EOSC Future

National infrastructures in EOSC

Events

inspired RIs

INSTRUCT-EL hub

ΕΘΝΙΚΟ ΙΔΡΥΜΑ ΕΡΕΥΝΩΝ
National Hellenic Research Foundation

National perspective on "horizontal" services, software, and tools developed in Universities, e-infrastructures for the benefits of other communities and larger-scale collaboration

The Structural Biology NRI

Evangelia D. Chrysina

Senior Researcher, Institute of Chemical Biology, National Hellenic Research Foundation

Docent in Medical Science-Biomedicine, Örebro University, Sweden

echrysina@eie.gr

inspired RIs

The National Research Infrastructures
on Integrated Structural Biology,
Drug Screening Efforts &
Drug target functional characterization

INSPIRED – MIS 5002550

www.inspired-ris.gr

Affiliated with the pan-European
Research Infrastructure Consortium on
«Integrated Structural Biology, Instruct-ERIC».

instruct ERIC

inspired RIs

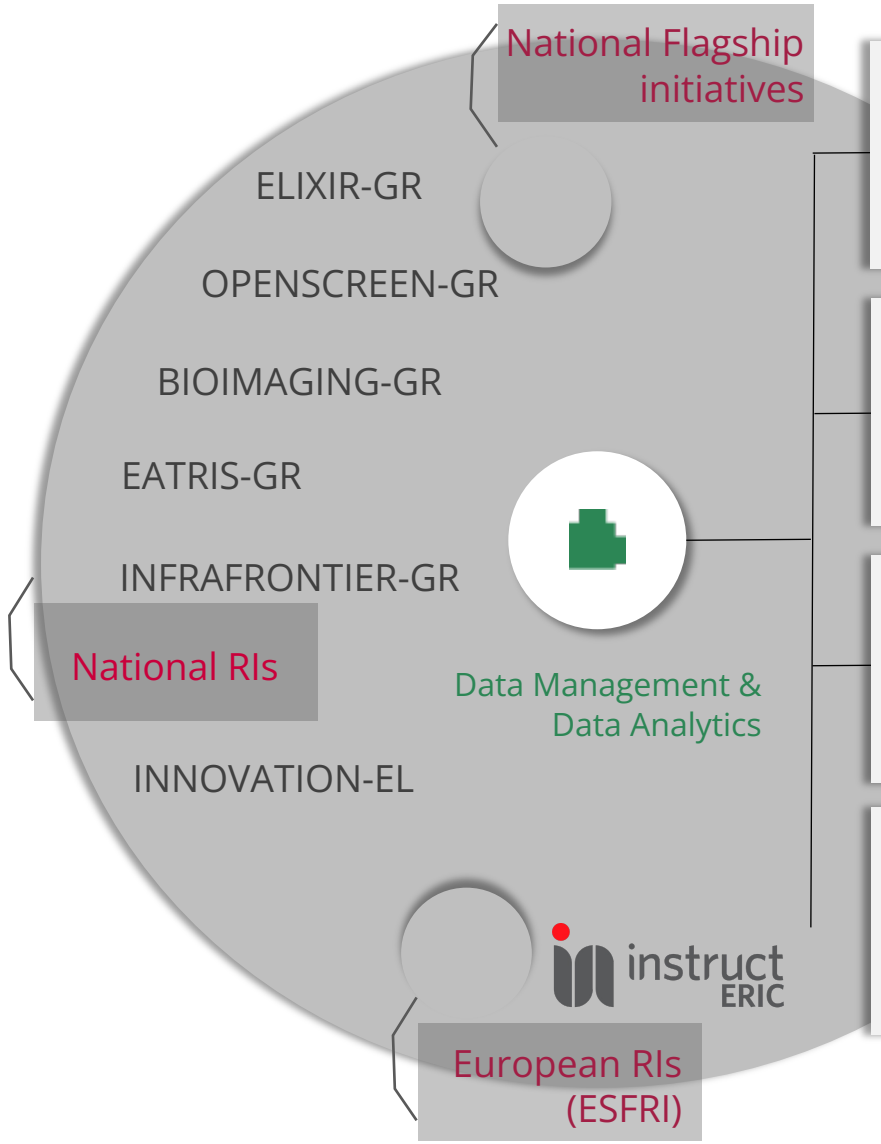
Supported by:
- **13** Greek Industries, Companies, SMEs, Clusters
- **4** Large International Companies
- **10** Greek Academic - Research - Public Organisations
- **10** European Academic - Research organizations
- **2** International Academic - Research Organizations
- **1** ESFRI Research Infrastructures
- **4** National Research Infrastructures affiliated with ESFRI RIs
- **4** Regions in Greece

info@inspired-ris.gr
www.inspired-ris.gr | inspired-ris.catalogue.athenarc.gr

ΕΠΑνΕΚ 2014–2020
ΕΣΠΑ 2014-2020
Co-financed by Greece and the European Union

Health | Drugs | Food
Environmental Sciences
Natural Sciences | Digital Sciences

inspired RIs



Services

- Protein sample preparation
- Biophysical studies of macromolecules
- Structural studies using X-rays (protein crystallography, powder diffraction)
- Structural characterization of pharmaceutical targets using NMR
- Functional characterization with toxicological / pharmacological studies
- Biomarkers, Pharmacogenomics & Personalized Medicine

- Expertise
- Methods development
- Specialized equipment
- Access to new markets

Targeted Users

Industries / Private sector
- Pharma Companies
- SMEs
- Microbiology Laboratories

Public Sector
- Hospitals
- Academic Organizations
- Research Centers

Young Scientists

Interdisciplinary Applications
- (Bio)Materials
- Environmental Sciences
- Digital Sciences

Proteins in 3D

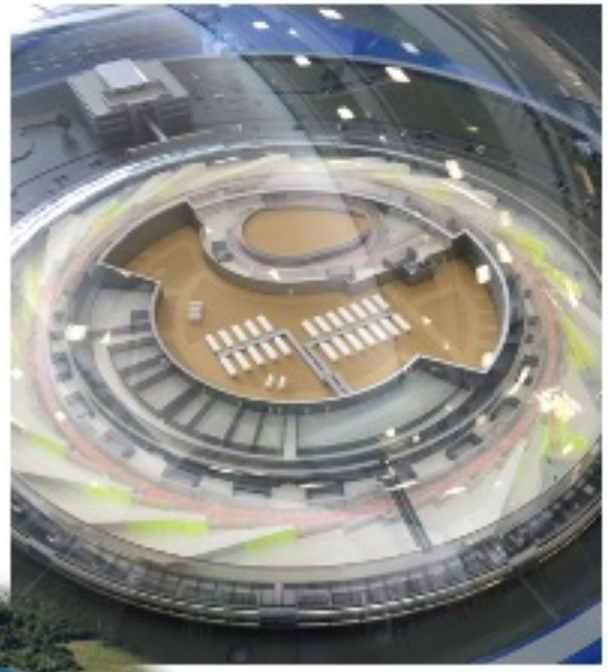
https://learn.genetics.utah.edu

X-ray sources

In house X-ray protein crystallography facility
"Nikos Oikonomakos" @ NHRF
Instruct-EL hub

Synchrotron Radiation Sources

Diamond Light Source
Oxford, UK



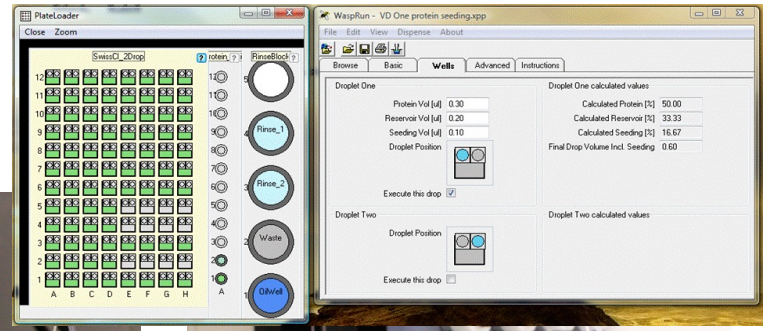
PETRA III
EMBL-Hamburg Unit
Hamburg, Germany

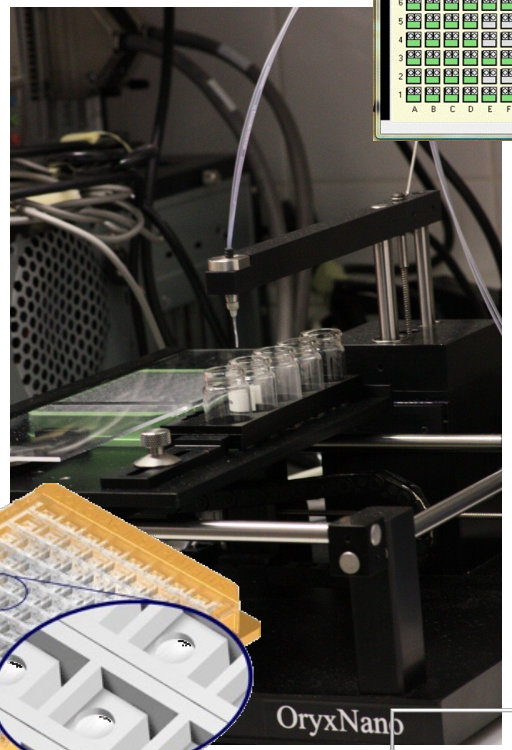
X-ray generator: Oxford Diffraction
Cu Ka radiation, λ=1.54 Å,
Microfocus sealed tube; CCD detector135 mm;
Cryogenic system with liquid N_2

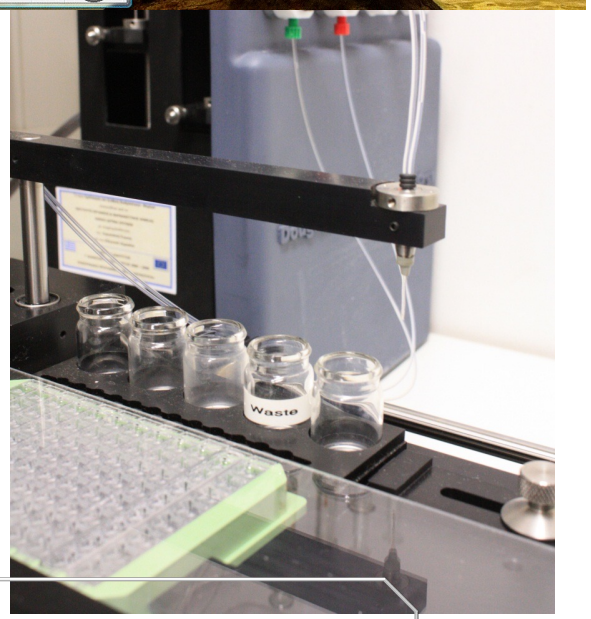
Automated approaches → Numerous DATA

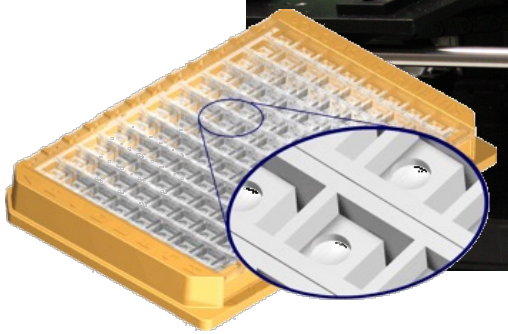
Protein crystallization

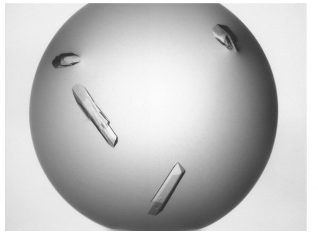
High-throughput protein crystallisation robot 3rd generation OryxNano Douglas Instr. Ltd. equipped with stereoscope 160 x Leica MZ16

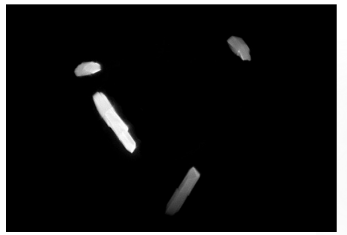


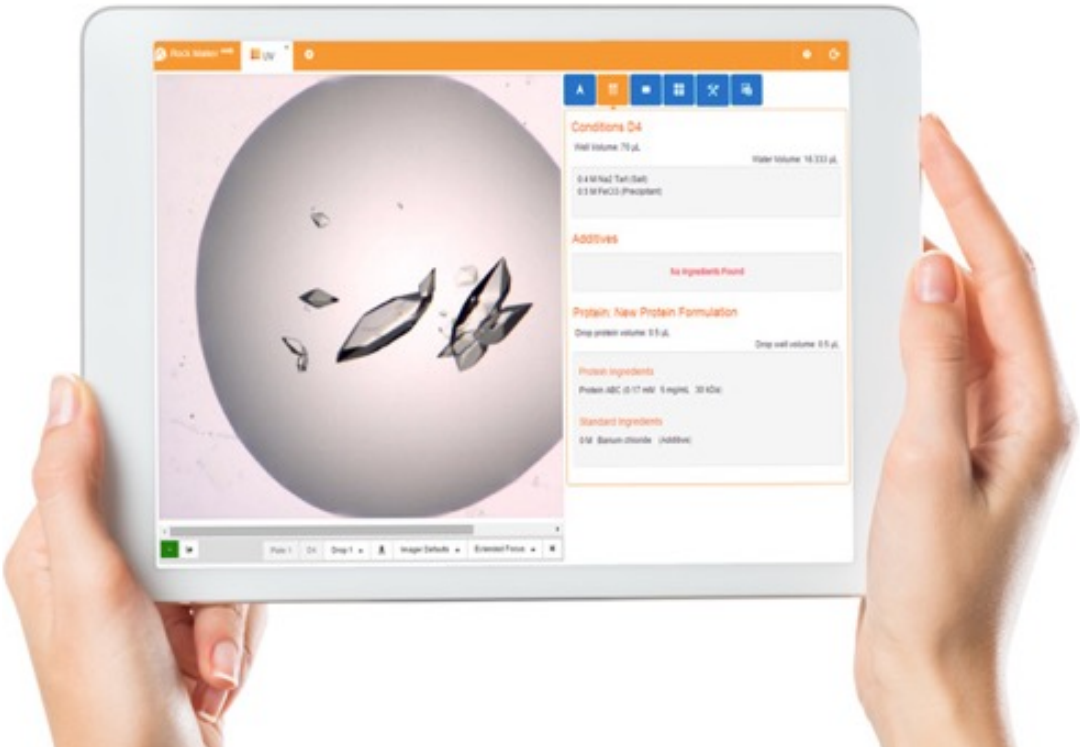












Instruct-EL hub
@ NHRF

Our Structural Biology RI

Define

- type of resources
- type of data
- Extent of interoperability required within datasets in the same field and crossdisciplinary

EOSC Future Goals

1

Delivering and operating the EOSC-Core, developing and operating key components of the platform and integrating them with a growing set of services to realise EOSC-Exchange

Set the requirements for

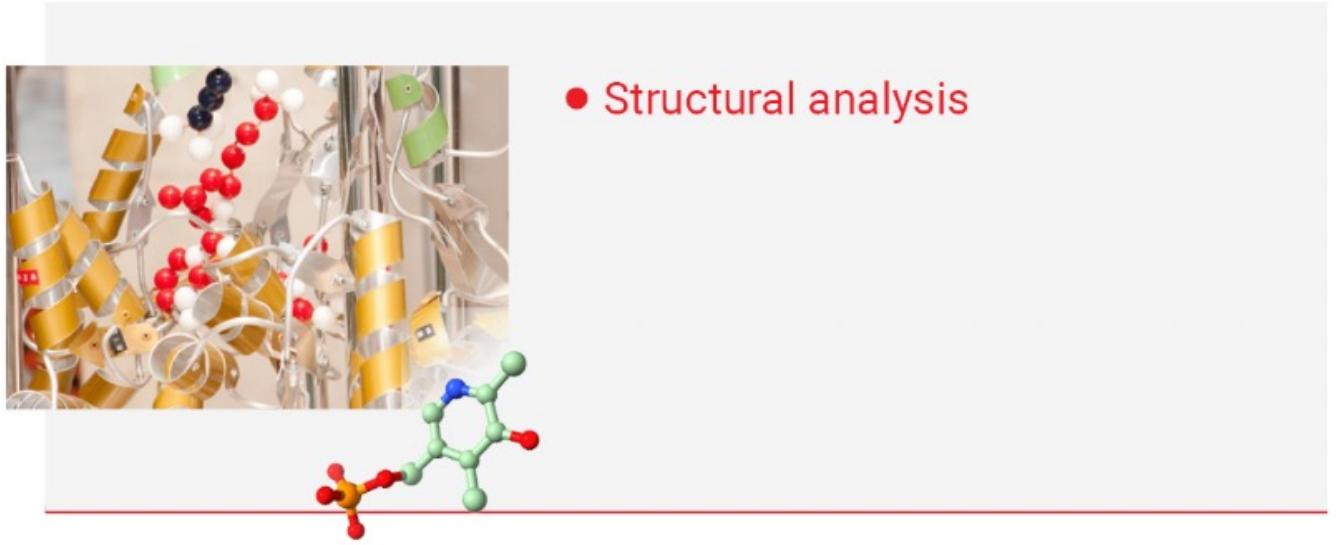
FAIR infrastructure for 3D data

EOSC core technologies

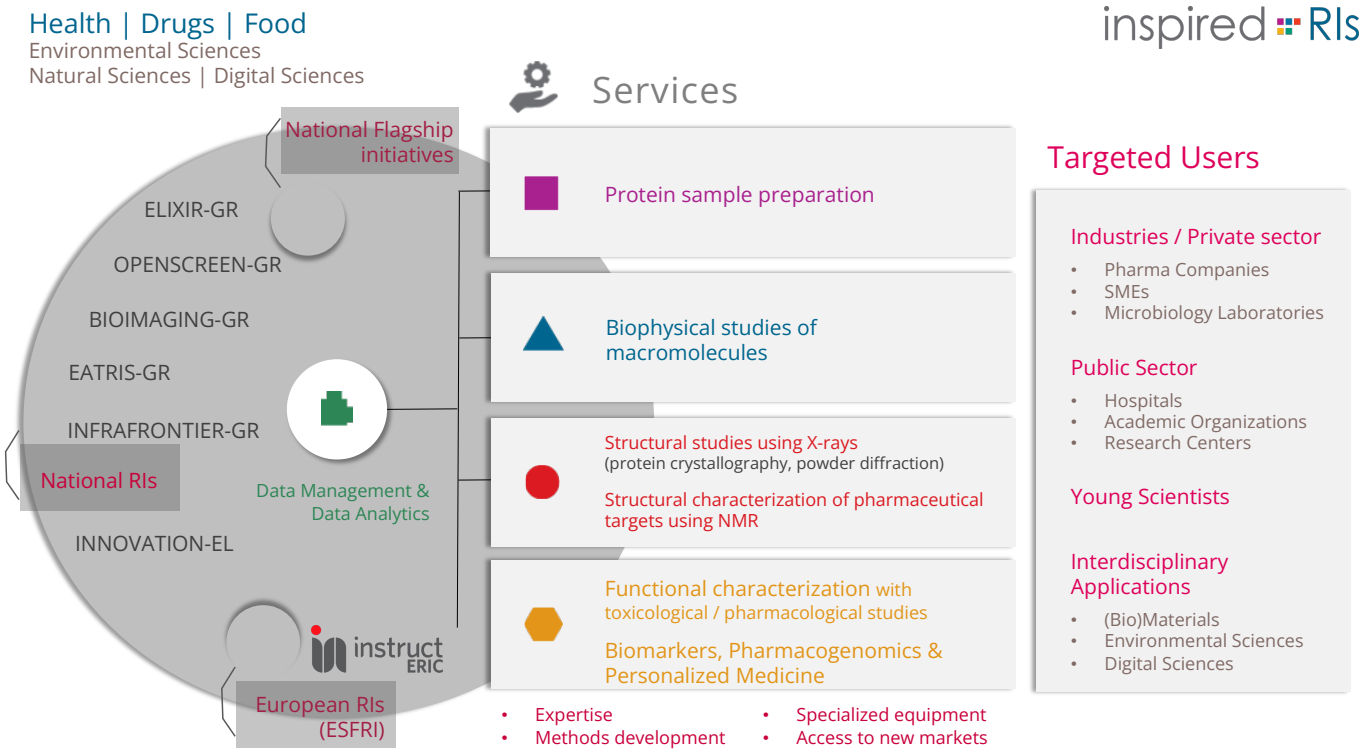
to develop

services catalogues

Use the model of the CatRIs to design and implement the catalogue of services, equipment and expertise for Inspired-RIs.



Our Structural Biology RI



EOSC Future Goals

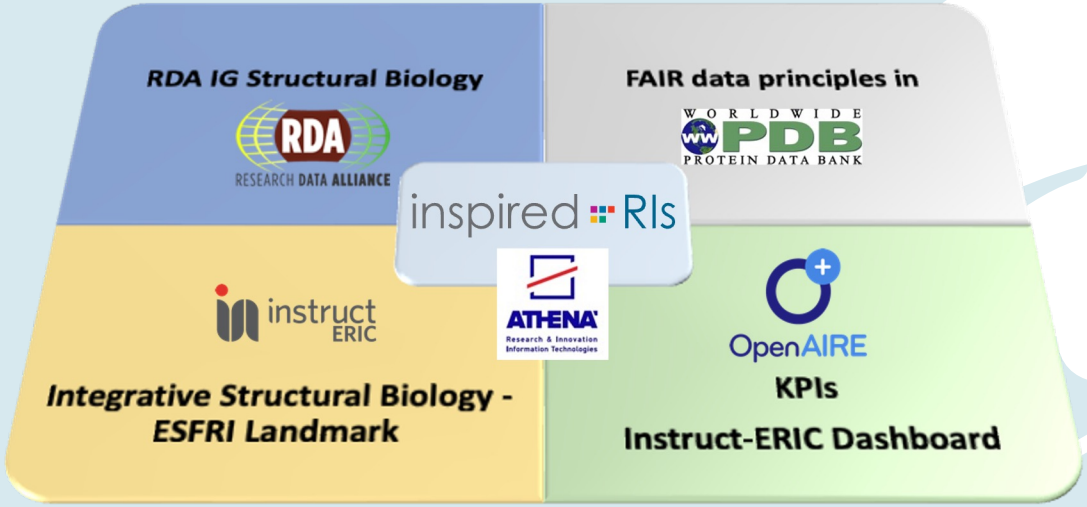
2

Expanding EOSC-Exchange with resources from across scientific disciplines, delivering common services for scientific workflows and integrating resources from national and pan-European e-infrastructures and research infrastructures

Need to foster cross fertilization between disciplines and the research conducted in RIs

e-Infrastructures already available may develop a cross talk with ESFRI projects

Our Structural Biology RI



Engagement of our community through :

- open databases for 3D protein structures
- open access publications
- Universal data format

  e.g. Crystallographic Information File (CIF) is the standard format for storing crystallographic structural data.
- Structure-based vs EOSC requirements

EOSC Future Goals

6

Support and train users and providers through learning materials and training to increase the uptake of EOSC resources and open science practices

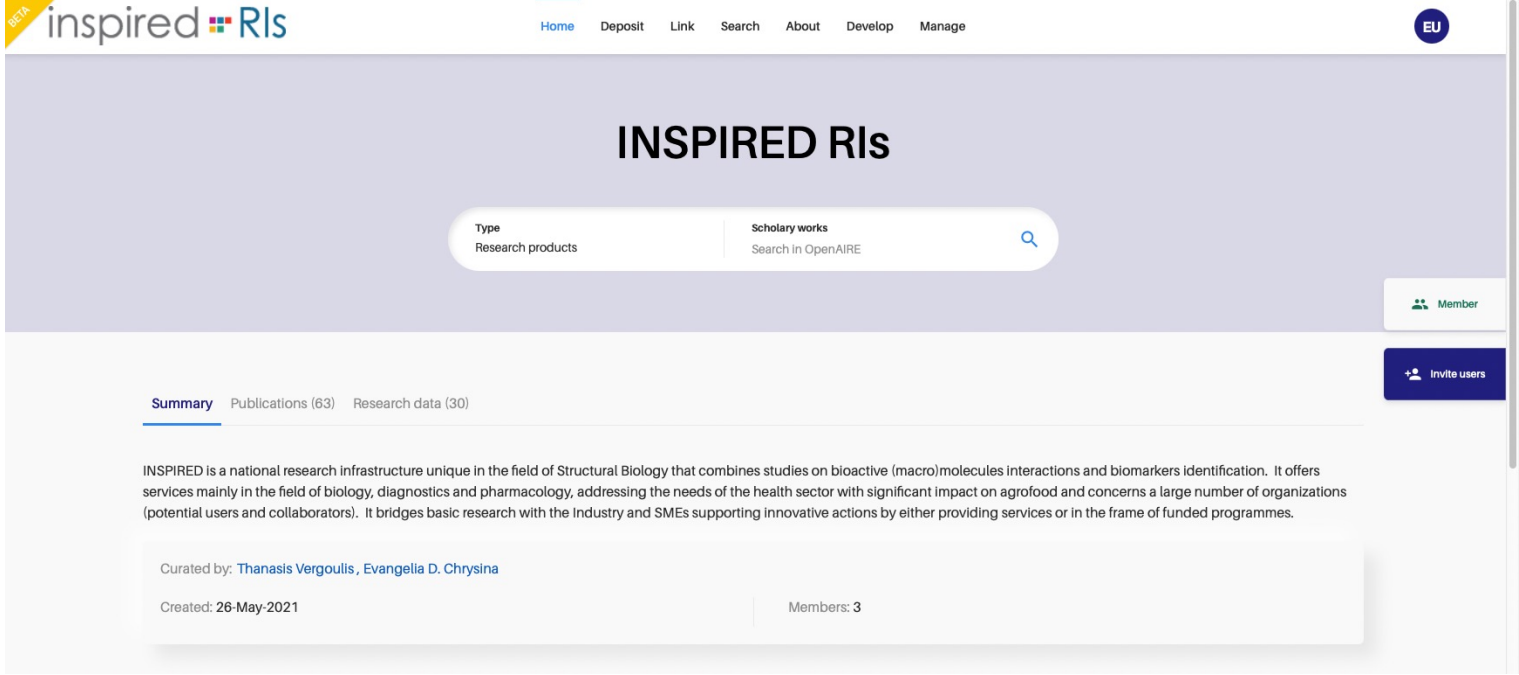
7

Engage with the EOSC communities and end users to co-design and co-create the EOSC platform

- Develop a "vocabulary" for 3D Communities

  i.e. work with communities in Structural Bioinformatics (INSTRUCT + ELIXIR)

- Perform a SWOT analysis and inform keystakeholders on
  - What has been achieved
  - What are the challenges
  - What does EOSC wants to know from RIs and user communities



A dashboard for Inspired-RIs has been prepared.

All research products related to the NRI including

- Publications
- Data
- PDBs
- Other research products

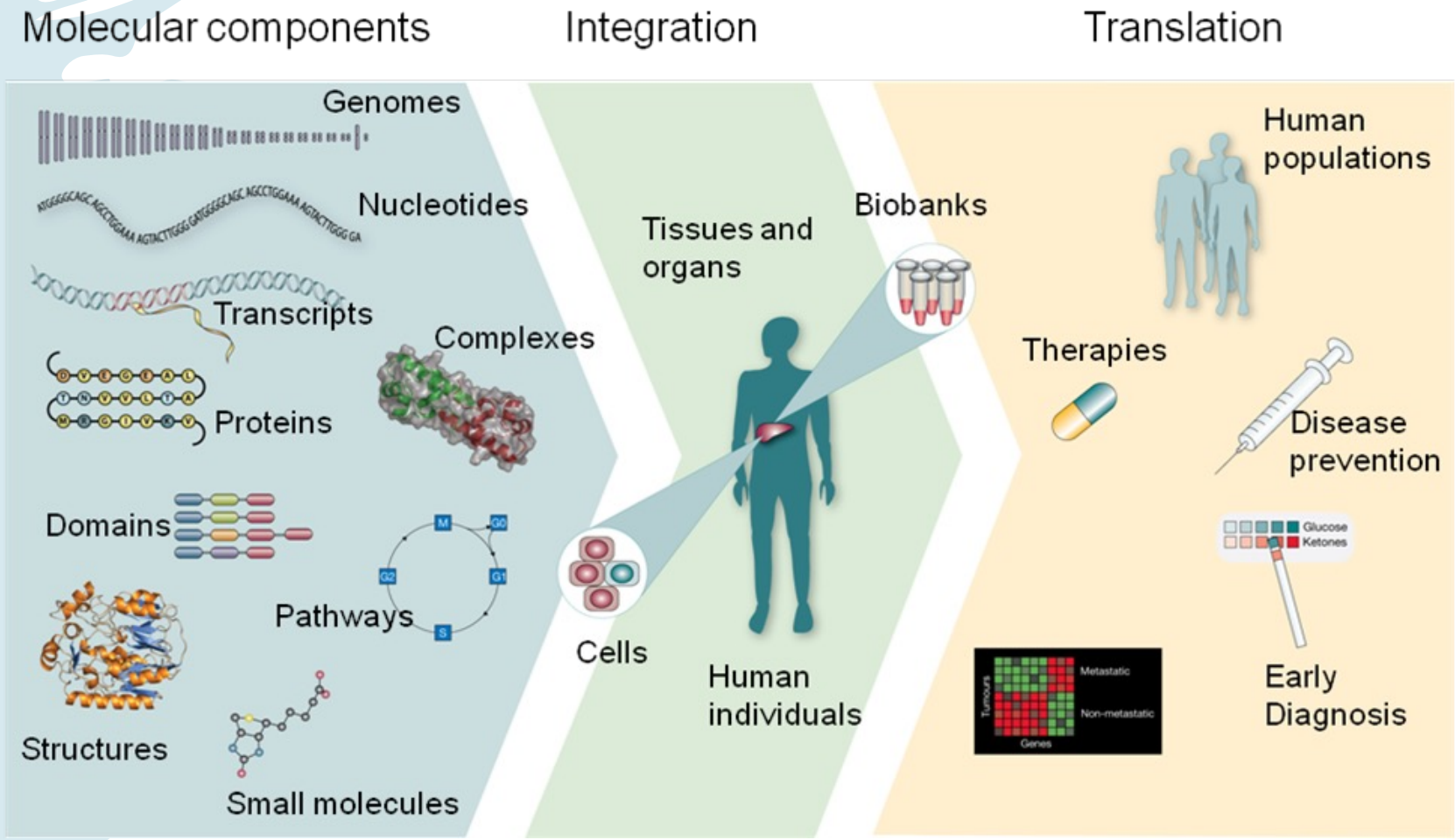
ATHENA Research & Innovation Information Technologies

will provide training to Inspired-RIs Partners and Users through

- OpenAIRE National Open Access Desk (NOAD)
- Tools like ARGOS for data management, data infrastrutrue design

From molecules to medicine

The BMS Research Infrastructures *constitute a well coordinated series of facility providing technologies and expertise relevant in the biological, medical, translational and clinical domains.*"



Committed to our cause :

Bring structural biology at the forefront of research

Help all people recognize the role it plays in understanding the mechanisms of life

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National Hellenic Research Foundation

E.D. Chrysina
Senior Researcher at ICB-NHRF
Docent at Orebro Univ. Sweden
echrysina@eie.gr

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