This project is co-financed by the European Union
and the Republic of Türkiye

ICTürkiye2025
10 April, İstanbul

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REPUBLIC OF TÜRKİYE
MINISTRY OF INDUSTRY
AND TECHNOLOGY

#NATIONAL TECHNOLOGY INITIATIVE

COMPETITIVE SECTORS PROGRAMME

TÜBİTAK

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Istanbul Technical University

One of the oldest technical universities in the world

67 programs in 5 campuses, 13 colleges, 1 conservatory located in the city center

More than 400 laboratories and 17 research centers

Home to science-industry-technology with more than 2500 R&D projects

#=326
QS World University Rankings

#=40
QS WUR Ranking By Subject

#2
Europe University Rankings - Western Asia

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My Teams’ Expertise

Health informatics

AI

Data Mining

Bioinformatics

Databases

Data Management

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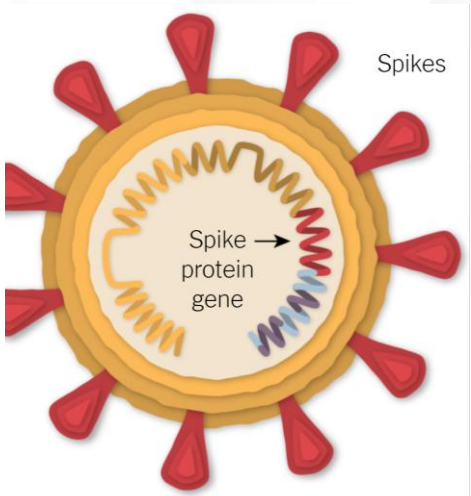
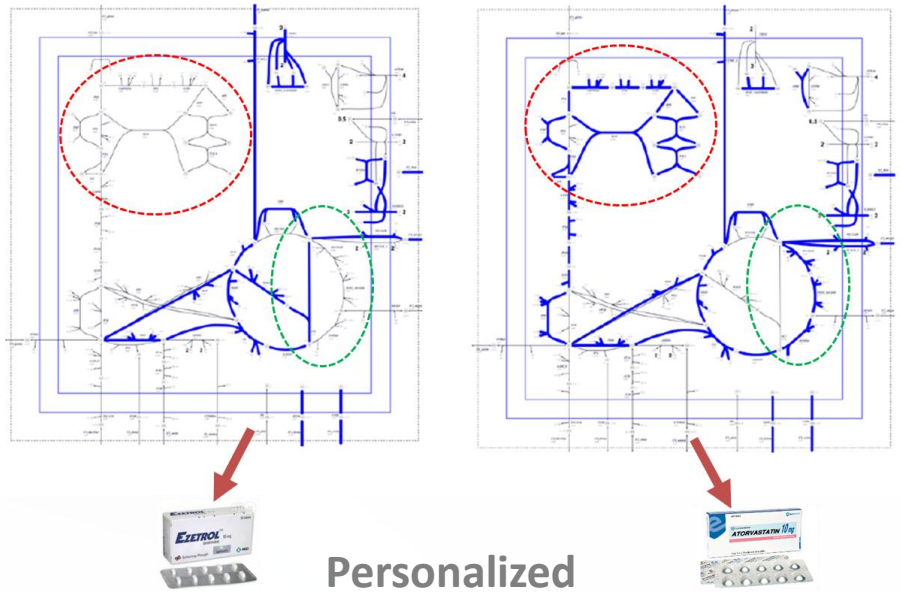
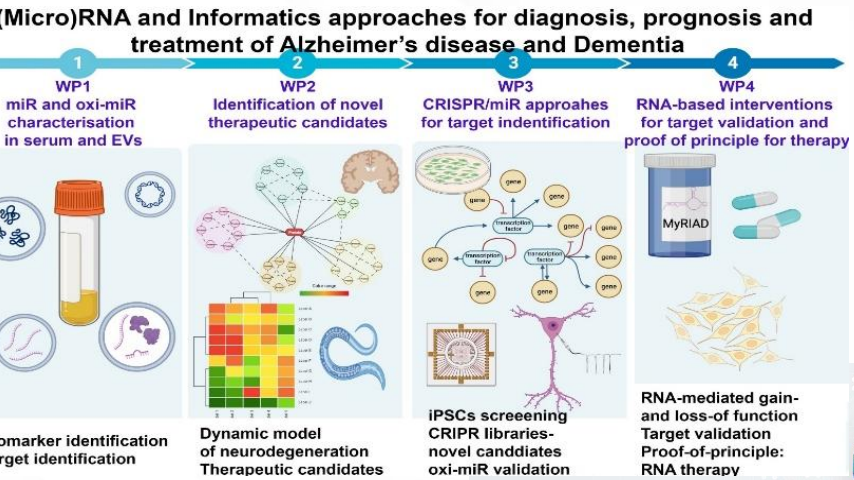
On-going Projects

Predicting Future Virus Mutations





Personalized Treatment Recommendation



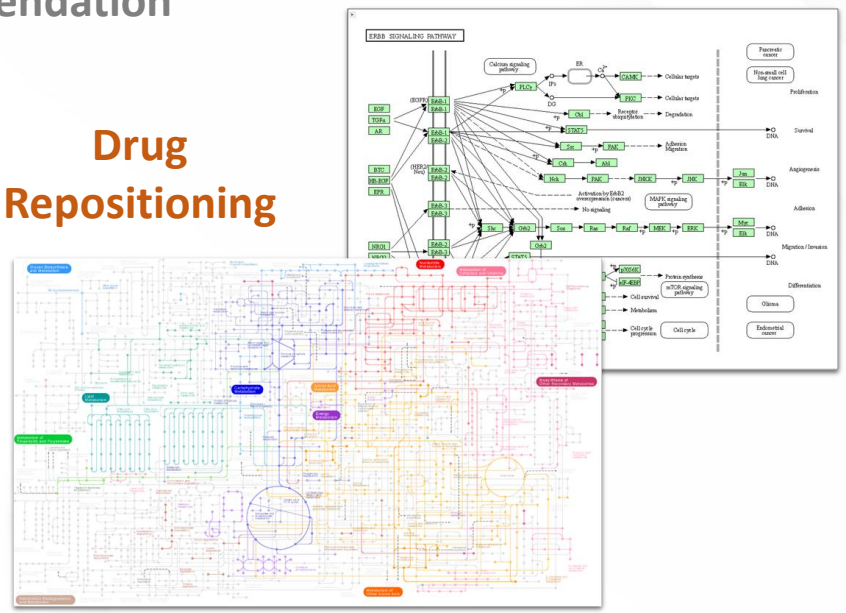
JPND research
EU Joint Programme – Neurodegenerative Disease Research

LARGE SCALE ANALYSIS OF OMICS DATA FOR DRUG-TARGET FINDING IN NEURODEGENERATIVE DISEASES

Find out more now!

miRNA-based Alzheimer Biomarker Prediction

Drug Repositioning



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Project Idea

Call Topic: HORIZON-HLTH-2025-01-DISEASE-06: Implementation research addressing strategies to strengthen health systems for equitable high-quality care and health outcomes in the context of non-communicable diseases (GACD)

Deadline Dates: 18/09/2025

- **Objectives: Develop readmission risk prediction models for multiple diseases**
- **Expected Results:**

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Project Idea

- Develop readmission risk prediction models for multiple diseases:
  - statistical machine learning models to predict the risk of readmission initially for the following 8 disease groups:
  - myocardial infarction, chronic obstructive pulmonary disease, heart failure, pneumonia, diabetes mellitus, stroke, dementia, and Alzheimer’s disease.
  - these diseases are considered the most contributing ones to the yearly overall unplanned readmission costs

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Project Idea

- Identify unplanned readmission cases in a personalized and adaptive way
  - one-fits-all kind of thresholds
  - purely focus on the number of days that has passed since discharge
  - ignores patient condition at the time of hospitalization
  - thresholds do not rely on patient data
  - not well-agreed on among experts
  - Proposed solution:
  - develop a set of machine learning models tp mark each hospitalization as “readmission” or not based on patient data

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Project Idea

- Locating and eliminating data entry errors
  - questionable reliability of some fields in patient records
  - reasons:
  - high work overload
  - time pressure
  - choose options that are most convenient and least time consuming on the software interface
  - none-to-minimal auditing practices
  - eliminate data entry errors before training any statistical models on the data.
  - Manually identifying and eliminating such errors is time-consuming and resource-intensive.
  - proposed solution:
  - develop supervised and unsupervised machine learning models to locate and eliminate data entry errors

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Project Idea

- Develop a patient discharge decision support system based on readmission risk:
  - develop a clinical decision support system
  - integrate the readmission risk prediction models
  - provide assistance to clinicians
  - make a more informed discharge decision based on patient data

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Project Idea

- Develop a remote follow-up program integrated with readmission risk prediction models and connected to the workflow of healthcare providers
  - follow-up with patients after they are discharged
  - patients to be provided with a set of portable measurement devices
  - blood sugar measurement tool, blood pressure monitor, etc.
  - patients periodically communicate measurements through a mobile app or web-based tool to their health care provider
  - readmission risk models continuously evaluate the stream of remote measurements
  - high readmission risk notify healthcare provider and the patient
  - a physician will get in touch with the patient
  - schedule a visit or a planned admission
  - consider readmission risk score, the availability of hospital bed space, etc.

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Project Idea

- Developing a cost-aware readmission recommender model
  - enrich readmission risk monitoring system with a cost model
  - consider the cost of unnecessary hospital stay of a patient vs. the cost of delaying a readmission
  - risk of patient getting into a worse condition
  - returning to the hospital via emergency room.
  - before calling for a scheduling of a planned admission, the cost will also be a contributing factor.

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Project Idea

- Developing mobile and web apps to support data entry and reporting
  - a mobile app for patients to enter their measurements remotely.
  - web interfaces to create reports for healthcare providers about the currently monitored patients.

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Project Idea

- Develop a framework for interoperability
  - enable re-use of health data, data analytics and metadata from different repositories across countries
  - compliance with FAIR data management principles
  - as well as national and EU legal and ethical requirements
  - the standardization of meta knowledge (meta data, ontologies and reference repositories) and clinical data,
  - especially health data coming from different clinical services and sites, and/or from multiple countries.
  - taking into account the Commission Recommendation on a European Electronic Health Record exchange format

Project Idea

- health data coming from a number of countries
  - a representative sample of the European healthcare landscape
  - contribute to the creation of the European Health Data Space
- Turkey
  - 12 large-scale research hospitals serving 10+ million people in Istanbul region
- Country 2
  - ??
- Country 3
  - ??
- Country 4
  - ??

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Consortium - profile of known partners (if any)

No	Partner Name	Type	Country	Role in the Project
01	Medipol University Hospitals	Hospital	TR	Data Provider
02	Pusula	SME	TR	Commercialization
03				
04				
05				

Consortium – required partners

No	Expertise	Type	Country	Role in the project
01	Data Provider/Hospital			
02	Text Analytics			Turning Unstructured Data into Structured Data
03	Remote Patient Follow-up			
04	Mobile App Development/Web development/UI Development			

Consortium – required partners

No	Expertise	Type	Country	Role in the project
05	Federated Learning/Big Data Processing			
06	Privacy-Preserving and Secure Management of Health Data			
07	Interoperability			
08	Project Management / Dissemination / Patient Groups			

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