kapsülleme teknolojisinin sıçan modelinde oral uygulaması

**Araştırma Programı Koordinatörü Kuruluş:**  
**ESTEM**  
**Genel Cerrahi AD**  
**Eskişehir Osmangazi Üniversitesi**  
**TÜBİTAK 1001**

**Yürütücü:**  
**Doç. Dr. Ayla Eker SARIBOYACI**

**Süre:**  
**24 Ay**

### **Amacı:**

Kısa barsak sendromu ilişkili intestinal yetmezlik oluşturulmuş sıçan modelinde etkin bir terapötik yaklaşım olarak, hsa-miR-30d-5p ile transfekte edilen WJ-MKH'lerin, sıcaklık ve pH-kontrolü sağlayacak moleküllerle/polimerik sistemle enkapsüle edilerek hedef bölgeye kontrollü taşınması tasarlanmış ve terapötik etkisinin analiz edilmesi amaçlanmıştır.

İlk kez kısa barsak sendromlu hayvanlarda özellikle uygulama bölgesine ulaşımda ve hücrelerin dejenere bölgede yeterince kalabilmelerindeki zorluklara çözüm getirilerek barsak rejenerasyonunu hedefleyen WJ-MKH tedavisi hedeflenmiştir.

# Oküler Yüzeyin Kimyasal Yaralanmasında Plateletten Zengin Plazma Yüklü Bioadeziv Hidrojel Üretimi; iCo-Reg Hidrojel'in Pre-Klinik Kavram Kanıt Çalışması

## Araştırma Programı Koordinatörü Kuruluş:

Göz Hastalıkları AD.

Hücrel ve Kök Hücre Üretimi Uygulama ve Araştırma Merkezi (ESTEM)

Eskişehir Osmangazi Üniversitesi

Göz Hastalıkları AD

TÜBİTAK 3501

Yürütücü:

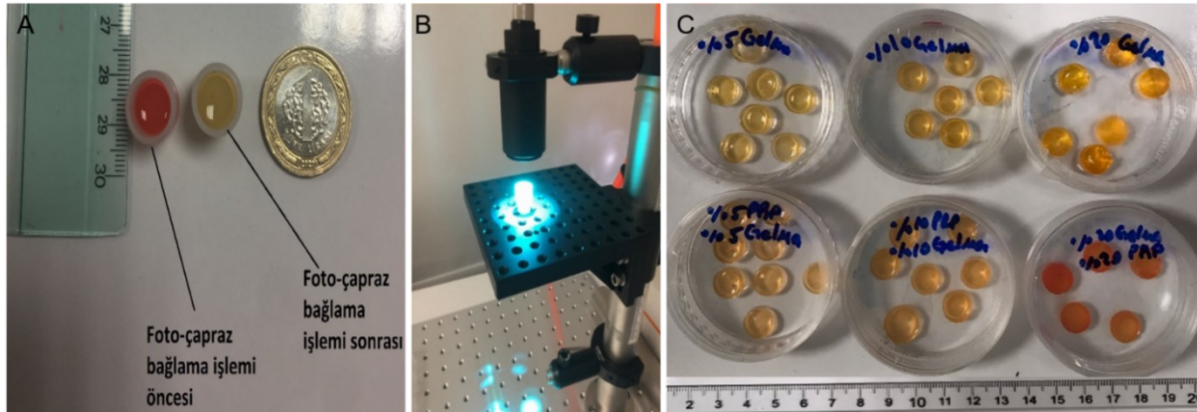
Doç. Dr. Eray Atalay

Süre:

24 Ay

## Amacı:

İlk defa proje ekibi tarafından üretilen olan PRP içerikli hidrojel (iCo-Reg hidrojel); tamamen sütürsüz bir şekilde göz yüzeyine uygulanabilir özellikte ve biyouyumludur. Göz üzerinde kaldığı süre boyunca hasarlı kornea ve konjonktiva dokusunun ihtiyacı olan ve içeriğinde bulunan büyüme faktörlerini yavaş ve devamlı bir şekilde kontrollü salarak etkisini gösterecektir. iCo-Reg hidrojel ile GelMA'nın kapatıcı özelliği, PRP'nin ise rejeneratif içerikleri birleştirilerek kornea yara yeri iyileşmesini hızlandırıcı ve limbal kök hücrelerini koruyucu bir biyomalzeme olarak üretilen olacaktır.



## Küçük Hücreli Dışı Akciğer Kanseri (KHDAK) Kökenli Kanser Kök Hücrelerinde (Stem-Like NSCLC Cells) Epitelyal Mezenkimal Geçişte Borik Asitin Etkilerinin İncelenmesi.

**Araştırma Programı Koordinatörü Kuruluş:**

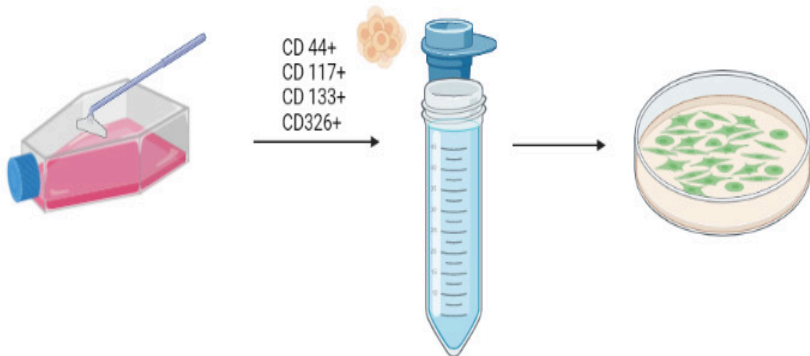
**ESTEM**

**Eskişehir Osmangazi Üniversitesi**

**BAP Koordinatörlüğü**

**Yürütücü:**  
**Öğr. Gör. Dr. Tuğba Semerci Sevimli**

**Süre:**  
**24 Ay**



## Küçük hücreli olmayan akciğer kanser hücresi-kökenli kanseri kök hücrelerinde miRNA 200 ailesi ekspresyon profilinin incelenmesi

**Araştırma Programı Koordinatörü Kuruluş:**

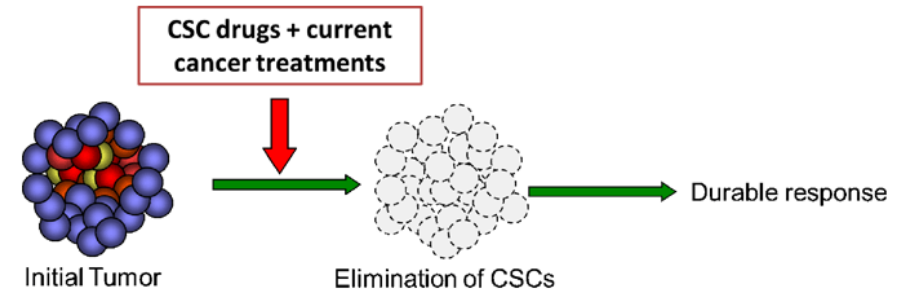
**ESTEM**

**Eskişehir Osmangazi Üniversitesi**

**BAP Koordinatörlüğü**

**Yürütücü:**  
**Dr. Öğretim Üyesi Onur Uysal**

**Süre:**  
**24 Ay**



# Dirençli akciğer kanser kök hücrelerine moleküler mühendislik ile hedeflendirilmiş eksozom-enkapsüle siRNA'larla hücrelerdeki ilaç direncinin önlenmesi

**Araştırma Programı Koordinatörü Kuruluş:**

**ESTEM**

**Onkoloji AD**

**Eskişehir Osmangazi Üniversitesi**

**TÜBİTAK 1002**

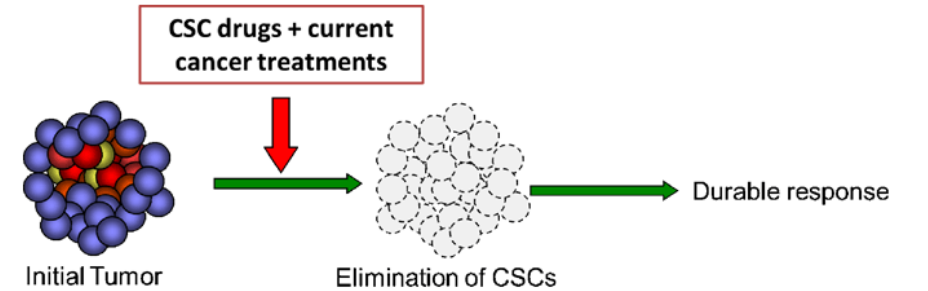
**Yürütücü:**

**Prof. Dr. Murat Dinçer**

**Süre:**

**12 Ay**

## Hedeflendirilmiş kanser kök hücre terapisi



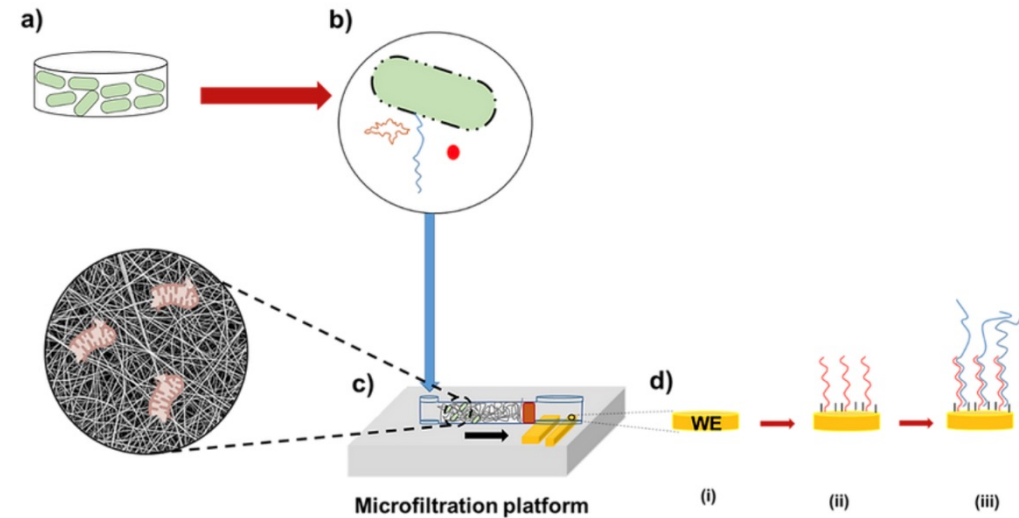


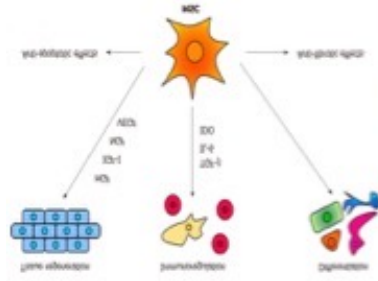
# MEMS ve Doku Mühendisliği





- Nanolif uretimi
- Biosensor
- Filtrasyon uygulamalari
- Kontrollu ilac salinimi





# ESOGÜ AVCİBİO

## MÜHENDİSLİKTE TİPA

**Biyomalzeme Araştırma ve Geliştirme Laboratuvarı (AvcıBio)**, Metalurji ve Malzeme Mühendisliği, Hücreleri Tedavi ve Kök Hücre Üretim Uygulama ve Araştırma Merkezi (ESTEM), Biyomedikal Mühendisliği ve Translasyonel Tıp Uygulama ve Araştırma Merkezi tarafından Eskişehir Osmangazi Üniversitesi'nde kuruldu.

Özellikle ESTEM bünyesinde kurulan laboratuvarlardaki ekip üyeleri **farklı mühendislik, temel bilimler ve tıp doktorlarından oluşuyor.**

**Asistanlar:**  
**Asistanlar:**

### YENİLİKÇİ TEKNOLOJİLER ÜRETİLİYOR

**Laboratuvar araştırma grubu; temel bilimler, mühendislik ve translasyonel bilimlerine kadar geniş alanda çalışma alanlarına sahiptir.**



### GRUBUN ÇALIŞMA ALANLARI

- AvcıBio araştırma grubu hücrelerle birlikte çalıştığı konularda disiplinler arası araştırma yapmaktadır.
- Çiğ içerisinde organ.
- Çiğ içerisinde laboratuvar.
- Biyosensör (özellikle elektrokimyasal biosensörler).
- Nanofiberler, hidrojel.
- İlaç salınım sistemleri.
- Mikroskopik çip tasarımı ve üretimi (Photolithography, Soft Lithography).
- Mikelleme bazlı moleküler için Laser kesme ve kazınma.
- Elektrokimyasal analizler.
- Biyotekstil vb.

### AMACI

Sektör ile iş birliği içinde sağlık alanında ilaç geliştirme ve biyomedikal teknolojilerde temel bilimlere dayanarak insan vücudundaki hedef doku ve organı tanımlayan platformlar oluşturmak hedefi arasında.

Bu anlamda halihazırda TÜBİTAK Mükemmeliyet Merkezi Destek Programı kapsamında çığır açıcı bir projeye ilk aşamaya giren Eskişehir'deki öncül çalışmalarımız devam etmektedir.



Jan 11, 2022, 05:00am EST | 102,578 views

## Moral Progress Denied By FDA Leadership: New 'OOC' Technology Could Have Allowed The FDA To Abandon Its Cruel Animal Testing Requirements.



Dr. David Gortler | FDA Drug Safety & Investigational Medicine News Contributor

Healthcare

Former FDA Medical Officer and Senior Advisor to the FDA Commissioner

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KYIV, UKRAINE - 2021/09/05: An animal protection activist holds a placard reading "Animal Lives ... [+] SOPA IMAGES/LIGHTROCKET VIA GETTY IMAGES



the [#FDAModernizationAct of 2021](#), which would update drug-testing regulatory standards for the first time in nearly 100 years.



## FDA no longer needs to require animal tests before human drug trials

New law welcomed by animal welfare groups, but others say change won't happen fast

10 JAN 2023 · 5:30 PM · BY MEREDITH WADMAN

New medicines need not be tested in animals to receive U.S. Food and Drug Administration (FDA) approval, according to legislation signed by President Joe Biden in late December 2022. The change—long sought by animal welfare organizations—could signal a major shift away from animal use after more than 80 years of drug safety regulation.

“This is huge,” says Tamara Drake, director of research and regulatory policy at the Center for a Humane Economy, a nonprofit animal welfare organization and key driver of the legislation. “It’s a win for industry. It’s a win for patients in need of cures.”

In place of the 1938 stipulation that potential drugs be tested for safety and efficacy in animals, **the law** allows FDA to promote a drug or biologic—a larger molecule such as an antibody—to human trials after either animal or nonanimal tests. Drake’s group and the nonprofit Animal Wellness Action, **among others** that pushed for changes, argue that in clearing drugs for human trials the agency should rely more heavily on computer modeling, “organ chips,” and other nonanimal methods that have been developed over the past 10 to 15 years.



Tens of thousands of rodents are used by companies for drug toxicity testing each year. IEVGEN CHABANOV/ALAMY



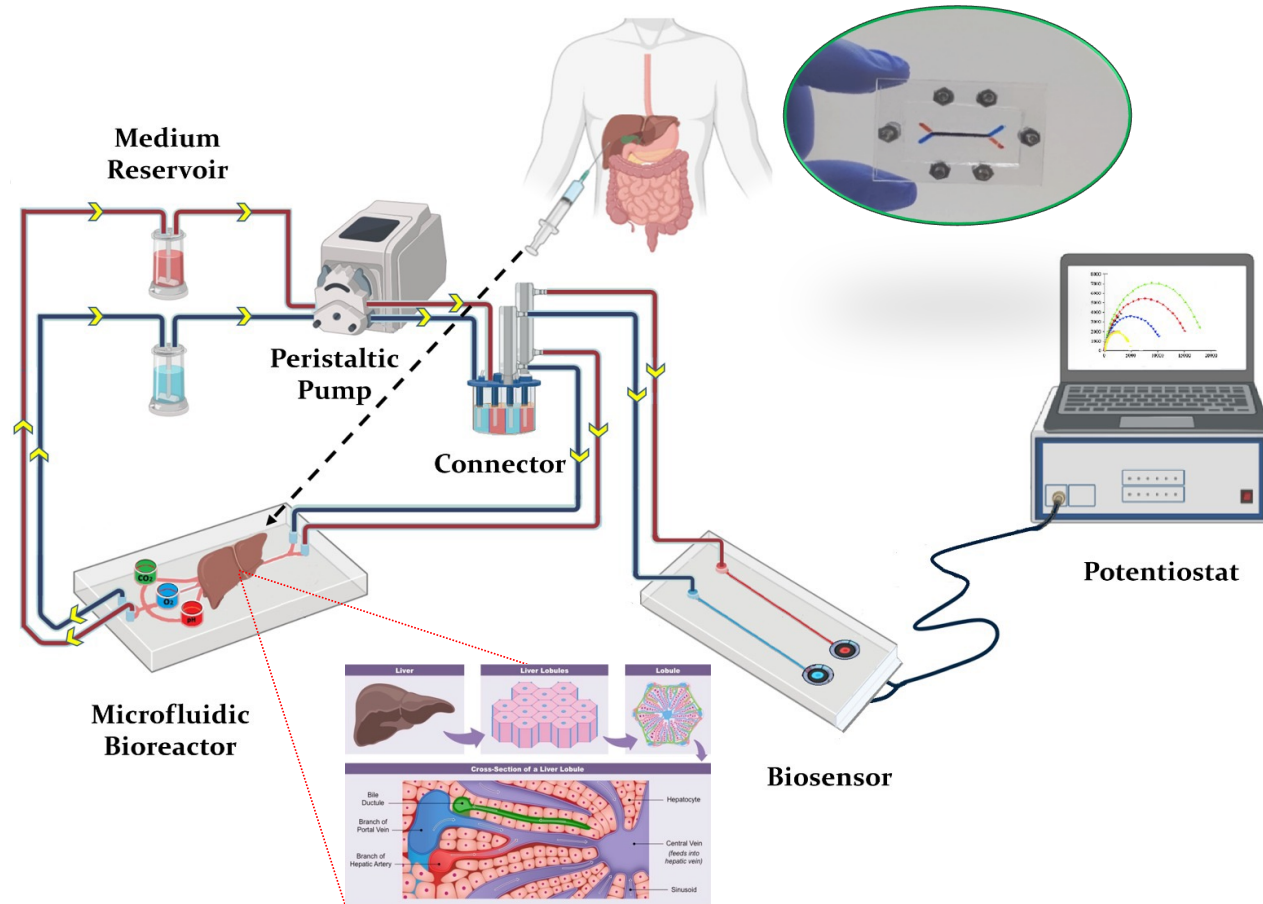
A version of this story appeared in Science, Vol 379, Issue 6628.



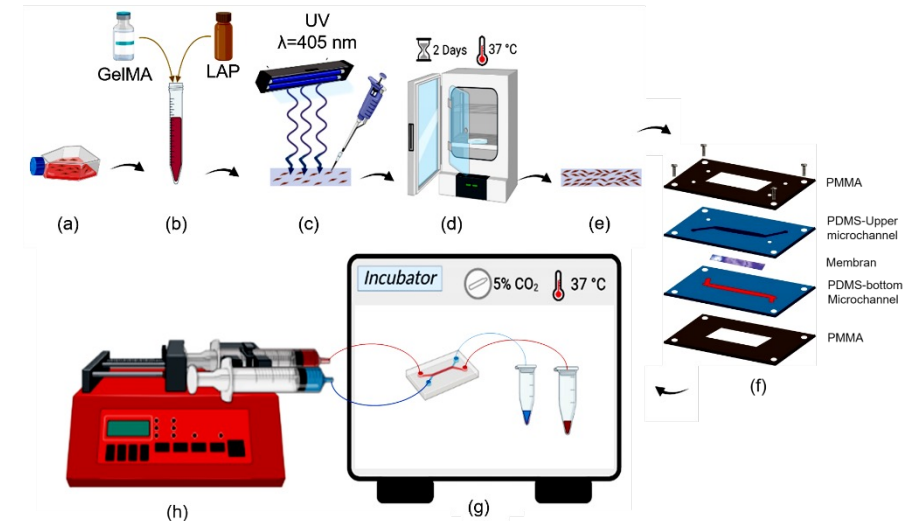
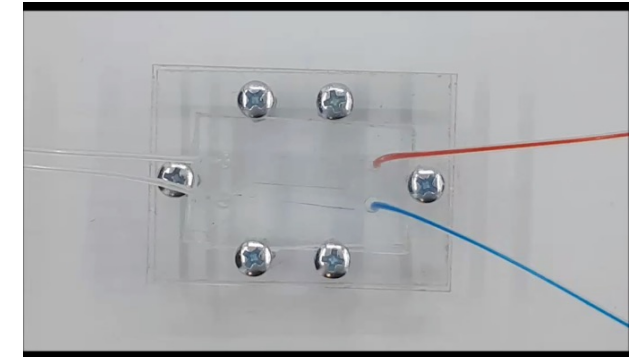
Got a tip for Science's news department?

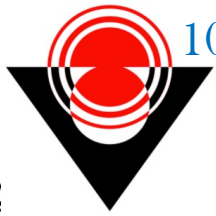
[CONNECT >](#)

# Personalized liver on a chip platform



! Mimic dynamic and micro-environment!

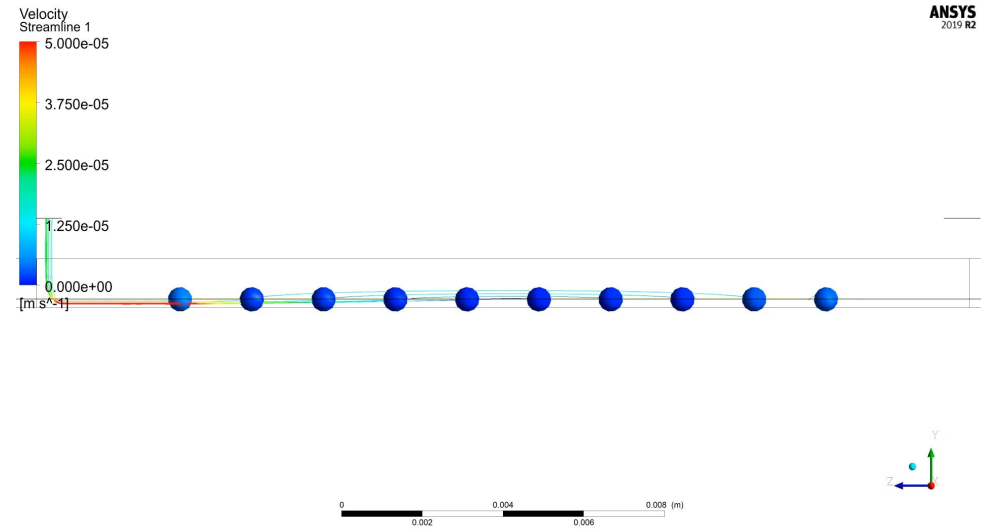
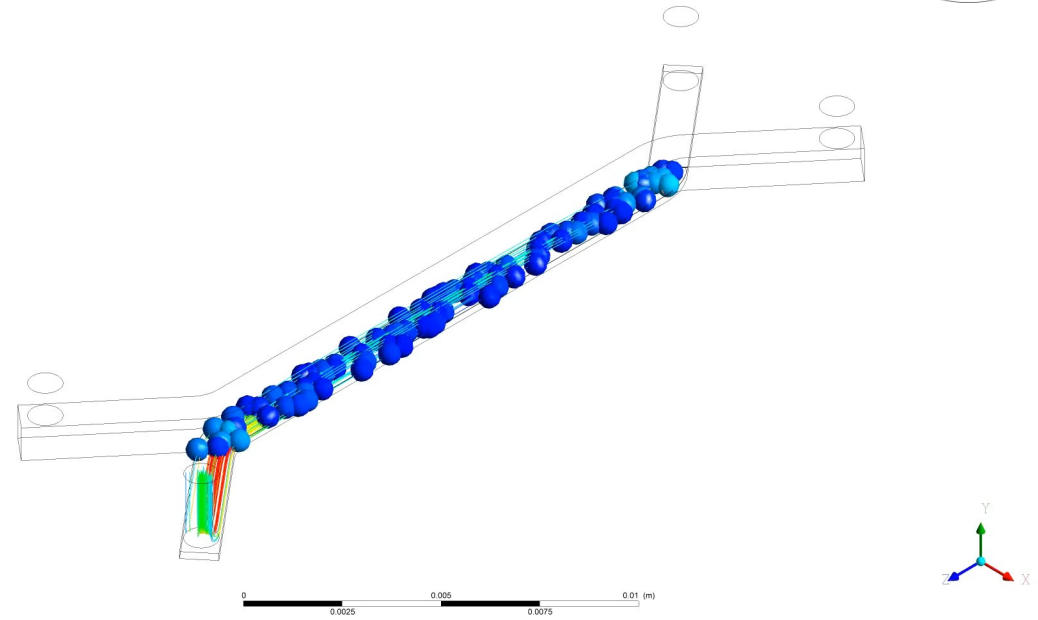
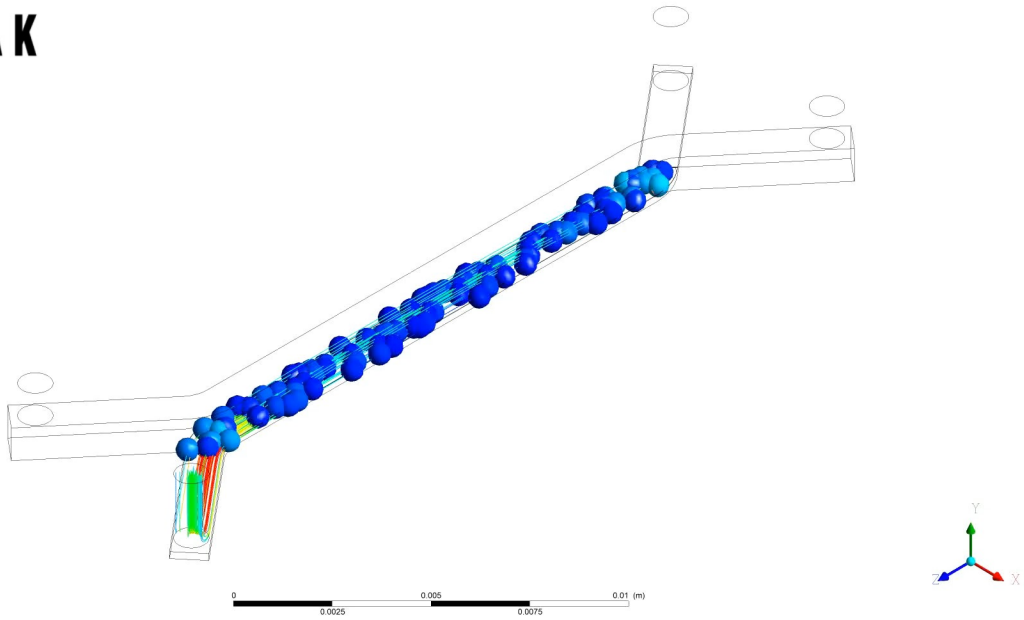
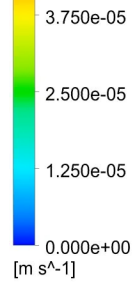


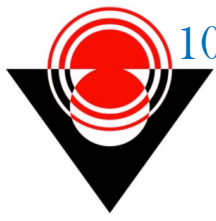


# Simulation of Microfluidic Chip



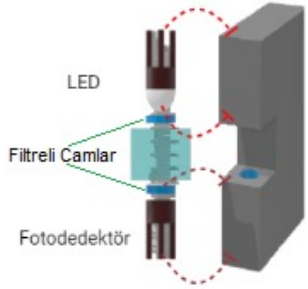
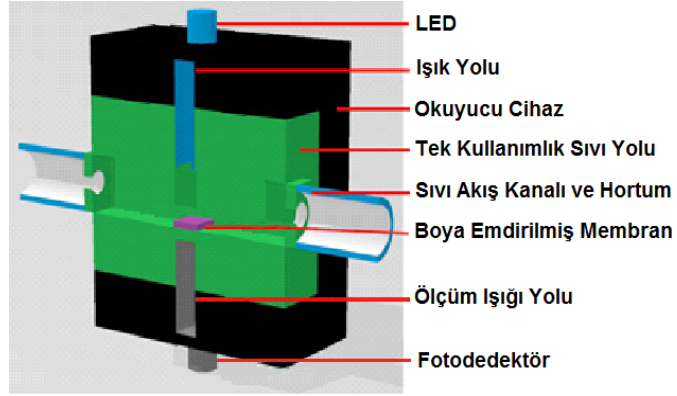
TÜBİTAK



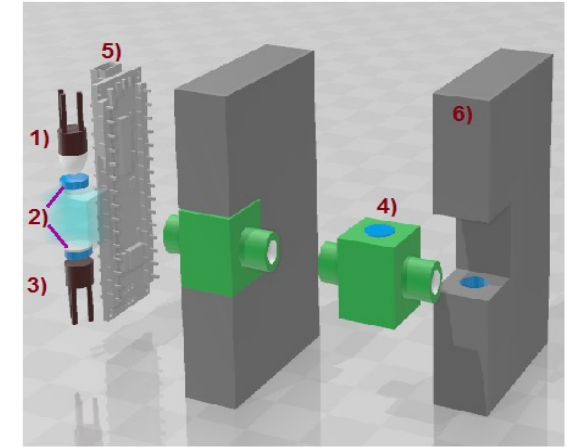
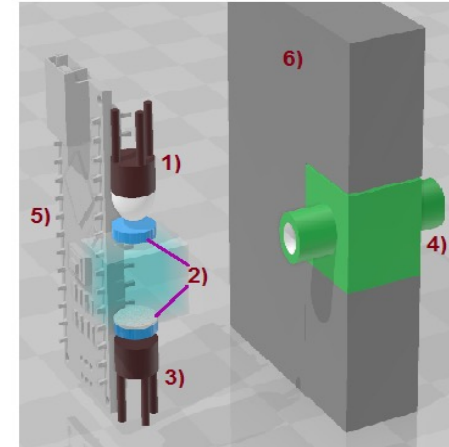
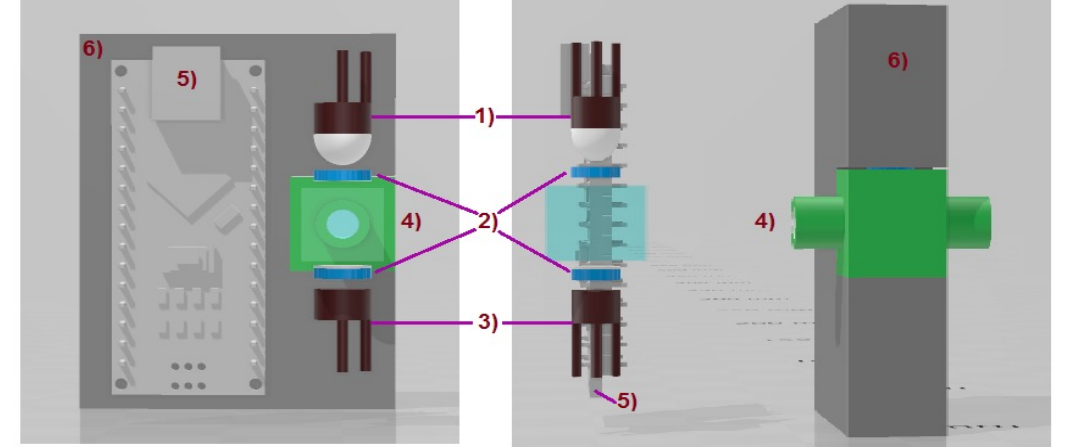
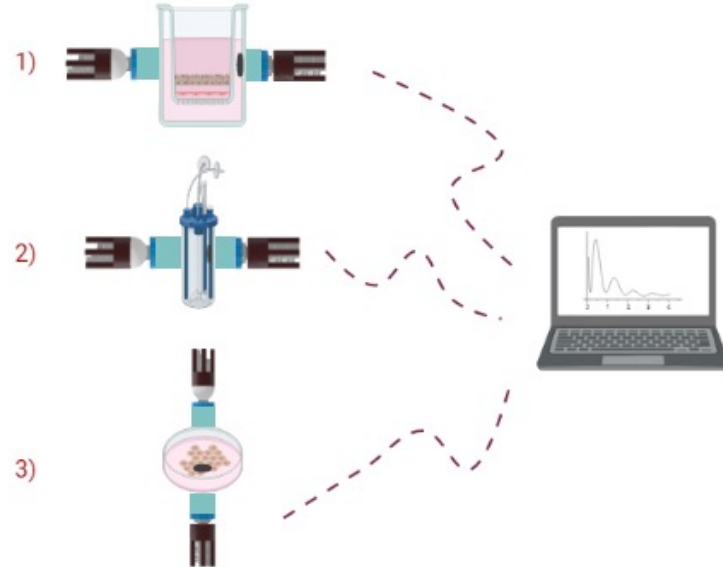


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# Optical Based pH Sensor for Continuous and High Sensitivity pH Measurement in Different Cell Media Environments

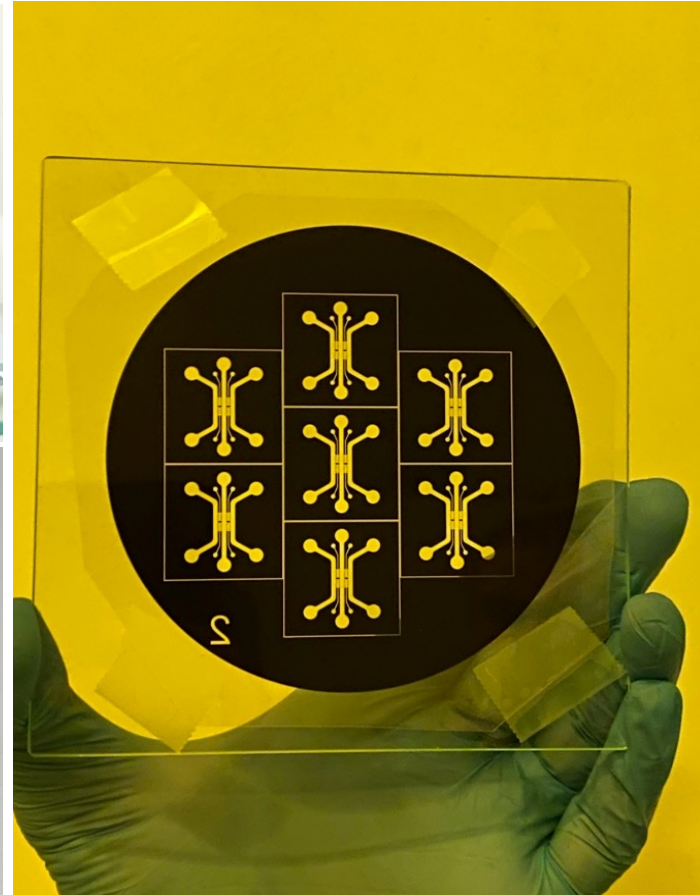
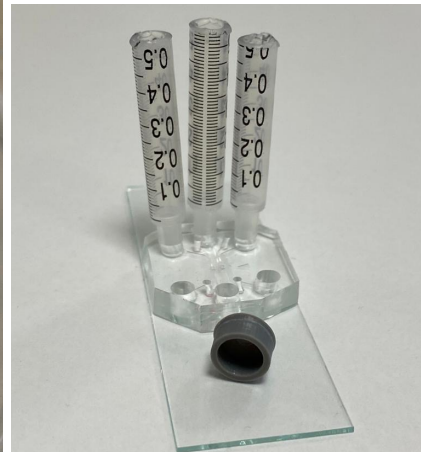
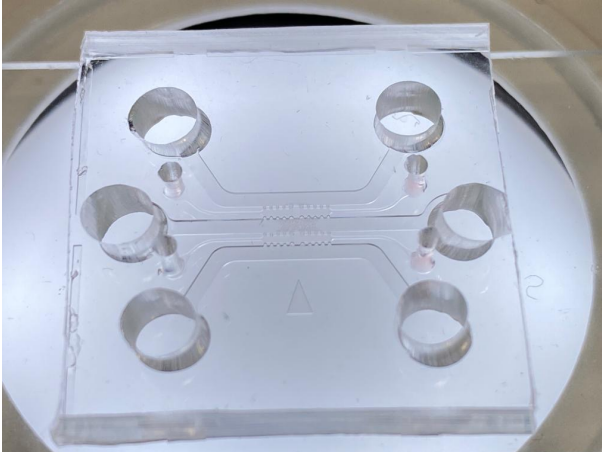
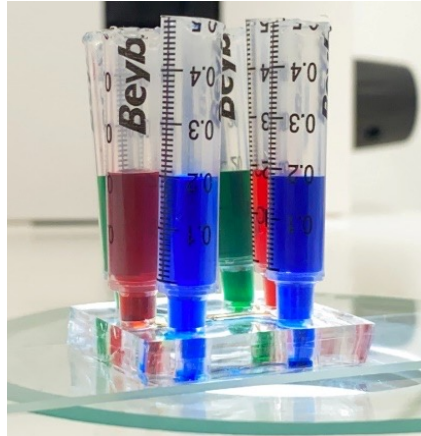


Boya Emdirilmiş Membran

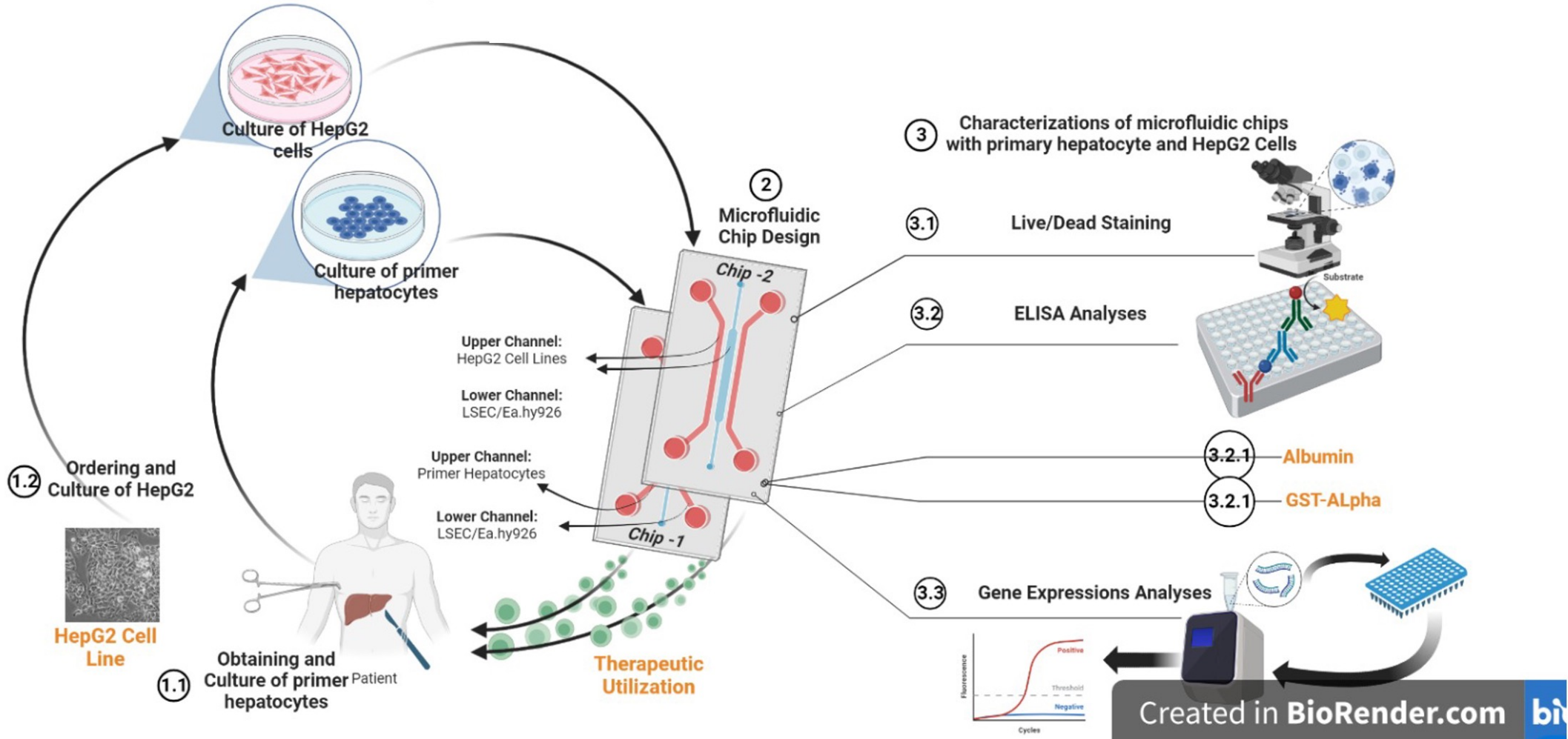




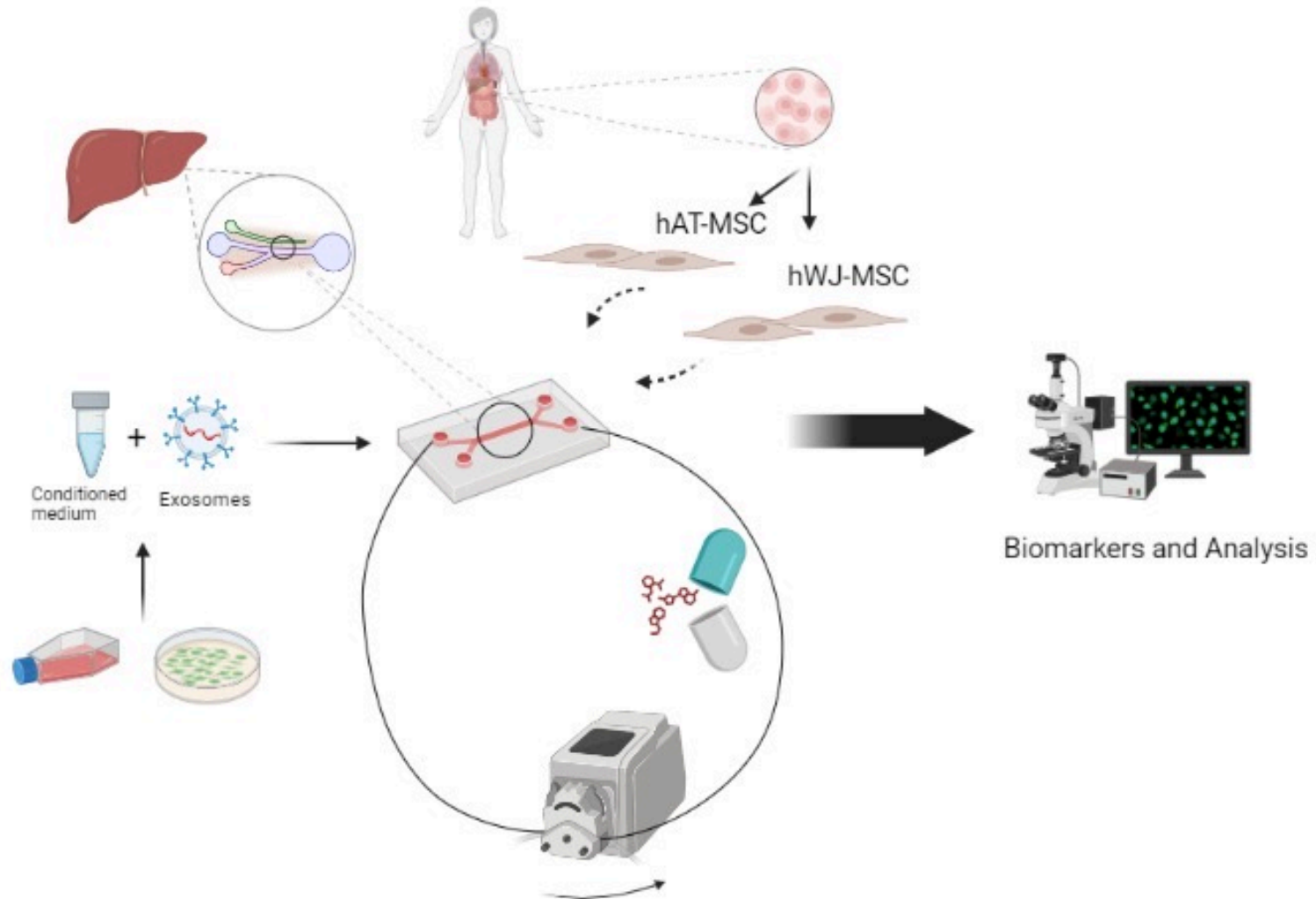
# Hydrogel Incorporated Microphysiological Tissue-Like Architectures



# Evaluation of Primary Hepatocytes In Liver on a Chip

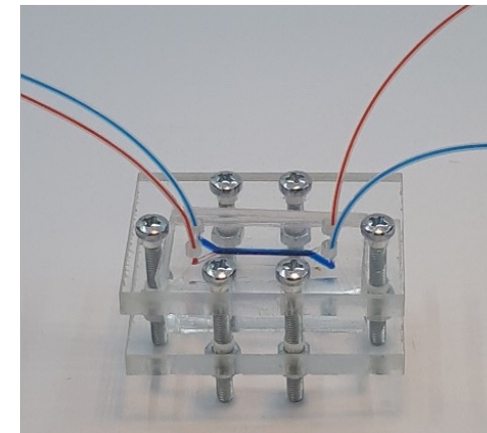
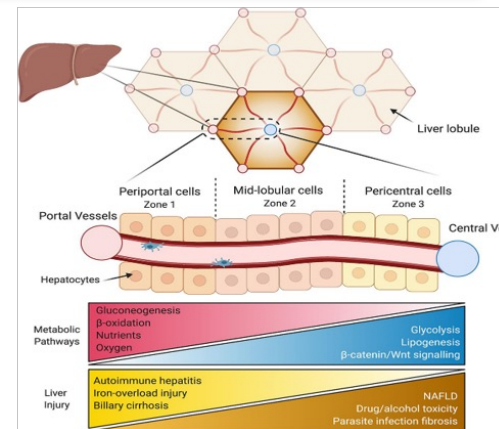
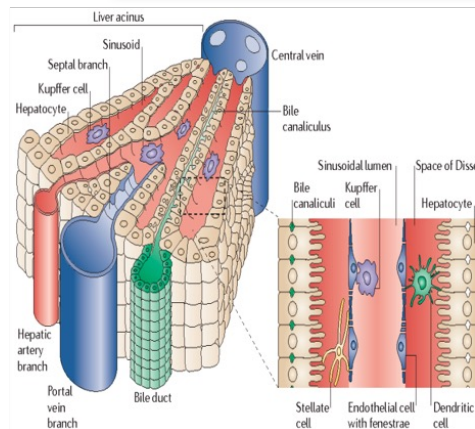
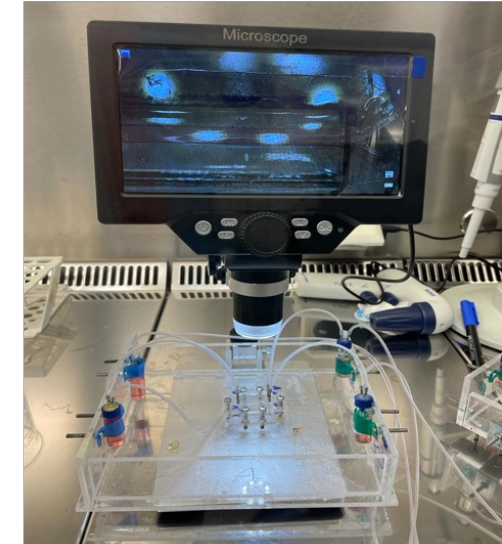
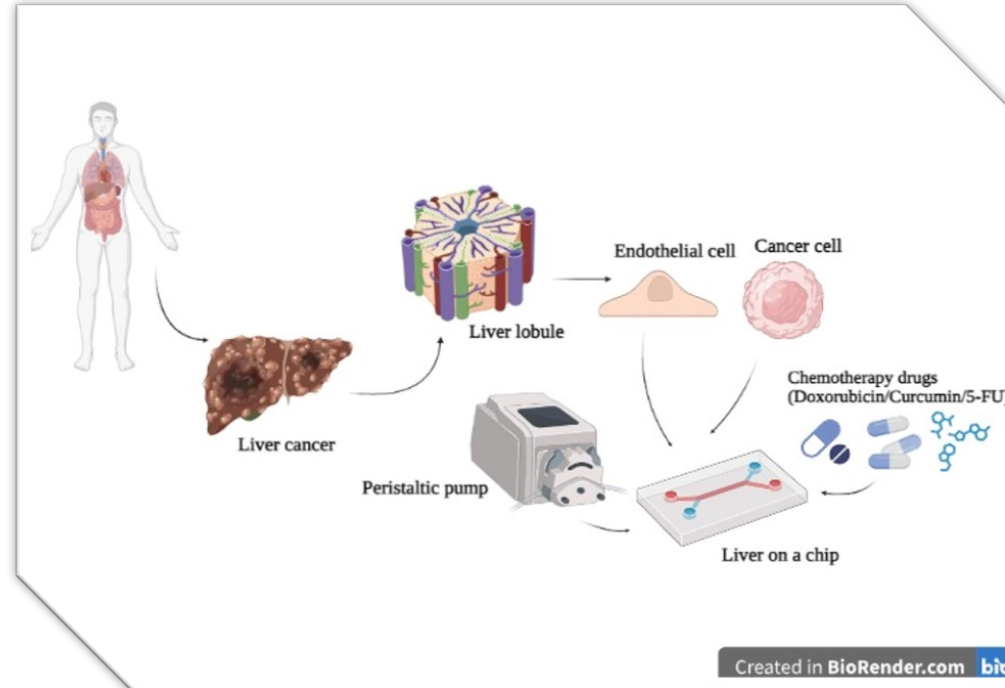
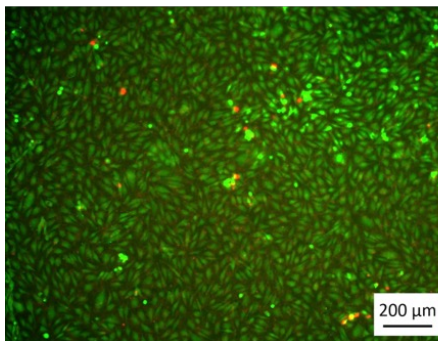
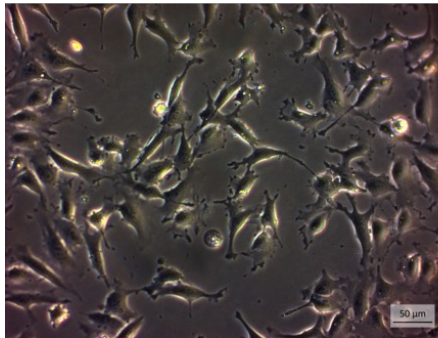
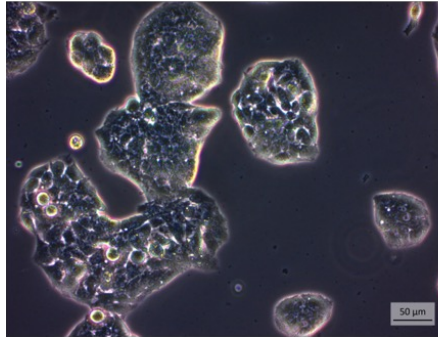


# A Regeneration Approach of MSCs for Hepatotoxicity\*



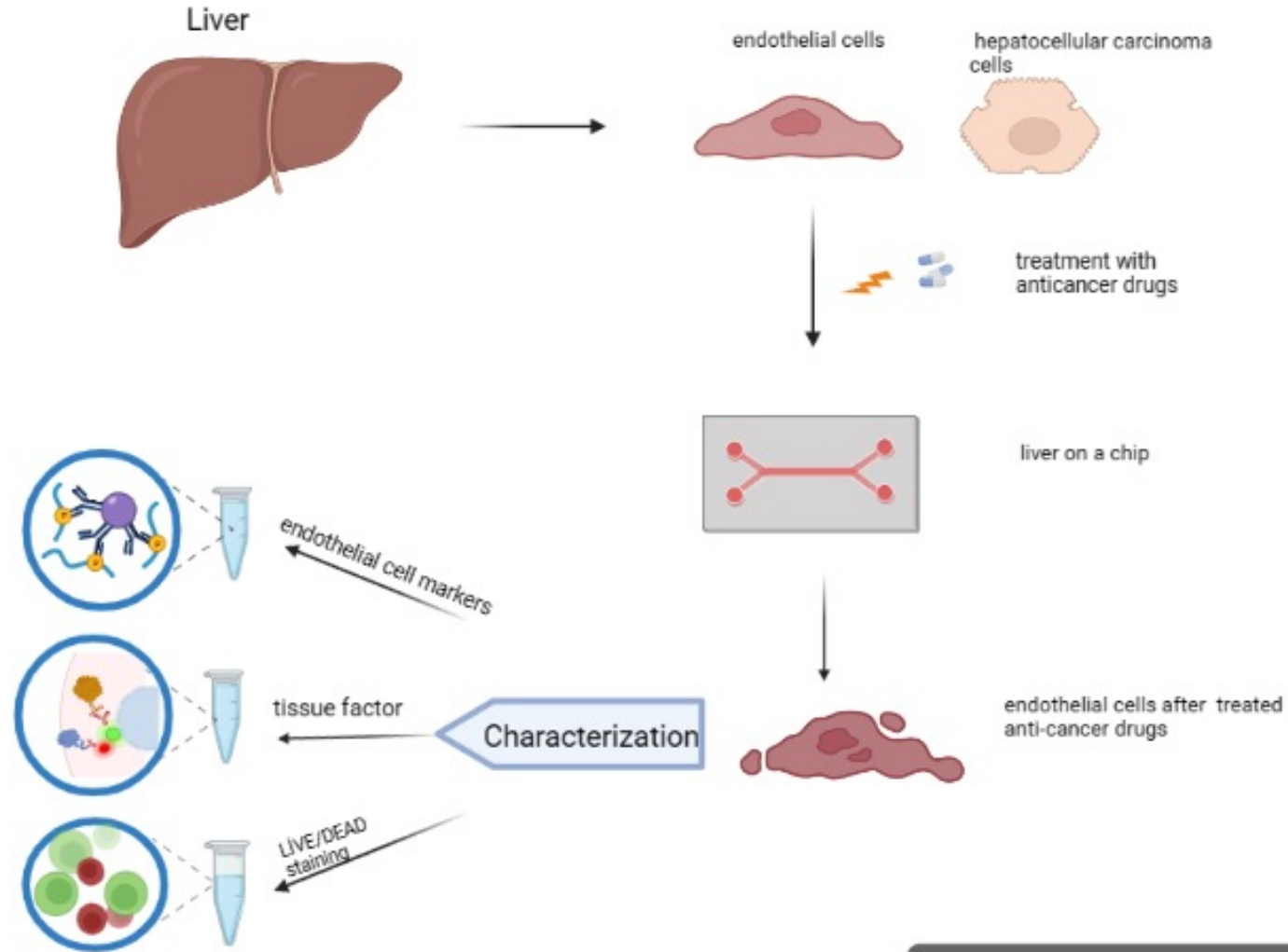


# Biomimetic Cancer on a Chip Models for Advancement of Therapy



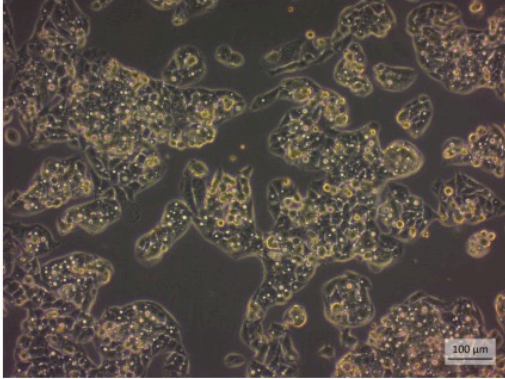


# Investigation of Drug-induced Endothelial Damage in Liver Cancer Platform



# Segmenting cells for organ on a chip for automated 3D cell classification

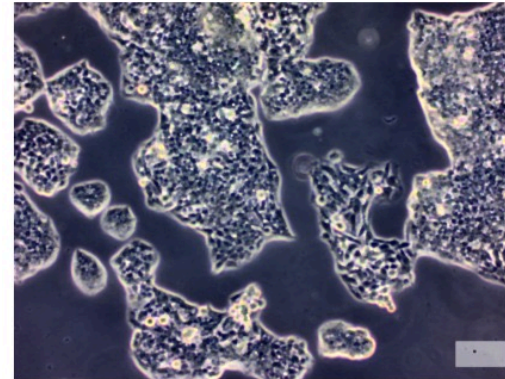
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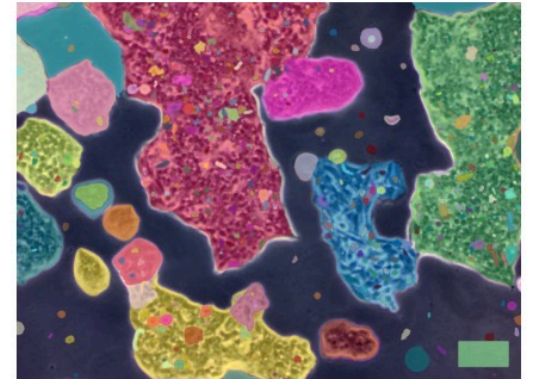
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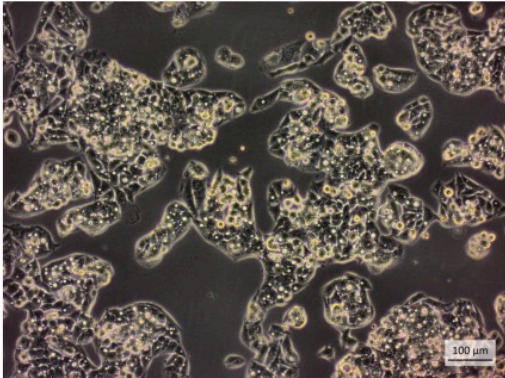
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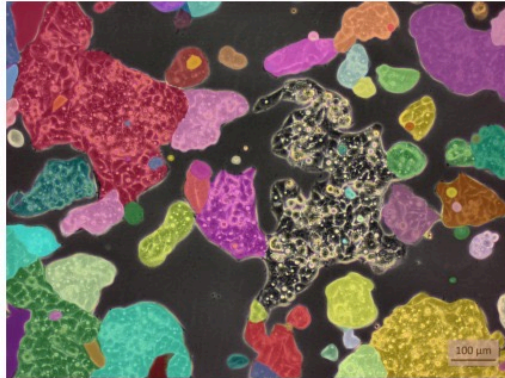
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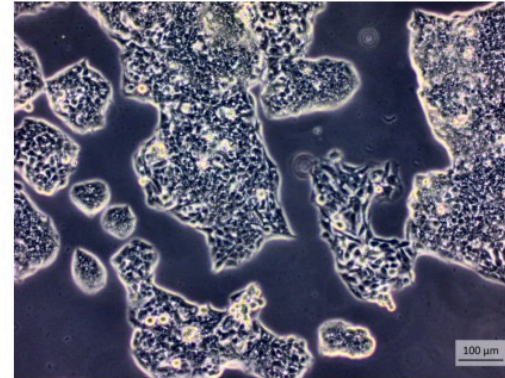
after denoising + clahe



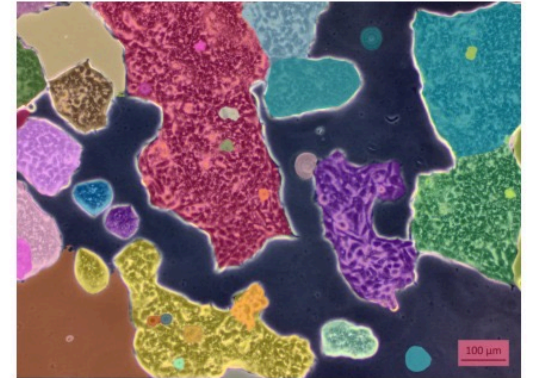
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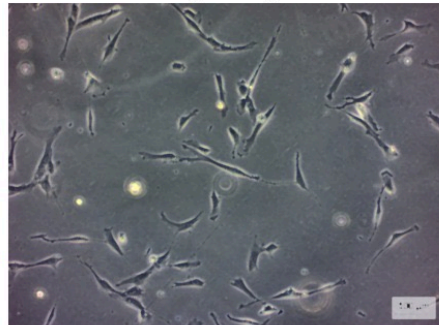
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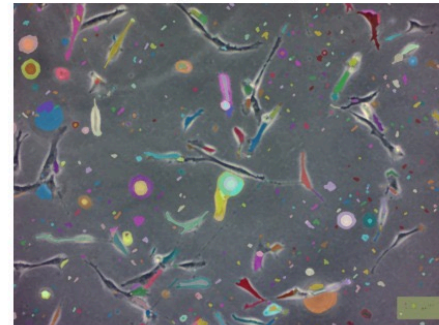
segmented image



original image



segmented image



# İKİLİ İŞBİRLİKLERİMİZ



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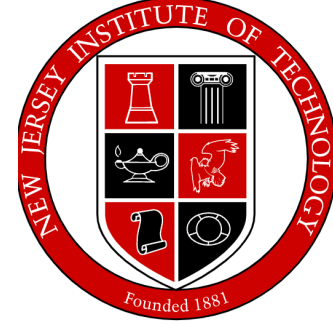
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دانشگاه شهید مدنی آذربایجان



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Khalifa University



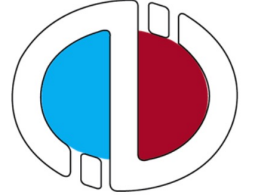
EBERHARD KARLS  
UNIVERSITÄT  
TÜBINGEN



INTERGEN



ANKARA ÜNİVERSİTESİ  
KÖK HÜCRE  
ENSTİTÜSÜ 2009



aselsan

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# EKİBİMİZ...





## İlgili Yayın Bilgileri

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# TEŞEKKÜRLER

**Eskişehir Osmangazi Üniversitesi Rektörlüğü**

**TÜBİTAK**

Tıp Fakültesi Dekanlığı

Yapı İşleri ve Teknik Daire Başkanlığı

İdari Mali İşler Daire Başkanlığı

Üniversite Hastanesi Başmüdürlüğü