HUMAN TECHNOPOLE

The Italian research institute for Life Sciences

Human Technopole

The new Italian institute for Life Sciences

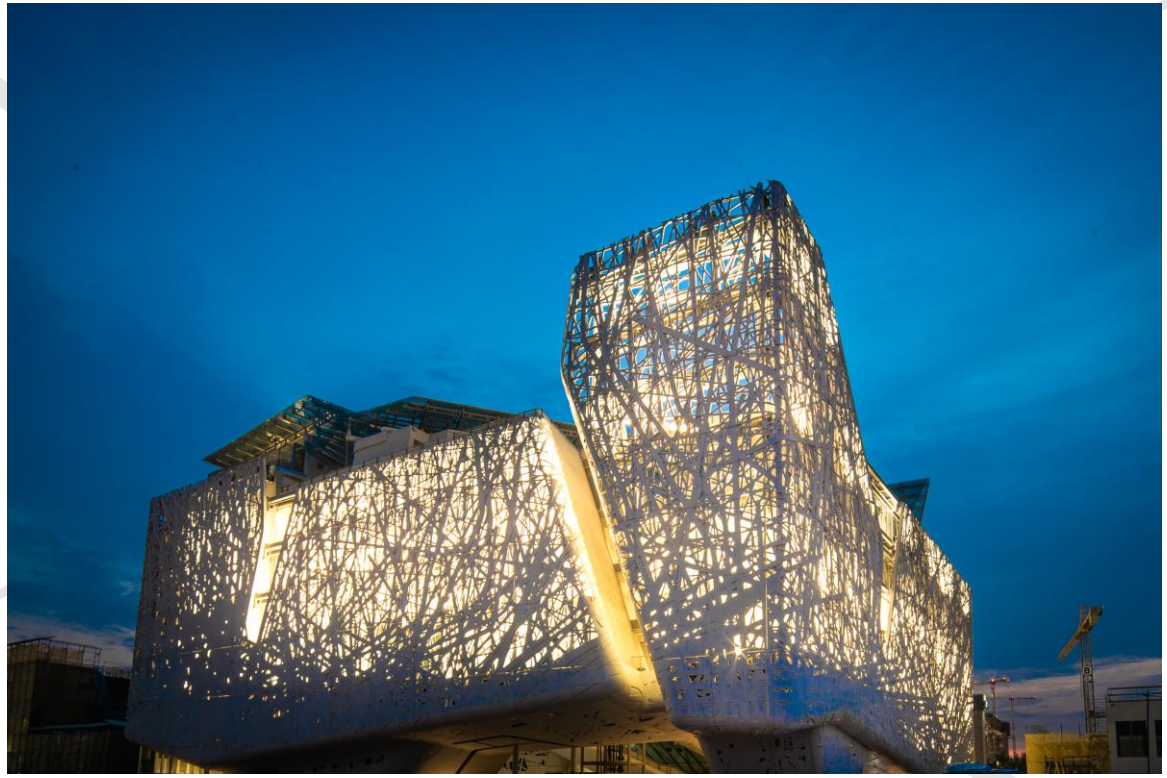
A large scale infrastructure with **interdisciplinary laboratories.**

Advanced facilities, open to the national and international scientific community.

A **collaborative network** of academic, clinical and entrepreneurial partners to share know-how, technologies, methods and data.

More than **1,000 scientists** selected through international open calls and democratic and transparent selection processes.

Industrial collaboration and **TechTransfer** support.



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Our values

The principles which guide all our activity

Scientific excellence

Interdisciplinarity

Internationality, diversity & collaboration

Service to the research community

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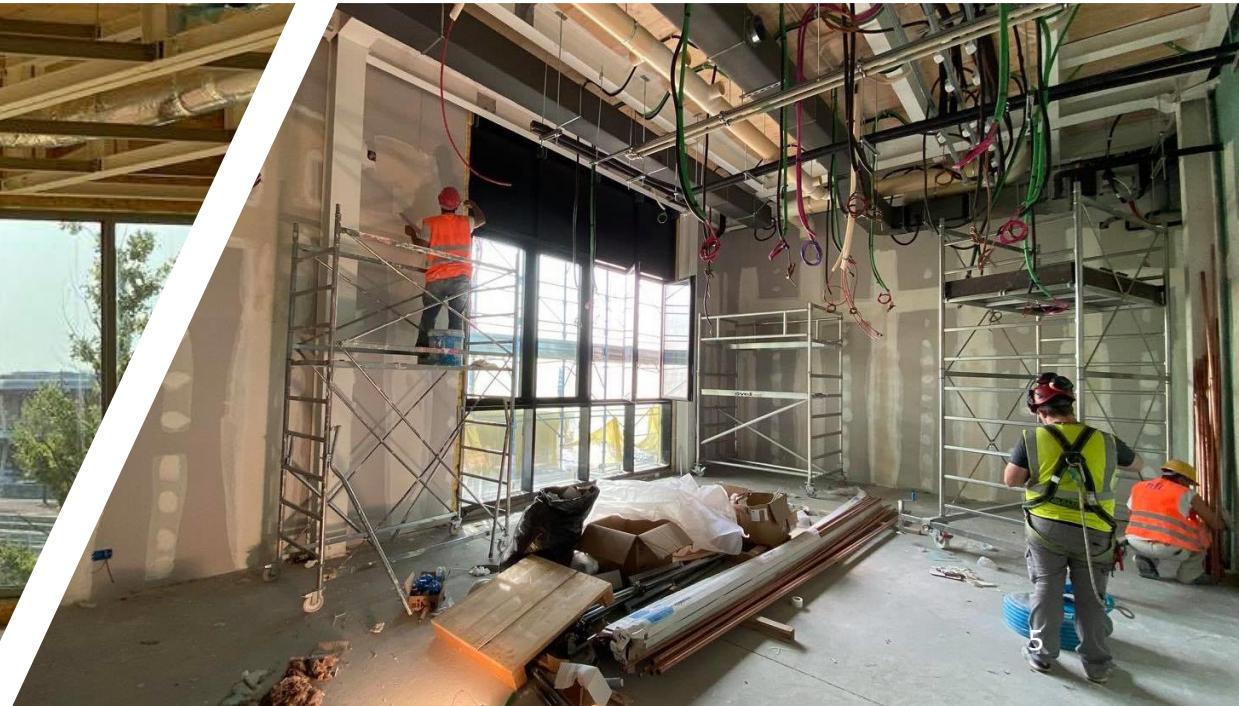
Our campus

1) **Palazzo Italia** – *in operation* 2) **Laboratorie** – mid *2021* 3) **New Building** – *2025/6*



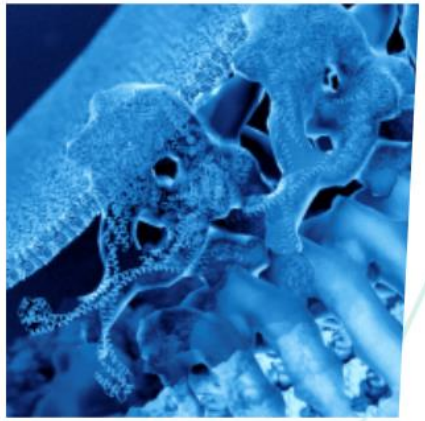
Our research centres

Aimed at the development of a predictive and personalised medicine, fundamental for the sustainability of our healthcare system.

Centres


Genomics


Neurogenomics


Structural biology


Computational biology


Analysis decisions and society

Our scientific leadership 1/2

Attracting international excellencies

DIRECTOR

Iain Mattaj

Previously Director General
EMBL Heidelberg, Germany

HEAD FUNCTIONAL GENOMICS

Piero Carninci

Previously Deputy Director RIKEN Centre for Integrative Medical Sciences in Yokohama, Japan

HEAD POPULATION AND MEDICAL GENOMICS

Nicole Soranzo

Previously Group Leader Sanger Wellcome Institute, Prof. Human Genetics, School of Clinical Medicine, Cambridge University

HEAD NEUROGENOMICS

Giuseppe Testa

Previously Prof. Molecular Biology UniMi, Director of the Epigenetic Laboratory of Stem Cells at the European Institute of Oncology

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Our scientific leadership 2/2

Attracting international excellencies

HEAD STRUCTURAL BIOLOGY

Alessandro Vannini

Previously Deputy Head of Division at Institute of Cancer Research, London

HEAD COMPUTATIONAL BIOLOGY

HEAD OF ANALYSIS, DECISIONS AND SOCIETY

HEAD OF CRYO-EM

Paolo Swuec

Previously Head of Cryo Electron Microscopy UniMi

Ongoing recruitment

Group leaders in Structural Biology, Genomics and Neurogenomics, **Head** of Optical Microscopy, **Bioinformatics**, **Lab-Technician**.

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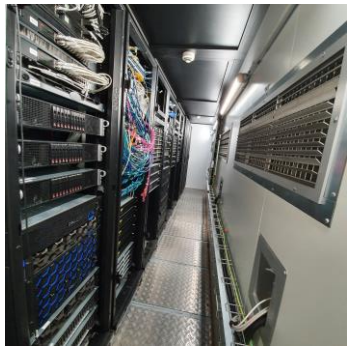
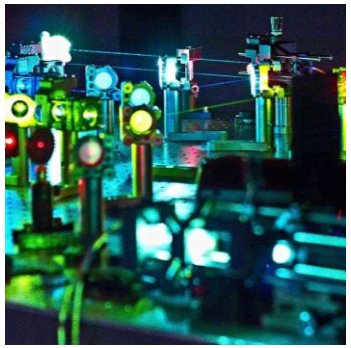
A large scale technological infrastructure

Ready in mid 2021, they will be shared with the national scientific community



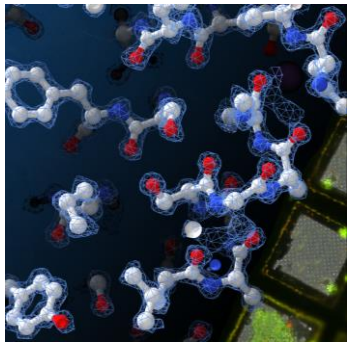
Data Centre

Research activity requires a considerable storage capacity to manage and analyse a huge amount of clinical information, biological data, images etc. Our campus is therefore equipped with a data centre with a high storage and computing capacity.



Light Microscopy Imaging

The facility will focus on 3D imaging to respond to the growing demand to photograph rare, dynamic and constantly evolving processes.



Cryo-Electron Microscopy

The Facility is designed to efficiently combine SPA (single-particle analysis), ET (electron tomography) and CLEM (correlative light electron microscopy) workflows to study in detail the structure of single macromolecules as well as whole cellular compartments.

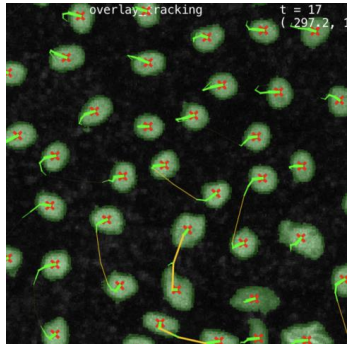


Image Analysis

It will support scientists working on imaging projects allowing access to innovative software and skills in the visualization, analysis and management of data and biological images.

Genomics

A large-scale DNA/RNA sequencing infrastructure with the ability to deliver high-throughput, next generation sequencing. The facility will allow to conduct population studied and support national screening initiatives

Automated Stem Cell and Organoid

It constitutes a particularly innovative endeavour and is aimed at streamlining, via dedicated automation pipelines, the key rate-limiting steps in disease modelling based on human cells and tissues, i.e. cell reprogramming, genome editing and longitudinal organoid culture.

Early Career Fellowship Programme

Supporting young researches

It allows **five young scientists** to obtain a scholarship of **EUR 200,000 per year** for five years, to develop an innovative project in the field of life sciences, to be carried out in Italian universities or research institutes willing to host them.

In line with HT's commitment to opening up its facilities to the national scientific community, the programme also envisages that these young researchers will have **access to Human Technopole's resources and infrastructure**, providing them with an incentive to develop their scientific projects in Italy.

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Flagship initiatives 2020-2024

Moli-sani

The Genomics Centre will carry out a complete genomic characterisation of the "Moli-sani" study, carried out by the Istituto Neurologico del Mediterraneo - Neuromed IRCCS. Moli-sani is a study aimed at assessing risk/protective factors (e.g. environmental, genetic, biomolecular) related to chronic degenerative diseases - with particular regard to cancer, cardiovascular diseases and their intermediate phenotypes including hypertension, diabetes, dyslipidemia, obesity and metabolic syndrome. Between 2005 and 2010, the study recruited more than 24,000 people aged ≥35 years in the Molise region. Participants in the Moli-sani study underwent intensive phenotypic screening and biological samples were collected and stored in a dedicated biobank.

Autism Disorders and Intellectual Disability

The Centre for Neurogenomics will collaborate with the IRCCS Associazione Oasi Maria Santissima in Troina, Sicily - integrated within the main world consortia - which has recruited over 1500 patients suffering from Autism Spectrum Disorder / Intellectual Disability, on highly sophisticated neurobiology studies aimed at understanding the genetic and epigenetic mechanisms that are activated during brain development, even at the level of a single cell, and at correlating them with phenotyping data obtained through imaging techniques.

Data enhancement from the Italian Health Card system (Tessera Sanitaria)

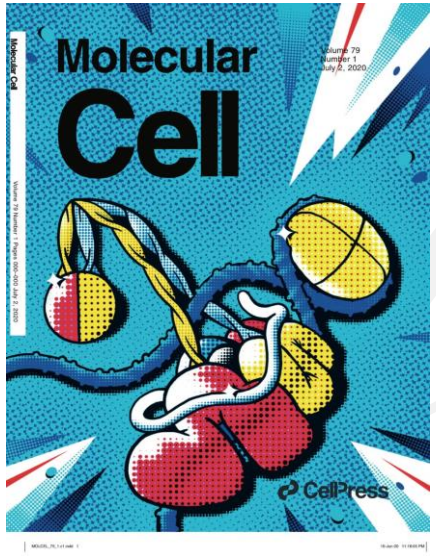
The Centre for Computational Biology and the Analysis, Decisions and Society Centre are working on a highly strategic project whose aim is to access and analyse citizens' health data in the Health Card System, which contains the personal data and medical expenditure data of each individual citizen, from pharmacy purchases to surgeries and doctor visits. The data collected by Health Cards can be used to build predictive models of health status and future events at both individual and population level.

The beginning of HT's scientific production

Although our laboratories are still being completed, researchers already recruited by the Foundation have published over 40 scientific articles in prestigious journals such as Nature, Nature Communications and Science.

Among them, three have gained covers in Science, Trends in Neuroscience and Molecular Cell:

- **Science**: Gaia Pigino, *Tubulin glycylation controls axonemal dynein activity, flagellar beat, and male fertility* (Jan '21)
- **Trends in Neuroscience**: Nereo Kalebic, *Basal Progenitor Morphology and Neocortex Evolution* (Nov '20)
- **Molecular Cell**: Alessandro Vannini, *Human Condensine I & II Drive Extensive ATP Dependant Compaction of Nucelosome Bound DNA* (Jul '20)



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Thank you.

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