Greek Precision Medicine Network on Cancer

Kostas Stamatopoulos
INAB | CERTH

the most excellent thing for the physician is to **cultivate prognosis**

for by **foreseeing and foretelling** he will be acquainted with the circumstances of the sick

Hippocrates

the good physician treats the disease

the great physician treats
the patient who has the disease

William Osler, 1908

the essence of deductive reasoning

from the general to the *particular*

particular

synonyms

certain, detailed, exact

is medicine an exact science?

to a certain extent yes,
to a certain extent no

some parts are highly exact
others much less so

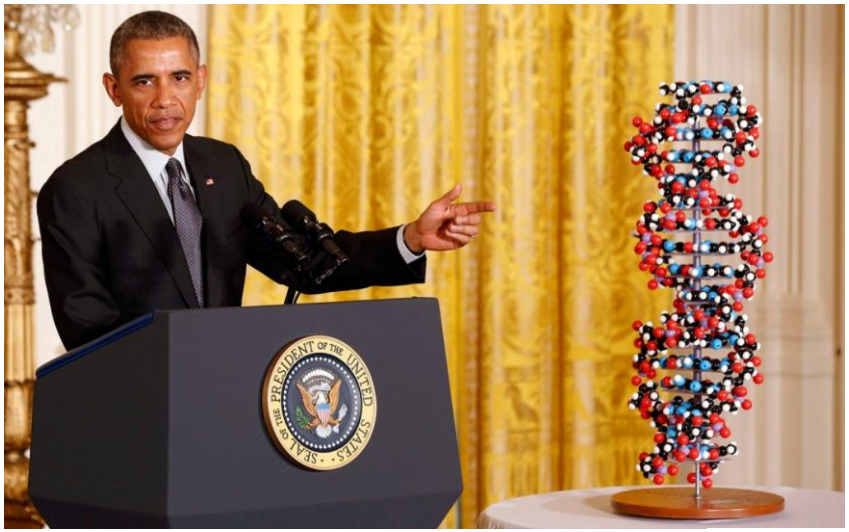
L. King, 1952

does medicine have the same degree of predictive accuracy as physics?

obviously, no

but whoever claimed that it did or should?

L. King, 1952



Precision Medicine Initiative

"Tonight I'm launching a new Precision Medicine Initiative to bring us closer to curing diseases like cancer and diabetes.

And to give us all access to the personalized information we need to keep ourselves and our families healthier."

President Barack Obama
2015 State of the Union Address | January 20, 2015

Precision medicine is an emerging approach for disease prevention and treatment that takes into account people's individual variations in genes, environment, and lifestyle.

The **time is right** because of:

Sequencing of the human genome

Improved technologies for biomedical analysis

New tools for using large datasets

THE PRECISION MEDICINE INITIATIVE®

why precision medicine in cancer?

an urgent global need

Noncommunicable diseases (NCDs) kill 40 million people each year, equivalent to 70% of all deaths globally.

Each year, 15 million people die from a NCD between the ages of 30 and 69 years.

Cardiovascular diseases, respiratory diseases, diabetes and **cancer** account for over 80% of all premature NCD deaths.

Detection, screening and treatment of NCDs, as well as palliative care, are key components of the response to NCDs.

World Health Organization

World Health Organization

GLOBAL ACTION PLAN

FOR THE PREVENTION AND CONTROL OF NONCOMMUNICABLE DISEASES

2013-2020

World Health Organization

TOGETHER

WE CAN PREVENT AND CONTROL

THE WORLD'S MOST COMMON DISEASES

The challenge is unprecedented -- a 25% reduction by 2025 in premature deaths from noncommunicable diseases.

Critical factors in developing a national intersectoral action plan

World Health Organization

Critical steps in developing a national intersectoral action plan

World Health Organization

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EPEYNA & KAINOTOMIA

ΓΓΕΤ
ΓΕΝΙΚΗ ΓΡΑΜΜΑΤΕΙΑ
ΕΡΕΥΝΑΣ ΚΑΙ ΤΕΧΝΟΛΟΓΙΑΣ

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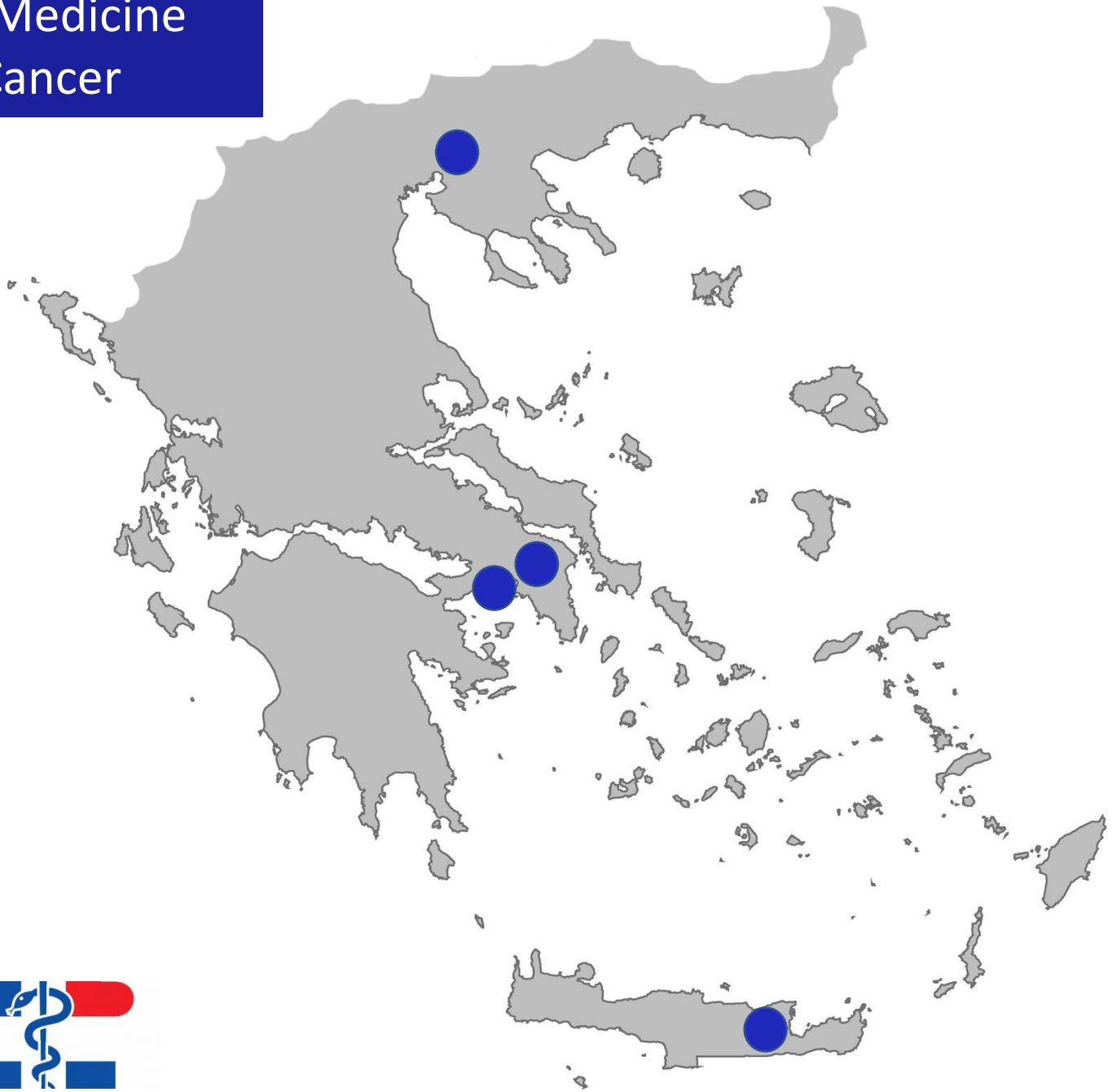

ΕΡΕΥΝΑ & ΚΑΙΝΟΤΟΜΙΑ

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what do we want to achieve?

to offer all cancer patients in Greece

The best available diagnostics – using next-generation sequencing technologies

Precision medicine – the right treatment to the right patient

Through a national effort offer equal care independent of healthcare region

Build a unique research resource

metrics and timeline

5.4 M for 2018-2020

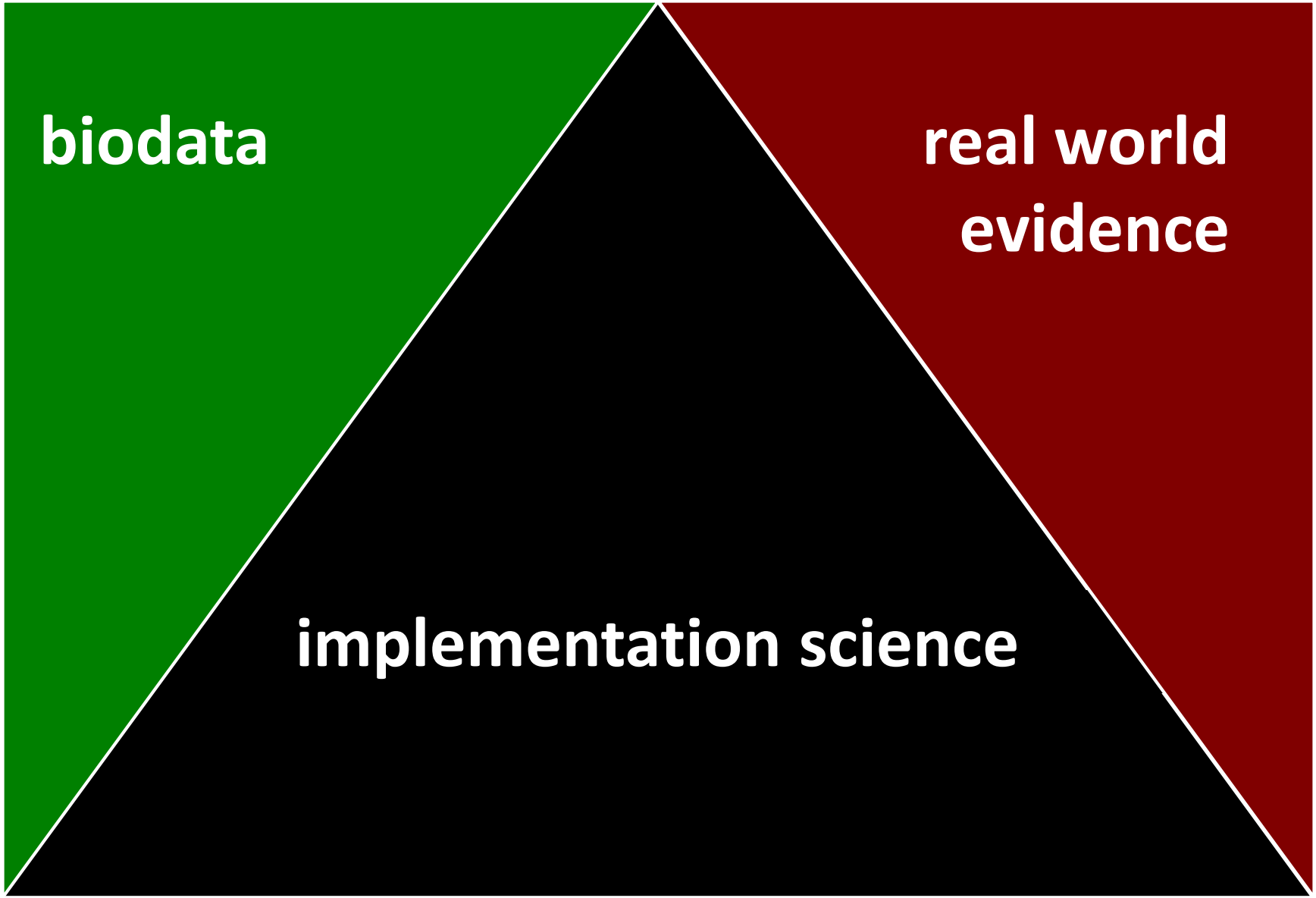
4 Units
- 7 research centers
- 4 universities

9 different disciplines (so far)

Phase A	M1-M6
Phase B	M7-M24

strategy

Critical components to precision medicine



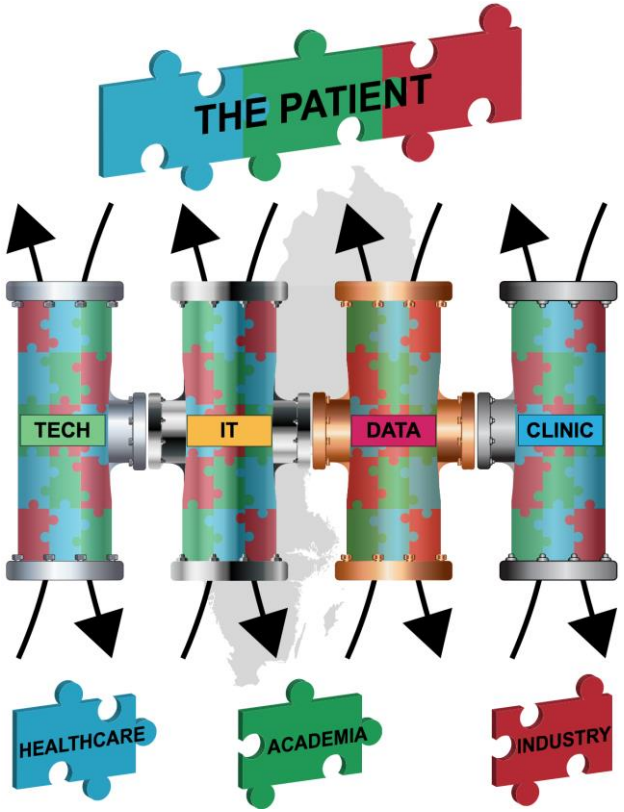
Collaboration between academia, healthcare and industry

Closer cooperation between diagnostics labs and
- treatment clinics
- clinical trial units
- pharma and biotech industry

Streamlined IT infrastructure

Clinical interpretation teams

Excellent pilot studies!



Phase A

M1-M6

standardization

interlaboratory
quality control

Networking
  national | pMED-GR
  international

Links to European initiatives

COUNTRY	COMPANY/INSTITUTION	TIME	SCOPE	FUNDING	PROGRESS	MEDICAL FOCUS
ENGLAND	Genomics England Ltd. (GeL)	2013-2018	100,000 genomes	£411 M	~34,000 genomes	Rare Diseases Cancer
SCOTLAND	The Scottish Genomes Partnership (SGP)	2015-perpetual	~3,000 genomes	£23 M	~3,000 genomes	Rare Diseases Cancer Population Studies
THE NETHERLANDS	Hartwig Medical Foundation (HMF)	2015-2017	>10,000 cancer patients	€30 M	~3,000 patients	Cancer
FRANCE	France Medécine Genomique (AVIESAN)	2015-2025	235,000 WGS/annum by 2020	€670 M (-2020)	Two platforms selected	Rare Diseases Cancer
IRELAND	Genomics Medicine Ireland (GMI)	2016-perpetual	45,000 genomes	$40 M	Incorporated Series A	Population studies Rare Diseases
SWITZERLAND	Swiss Personalized Health Network (SPHN)	2017-2020	Informatics structure	CHF 68	Funding calls	Rare Diseases Cancer Infectious Diseases
FINLAND	Finland´s Genome Strategy (FGS)	2017-2020	National infrastructure (operational by 2020)	€17 M (Request for €50 M)	Planning phase	Rare Diseases Cancer Pharmacogenetics Genetic Risk Susceptibility
NORWAY	The Norwegian Strategy for Personalised Medicine in Healthcare	2017-2021	<13,000 WGS/annum	NOK 8 M (pre-analysis)	Planning phase	Rare Diseases Cancer Infectious Diseases
DENMARK	National Strategy for Personalized Medicine (Per Med)	2017-2020 2020-perpetual	~100,000 genomes	DKK 5 M (pre-analysis) DKK 100 M	Initiated	Rare Diseases Cancer Diabetes Companion Dx
SWEDEN	Genomic Medicine Sweden	2017-2023	~25,000 genomes/annum	SEK 4 M (pre-analysis)	Planning phase	Rare Diseases Cancer Complex Disease Microbiome

Cyprus, Serbia, Slovenia, Hungary, Czech Republic

next steps

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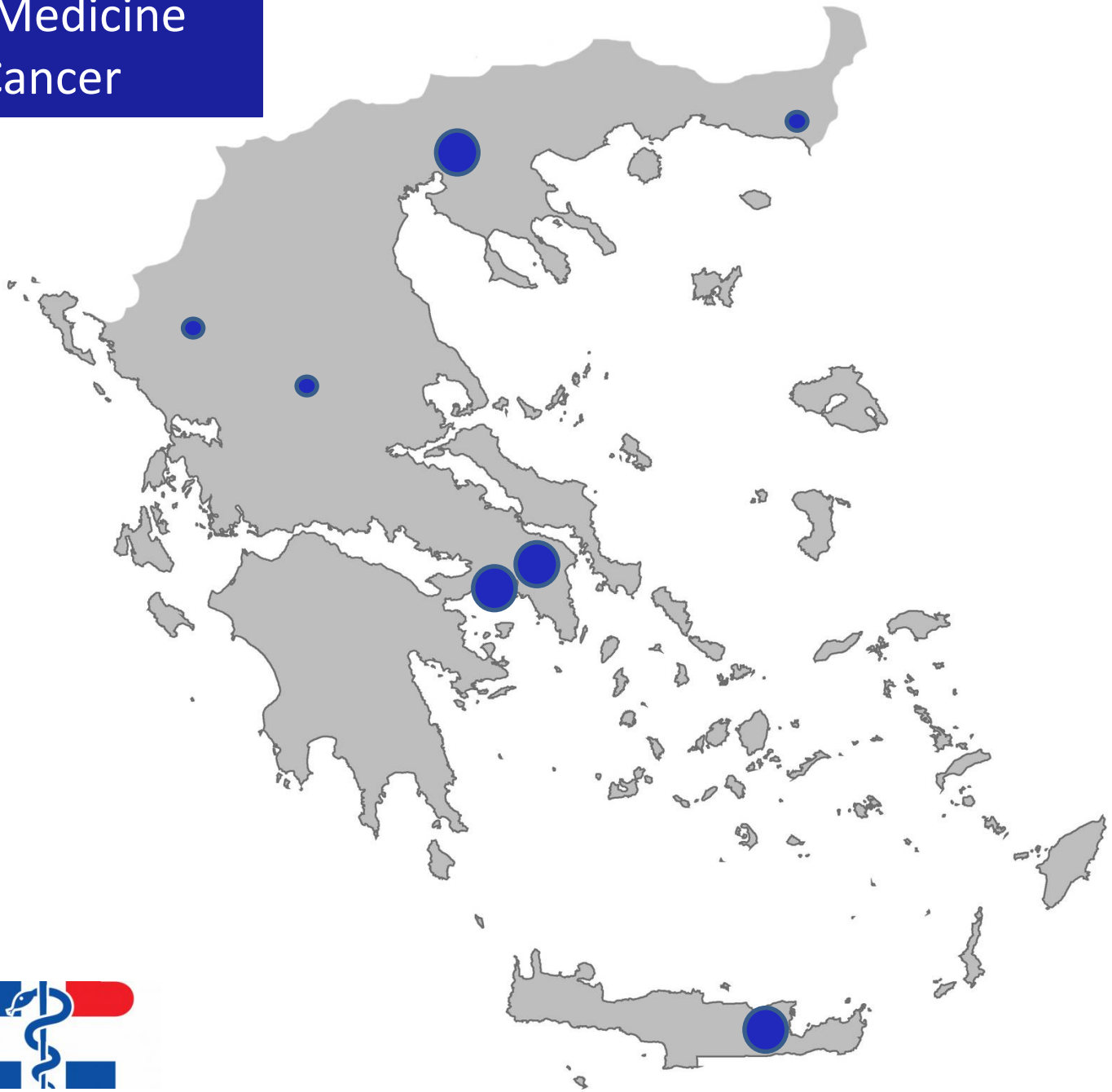

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Phase B

state-of-the-art NGS-based diagnosis

translational research

the entire national health ecosystem as a potential ‘customer’ and biodata provider

vision

the entire national health ecosystem as a potential ‘customer’ and biodata provider

a secret for success?

collaborate and involve all relevant stakeholders

Medicine is of all the Arts the most noble

but, owing to the ignorance of those who practice it, and of those who, inconsiderately, form a judgment of them, it is at present behind all the arts

Hippocrates

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