

HYGIEIA, spin-off of the  
Center for Research and Technology Hellas/ Institute  
of Applied Biosciences (CERTH/ INAB)



**HYGIEIA**  
SCIENTIFIC RESEARCH AND  
EDUCATIONAL CLUSTER



**CERTH**  
CENTRE FOR  
RESEARCH & TECHNOLOGY  
HELLAS

**INAB**  
INSTITUTE OF APPLIED BIOSCIENCES

## Mission

- We leverage research excellence in Biosciences.
- We respond to the needs of end users with the goal of promoting health.
- We bridge the gap between basic research and applications.



# How are we going to achieve this?

Pragmatism

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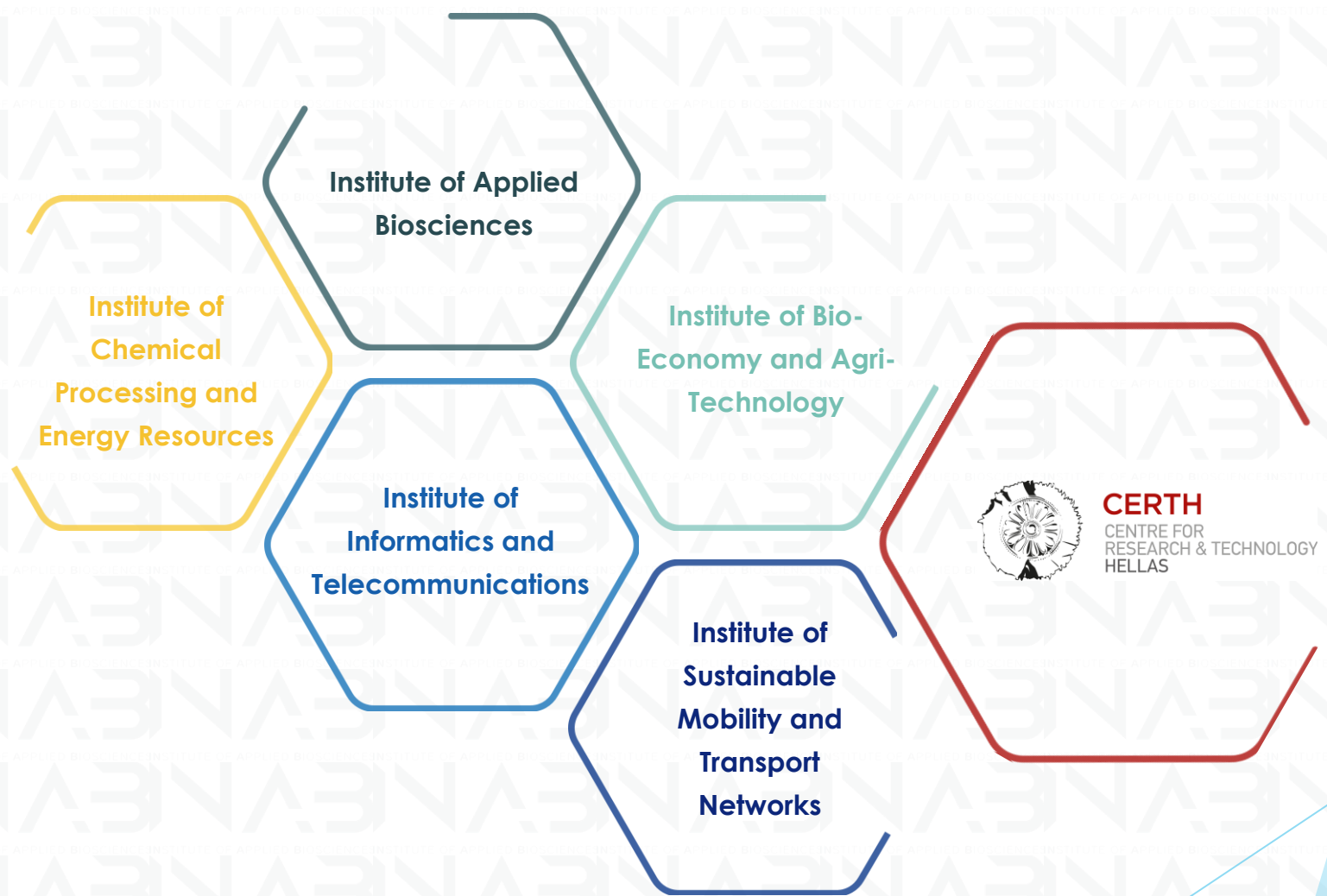
Ethics and integrity

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Focus on human resources



- ▶ The HYGIEIA Scientific Research and Educational Cluster is a spin-off of the Center for Research and Technology Hellas/Institute of Applied Biosciences (CERTH/INAB), one of the most important research centers in Greece and Europe, with its main mission being the promotion of innovative research for the benefit of society. The HYGIEIA spin-off of CERTH operates in the fields of Life Sciences and Precision Medicine for scientific research and continuing education.
- ▶ HYGIEIA aims to enhance innovation in scientific research with a focus on interdisciplinarity, while supporting healthcare professionals in responding to evolving needs through certified seminars, workshops, continuing education, and postgraduate programs.
- ▶ At the same time, social responsibility actions are promoted to provide public access to health issues and support patients and their families.





— precision medicine

— public health

— epidemiology

— e-Health

— health psychology



## Research

- ▶ CERTH/INAB conducts biomedical research and is involved in the development and evaluation of digital health interventions and personalized medicine, while also holding a leading position in Agri-food, utilizing modern high-performance methodologies, molecular biotechnology, and 'breeding by design' approaches with the aim of developing high-quality and high-value products.
- ▶ The HYGIEIA spin-off of CERTH specializes in conducting original research in the broader field of Life Sciences and Precision Medicine.
- ▶ The HYGIEIA spin-off of CERTH has the capability to undertake research from the stage of design, protocol development, and the creation and validation of questionnaires or other measurement tools, to data collection, statistical and qualitative analysis, and the writing of deliverables as well as related scientific publications.



## Education

- ▶ The HYGIEIA spin-off of CERTH aims to disseminate and promote knowledge on various topics of medical research, Biosciences, and other interdisciplinary fields.
- ▶ It designs and implements educational activities for the general population as well as specific population groups, while also developing innovative specialization programs for the education of healthcare professionals.
- ▶ At the same time, through clinical practice programs, it provides young doctors, students, and scientists with the opportunity to gain valuable experience in the fields in which the Institute operates.

## Education II

- ▶ Collaborations with Higher Education Institutions in Greece and abroad for:
  - ❖ - Interinstitutional Postgraduate Programs
  - ❖ - Crash Courses
  - ❖ - Foreign-language Postgraduate Programs
- ▶ Organization of interactive educational seminars and conferences for the public.



## Research

- ▶ Participation in research programs (Horizon Europe, Erasmus+, European Strategy Forum for Research Infrastructures, Research – Innovate, etc.).
- ▶ Collaboration with Higher Education Institutions and Research Organizations in Greece, developing solutions that address scientific and social needs related to health and well-being.

# Palliative Care

Some of our research areas include

- ▶ The creation of multidisciplinary palliative care units.
- ▶ The training of health professionals through innovative programs.
- ▶ Integration of digital tools and technologies. For example, research is being carried out to find digital solutions for patient monitoring, data management and the enhancement of personalized care.

# Palliative Care

One of our visions is to make palliative care accessible to all. To achieve this, we aim to:

- ▶ Expand educational programs for healthcare professionals in palliative care.
- ▶ Increase public awareness of palliative care and focus on continuous research and innovation, particularly in new innovative digital solutions.

Palliative care is a transformative approach to healthcare—one that values life, dignity, and holistic well-being.





## Clinical Trials

biomarkers testing

JANSSEN GLOBAL 

- \_ Apollo clinical trial (NGS Immunoprofiling in Multiple Myeloma patients/WES/RNA seq/Functional T cell assays)
- \_ Rebuild clinical trial (NGS Immunoprofiling in Multiple Myeloma patients)

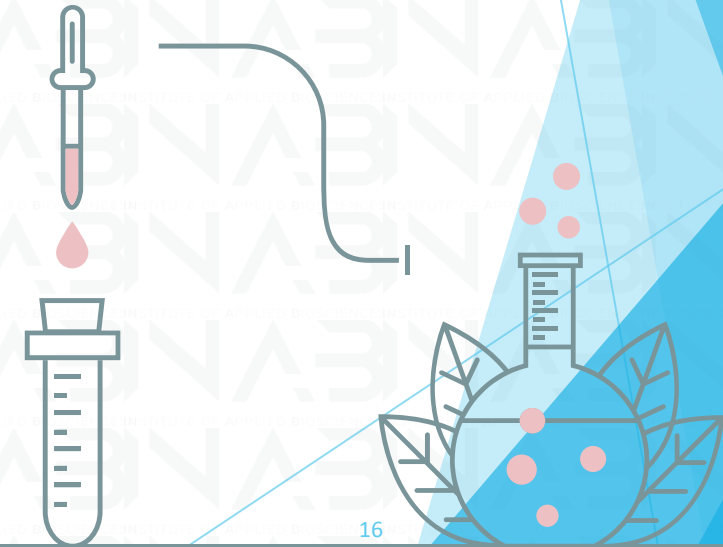
novel biomarkers

GILEAD GLOBAL 

- \_ TP53 gene mutations in CLL

ABBVIE GLOBAL 

- \_ NGS Immunoprofiling experiments



## Clinical Studies I

exploitation of identified small molecules



commercial providers of biological reagents

Commercialization of  
protein aggregation  
cell models



## Clinical Studies II

### patient empowerment

ASTRAZENECA HELLAS 

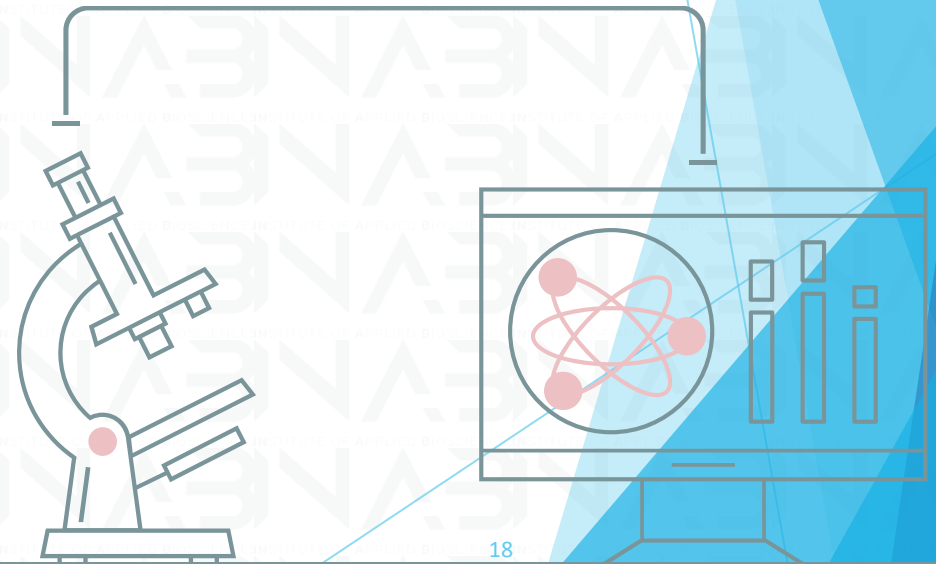
- \_ **The CLL Patient Journey:** Aims to present the variance among CLL patients' journeys using personas travelling on a different course
- \_ **CLL Empowerment in Care:** Aims to design a series of audiovisual materials and infographic videos on the treatment options available to CLL patients as well as present information on CLL biomarkers

GILEAD HELLAS  GILEAD

- \_ **HIV Holistic Assessment:** A holistic assessment of HIV individuals

ASTRAZENECA GLOBAL 

- \_ **CLL Patient Empowerment** on behalf of ERIC (European Research Initiative for CLL): Aims to engage physicians and nurses, empower and support patients and caregivers and promote co-decisions between physicians and patients by establishing structured ways of communication



# Clinical observational studies

aggregate data & data managements systems

NOVARTIS

Chronic Myelogenous  
Leukemia

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GILEAD HELLAS

Chronic Lymphocytic  
Leukemia, CLL

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JANSSEN HELLAS

CLL

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ABBVIE GLOBAL

In collaboration with  
ERIC (European Research  
Initiative in CLL)

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## European Clinical Research Infrastructure Network

Facilitating European Clinical  
Research

Independent trials across all  
disease areas and topics

National Node



## Biobanking and BioMolecular Resources Research Infrastructure

Boost biomedical research

Quality management services, support  
with ethical, legal and societal issues, and a  
number of online tools and software  
solutions

Node Biobank > 520,000 samples

## Oncology – Hematooncology

Network Coordinator  
Central node

- Genetics analysis lab (NGS)
- Centralized database of clinicobiological info
- Standardization of the analytic phases
- Collaboration with the Hellenic Cancer Federation & the pharma industry



## Inherited cardiovascular diseases and sudden death in the young

- Genetics analysis lab (NGS)
- Genetic protocols
- Committee for genetic test approval



## Neurogenerative disorders

- Development of personalized cell models for neurodegenerative diseases



## Epidemiological study of SARS-CoV-2

- Genetics analysis lab (NGS)
- Immunogenetics research
- Collaboration with the National Public Health Organization



### Standardizing real world data management and analysis

National Node for Greece

- Supporting the development of EHDEN | OHDSI ecosystem aiming to further develop observational research upon Real-World Data



### Decentralized Clinical Trials Working Group

- Development of methodological and technical approaches to support decentralized clinical research – Information security



### Joint Action - Implementing good practices for chronic diseases

- e- health Technical development



### Joint Action - Implementing good practices for HIV, viral hepatitis, tuberculosis and sexually transmitted infections (STIs)

e- health Technical development



## Improve the standard of cancer treatment for patients

Patient reported outcomes – Quality of life

Collaboration in the context of PROs development:

- QoL in CLL
- Patient Satisfaction with Care

## PATIENT ORGANIZATIONS

### Hematology / Oncology

- Lymphoma Coalition
- CLL Advocates Network (CCLAN)
- European Cancer Patient Coalition (ECPC)
- Hellenic Federation of Cancer (ELLOK)
- Hellenic Group of Patients with CLL

### HIV/AIDS

- Positive Voice

### Palliative and Supportive Care

- European Association for Palliative Care (EAPC)
- International Children's Palliative Care Network (ICPCN)

### Clinical research in ataxias

- Development of cell models for preclinical research in ataxias

### European network for the genetic analysis of childhood-onset neurodevelopmental disorders

- Standardization of protocols for the generation, handling and differentiation of induced pluripotent stem cells (iPSCs)



IMGT/CLL-DB,  
immunogenetic data from  
>44,000 patients from 44  
different Institutions worldwide  
<https://www.imgt.org/CLLDBInterface/query>



ERICLL database

Recommendations for  
biomarkers

European Reference Lab for  
Accreditation of labs  
performing biomarkers  
analysis



ISO15189

Biomarkers in cancer

SARS-CoV-2  
(National Public Health Organization)

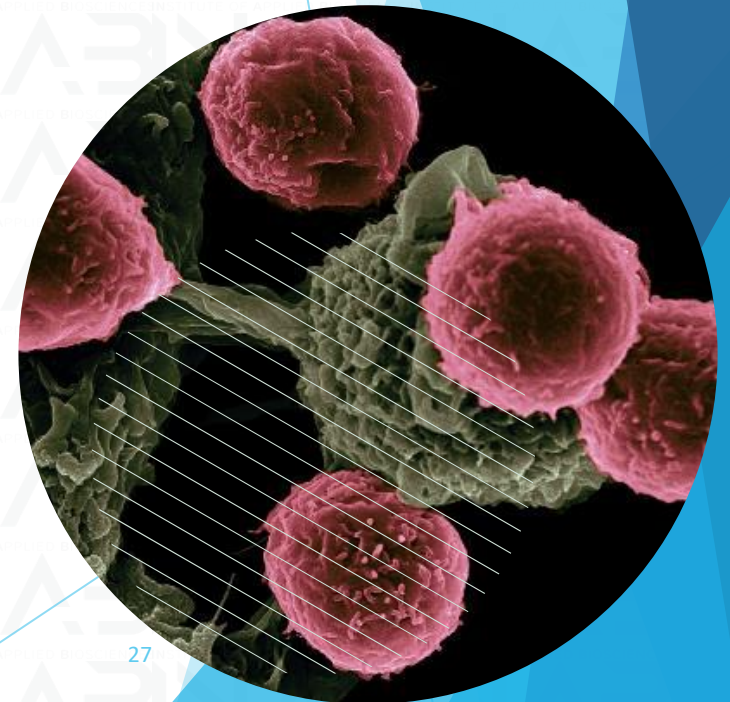


European consortium for  
setting standards in IG/TR NGS  
methodology / applications in  
hemato-oncology



## Collaborations I

- European Organization for Research and Treatment of Cancer (EORTC)
- European Hematology Association (EHA)



## Collaborations II

### **Hematology/Oncology**

Lymphoma Coalition

CLL Advocates Network (CLLAN)

European Cancer Patient Coalition (ECPC)

Hellenic Federation of Cancer (ELLOK)

Hellenic Group of Patients with CLL

### **HIV/AIDS**

Positive Voice

### **Palliative and Supportive Care**

European Association for Palliative Care (EAPC)

International Children's Palliative Care Network (ICPCN)



## Collaborations III

### R&D Initiatives

IEEE Standards P2968.1 & P2968.2 – Decentralized Clinical Trials

### EU Policy (joint actions)

eCan

CHRODIS+

INTEGRATE

### Educational (international)

LIMICS/Sorbonne University (Paris, France)

ESIEE (Paris, France)

Eu2P (Collaborative European MSc program)

### Educational (Greece)

AUT

UoA –

UoWM

## Collaborations - Europe



 <p>Public Health England</p>	 <p>MERSAD UNIPRSE</p>	 <p>Karolinska Institutet</p>	 <p>VTT</p>	 <p>LJUBLJANA UNIVERSITY OF HEALTH SCIENCES</p>	 <p>LUNDS UNIVERSITY</p>	 <p>ktu kauno technologijos universitetas</p>	 <p>Durham University</p>	 <p>UNIVERSITY OF CAMBRIDGE</p>	 <p>TU Delft</p>	 <p>Harper Adams University</p>	 <p>HCL</p>
 <p>MANCIE LR The University of Cambridge</p>	 <p>UCD</p>	 <p>UNIVERSITY OF VIENNA</p>	 <p>Erasmus MC</p>	 <p>ICR</p>	 <p>CITY</p>	 <p>UNIVERSITY OF OXFORD</p>	 <p>SORBONNE UNIVERSITÉ</p>	 <p>Fraunhofer</p>	 <p>Imperial College London</p>	 <p>LMU</p>	 <p>CEEIS Cat</p>
 <p>Institut Pasteur</p>	 <p>INRA</p>	 <p>cea</p>	 <p>IDI BAPS</p>	 <p>POLITECNICO MILANO</p>	 <p>cni</p>	 <p>chip</p>	 <p>Inserm</p>	 <p>ETH zürich</p>	 <p>CNB</p>	 <p>IESE Business School</p>	 <p>UNIVERSITY OF JYVÄSKYLÄ</p>

## Collaborations - Worldwide



THE UNIVERSITY OF ARIZONA

PURDUE UNIVERSITY



مركز البحوث الطبية  
MEDICAL RESEARCH CENTER



Wharton  
UNIVERSITY OF PENNSYLVANIA

ROYAL NORTH SHORE HOSPITAL



서울대학교  
Seoul National University



MEDIPOL UNV



NIH NATIONAL CANCER INSTITUTE



UNIVERSITY OF MEDICAL SCIENCES



TELAVIV UNIVERSITY

HOSPITAL ITALIANO



東區尤德夫人那打素醫院  
PAMELA YOUDE NEITHSDILL EASTERN HOSPITAL

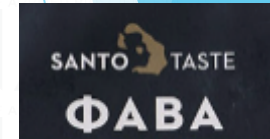
## Collaborations – Industry

AGRIFOOD

COSMETICS

CHEMICALS

ENERGY





## Collaborations – Pharmaceutical Companies

PHARMA

# Collaborations – ICT






## Biobanking facilities

1 Walk in Cold Room  
(4°C-8°C) with  
dimensions 4x5m

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9 Ultra Deep freezers  
(-80°C)

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12 Freezers (-30°C)

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2 Liquid nitrogen  
systems

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4 robotic liquid handling  
systems  
(2 PERKIN ELMER JANUS,  
1 Qiagen BioRobot EZ1 and  
1 KINGFISHER FLEX)

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## Biobanking facilities cell analysis

BD FACSAria™ III  
Cell Sorter

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Seahorse XFe96  
Analyzer

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One flow cytometer  
AttuneNxt-AFC2  
LifeTechnologies

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One flow cytometer  
Becton Dickinson  
FACS Calibur

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1 Microscope Zeiss  
Axiovert 100  
1 Zoe Fluorescence  
microscope

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Spark Tecan  
plate reader

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Chemidoc  
imager

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## Infrastructure – Sequencing infrastructure

1 Illumina NextSeq2000

1 Illumina NextSeq

2 Illumina MiSeq

1 ION GeneStudio S5

Prime - ION Chef System

2 MinION devices

1 3500 Genetic Analyzer

1 Beckman Coulter CEQ-

8000 Genetic Analysis

System DNA Sequencer

1 Fragment Analyzer  
(Automated CE System -  
12 capillary format)

6 Real time  
PCR Systems

4 robotic liquid handling  
systems

(2 PERKIN ELMER JANUS,  
1 Qiagen BioRobot EZ1 and  
1 KINGFISHER FLEX)