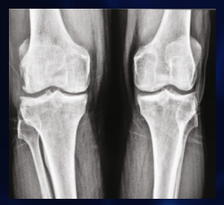

Incidence of osteoarthritis (OA) has increased by 9% in the last 28 years. Prevalence of OA is reported to be 16.1% and it is more common in low-and middle-income countries.

It has been reported that 240 million individuals worldwide have symptomatic OA and this rate is especially higher in women over the age of 60. Knee joint OA was detected in 654.1 million people over the age of 40 in 2022 and its incidence was reported to be 203 per 10 thousand people.

There is a need to develop a reliable and economical biomarker-based approach that can provide rapid results at the bedside of the patient in order to diagnose OA as early as possible. Monitoring the success of treatments also seems to be essential. This issue was also addressed within the scope of the European Union's OActive project (https://www.oactive.eu/) in 2018 and was supported with a budget of nearly five million Euros.

In line with the aforementioned objectives, we have implemented a project to identify biomarkers associated with OA. The chondrOMICs project is granted by the Technological and Scientific Council of Türkiye (TÜBİTAK) under the EU COST Action "CA21110 - Building an open European Network on OsteoArthritis research (NetwOArk)" with the project number 223S509 Current project information is available at www.chondromics.org.

Project Title / 223S509: Development of a new Immobilized Metal Affinity Chromatography (IMAC) Sorbent for Phosphopeptide Enrichment for Monitoring the Diagnosis, Course, and Treatment of Osteoarthritis and Implementing the Omic Mapping of Synovial Fluid in Proteomic, Metabolomic and Lipidomic Studies.

Multi Omics in Personalized Medicine Workshop with International Collaboration

This workshop is organized in the context of TÜBİTAK #223S509 Project (**chondromics.org**), EU COST CA21110 Building an open European Network on OsteoArthritis Research (NetwOArk) (**netwoark.eu**) Action and the Mobility (**mobility.net.tr**) Project Proposal

NetwOArk The European Network on OsteoArthritis MObility chondrOMICs

Multi Omics in Personalized Medicine Workshop with International Collaboration

SAVE THE DATE **17 March 2025** Monday

Register Now!

Registration is **free of charge** and it is **limited to 40 participants.** First come will be served first.

For registration we are waiting your e-mail that **contain name, surname, job title and mobile phone number** to **chondromics@gmail.com**. After that you will informed with confirmation status.

TÜSEB Aziz Sancar Research Center
Yeni Bayındır, Mavi Göl Cad. No:5 06270 Mamak/Ankara

Workshop Program

chondromics.org

This workshop is organized in the context of TÜBİTAK #223S509 Project (**chondromics.org**), EU COST CA21110 Building an open European Network on OsteoArthritis Research (NetwOArk) (**netwoark.eu**) Action and the Mobility (**mobility.net.tr**) Project Proposal

NetwOArk The European Network on OsteoArthritis MObility chondrOMICs

Multi Omics in Personalized Medicine*
Workshop with International Collaboration

*This workshop is organized in the context of TÜBİTAK #223S509 Project and EU COST CA21110 - Building an open European Network on OsteoArthritis Research (NetwOArk) Action.

17 March 2025 Monday
TÜSEB Aziz Sancar Research Center, Ankara

08:30 - 09:30 **Opening Remarks**

Prof. Dr. Mustafa Çelebier
Hacettepe Üniversitesi Eczacılık Fakültesi Analitik Kimya Ab.D.

Prof. Dr. Feza Korkusuz
Hacettepe Üniversitesi, Tıp Fakültesi, Spor Hekimliği Ab.D D.

Prof. Dr. Mehmet Cahit Güran
Hacettepe Üniversitesi Rektörü

Prof. Dr. Ümit Kervan
TÜSEB Başkanı

09:30 - 10:30 **Invited Lectures**

Chair
Prof. Dr. F. Duygu Özel Demiralp

New Therapeutic Targets and Biomarkers for OA Management.
Prof. Dr. Maria d. Mayan Santos
University of Vigo, CINBIO

10:30 - 11:00 Break

11:00 - 12:00 **Session 2 Lectures**

Chairs:
Prof. Dr. Feza Korkusuz, Prof. Dr. Mustafa Çelebier

11:00 - 11:20 **Mass Spectrometry in Biotechnology**
Prof. Dr. Ömür Çelikbıçak
Hacettepe Üniversitesi Fen Fakültesi Kimya Bölümü Fizikokimya Ab.D.

11:20 - 11:40 **Diagnostic and Treatment Monitoring Methods with LC-MS based Metabolomics Approaches.**
Dr. Ozan Kaplan
Hacettepe Üniversitesi Eczacılık Fakültesi Analitik Kimya Ab.D D.

11:40 - 12:00 **The Process from GC-MS based Metabolomics Studies to Biosensors for Personalized Medicine Applications**
Dr. Sevilay Erdoğan
Hacettepe Üniversitesi Eczacılık Fakültesi Analitik Kimya Ab.D.

12:00 - 13:00 Lunch

13:00 - 13:20 **Development of a Novel In Vitro Mitophagy Model using the Bacterial HOK Protein**
Prof. Dr. Gürler Akpınar
Kocaeli Üniversitesi Tıp Fakültesi Temel Tıp Bilimleri Tıbbi Biyoloji Ab.D

13:20 - 13:40 **Use of Multi Omic Technologies to Develop Personalized CAR-T Cell Therapy: New Horizons in Personalized Immunotherapy.**
Öğr. Gör. Dr. Serkan Yaman
TÜSEB Türkiye Biyoteknoloji Enstitüsü

13:40 - 14:00 **Proteomics Insights of Cellular Senescence.**
Prof. Dr. Servet Özcan
Erciyes Üniversitesi Fen Fakültesi Biyoloji Bölümü Moleküler Biyoloji Ab.D.

14:00 - 14:20 **Potential of Single Cell Transcriptome Sequencing in the Search for New Drug Targets for Mesothelioma.**
Dr. Tunç Tuncel
TÜSEB Türkiye Biyoteknoloji Enstitüsü

14:20 - 15:00 Break

15:00 - 16:40 **Session 4. Lectures**

Chairs
Prof. Dr. Servet Özcan, Prof. Dr. Gürler Akpınar

15:00 - 15:20 **Utilizing the Power of Biological Biotinylation to Investigate Membrane Proteomes of Breast Cancer Cell Lines.**
Prof. Dr. Murat Kasap
Kocaeli Üniversitesi Tıp Fakültesi Temel Tıp Bilimleri Tıbbi Biyoloji Ab.D

15:20- 15:40 **Synovial Joint Fluid Chromatography Outcomes in Osteoarthritis: Do Affinity Sorbents Improve the Outcome of Multi-Omics Studies?**
Dr. Serhat ALADAĞ
Türkiye İlaç ve Tıbbi Cihaz Kurumu Analiz ve Kontrol Laboratuvarları Dairesi Başkanlığı

15:40 - 16:00 **Effects of Genomic Variations on Protein Folding: Geometrical Investigation of Interfaces in Three-Dimensional Protein-Ligand Interactions.**
Dr. Ayhan Demir
TÜSEB Türkiye Biyoteknoloji Enstitüsü

16:00 - 16:20 **Peptidyl-Prolyl Cis-Trans Isomerase Pin1: From Cellular Functions to Multiple Omics Approaches.**
Dr. Adem Özleyen
TÜSEB Türkiye Biyoteknoloji Enstitüsü

16:20 - 16:40 **AI Meets Biology: Can AI Help us Analyze Multi-Omics Data?**
Prof. Dr. Andrea Tangherloni
Bocconi University, Department of Computing Sciences

16:40 - 17:00 **Closing Remarks and Certificates**

Why Osteoarthritis (OA)?

There are currently symptomatic therapies for OA and no efficient cure to the disease.

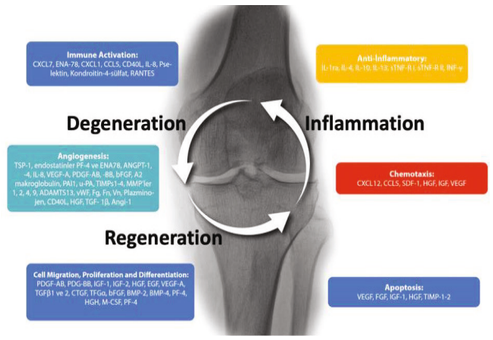

Figure. The intervening cascade of inflammation, degeneration and regeneration in osteoarthritis.

Early diagnosis of OA may lead to preventive measures of the disease and/or condition The ultimate aim is to modify the natural course of the condition and slow down its development. Planning the treatment with the most appropriate approach and monitoring its success is equally important.

Current OA diagnostics heavily relies on patient history, physical examination and radiology. These methodologies have limitations as the progression of the disease and/or the success of the treatment cannot be adequately monitored with such methods.

Radiological findings and symptoms during physical examination may not always overlap with each other. These examination methods are also limited in the early diagnosis of OA.