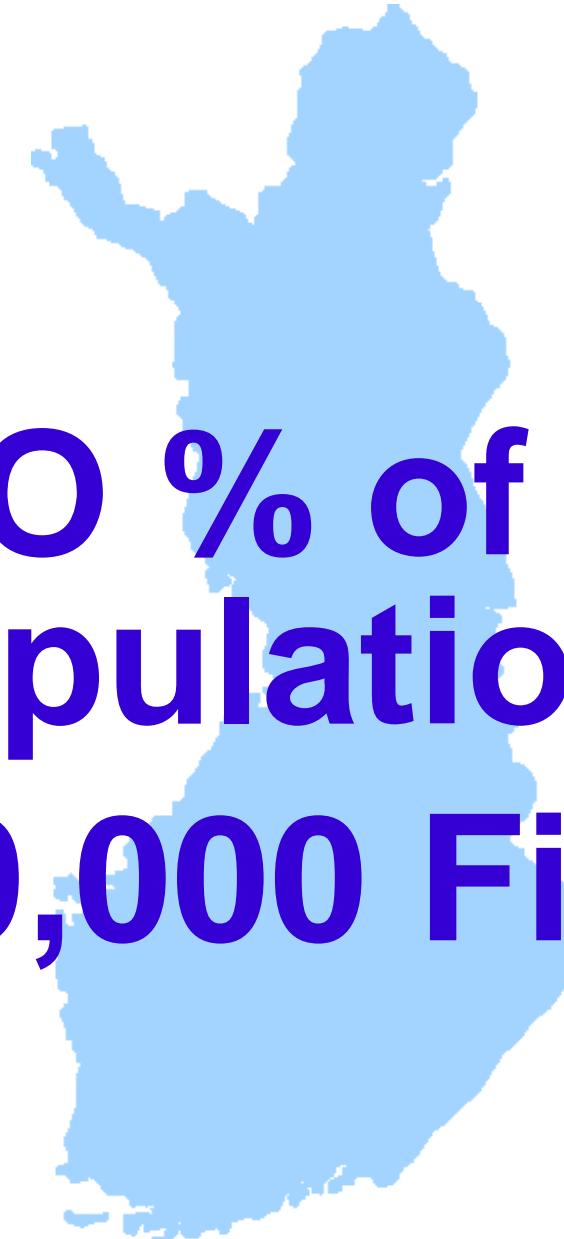




FINNGEN





**~10 % of the  
population =  
500,000 Finns**

# Goals of FinnGen

01

PRODUCE MEDICAL  
INNOVATIONS BY  
COMBINING HEALTH  
REGISTRY AND  
GENOME DATA

02

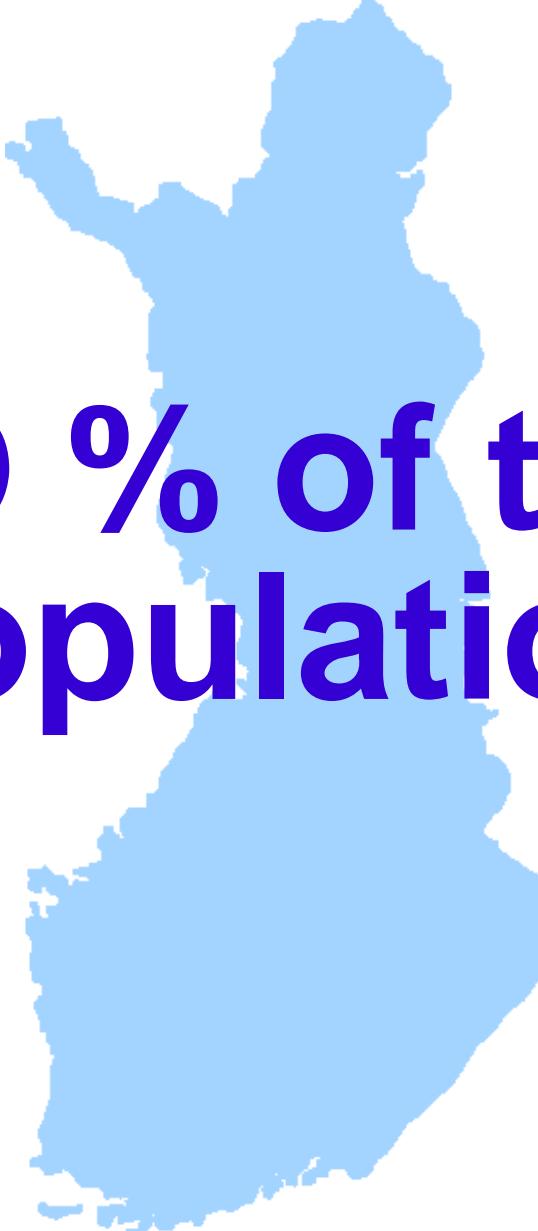
SUPPORT FINLAND TO  
BECOME A PIONEER  
BIOMEDICINE AND  
PERSONALIZED  
HEALTHCARE

03

CREATE A CO-OPERATION  
MODEL BETWEEN PUBLIC  
SECTOR AND  
HEALTHCARE INDUSTRY

04

PROVIDE EARLY ACCESS TO NEW  
PERSONALIZED TREATMENTS  
AND HEALTH INNOVATIONS FOR  
ALL FINNS



**10 % of the population**

Existing sample collections:

215 000 Finns

285 000 new biobank sample donors within the upcoming 6 years

Step 1:  
Producing  
genome data

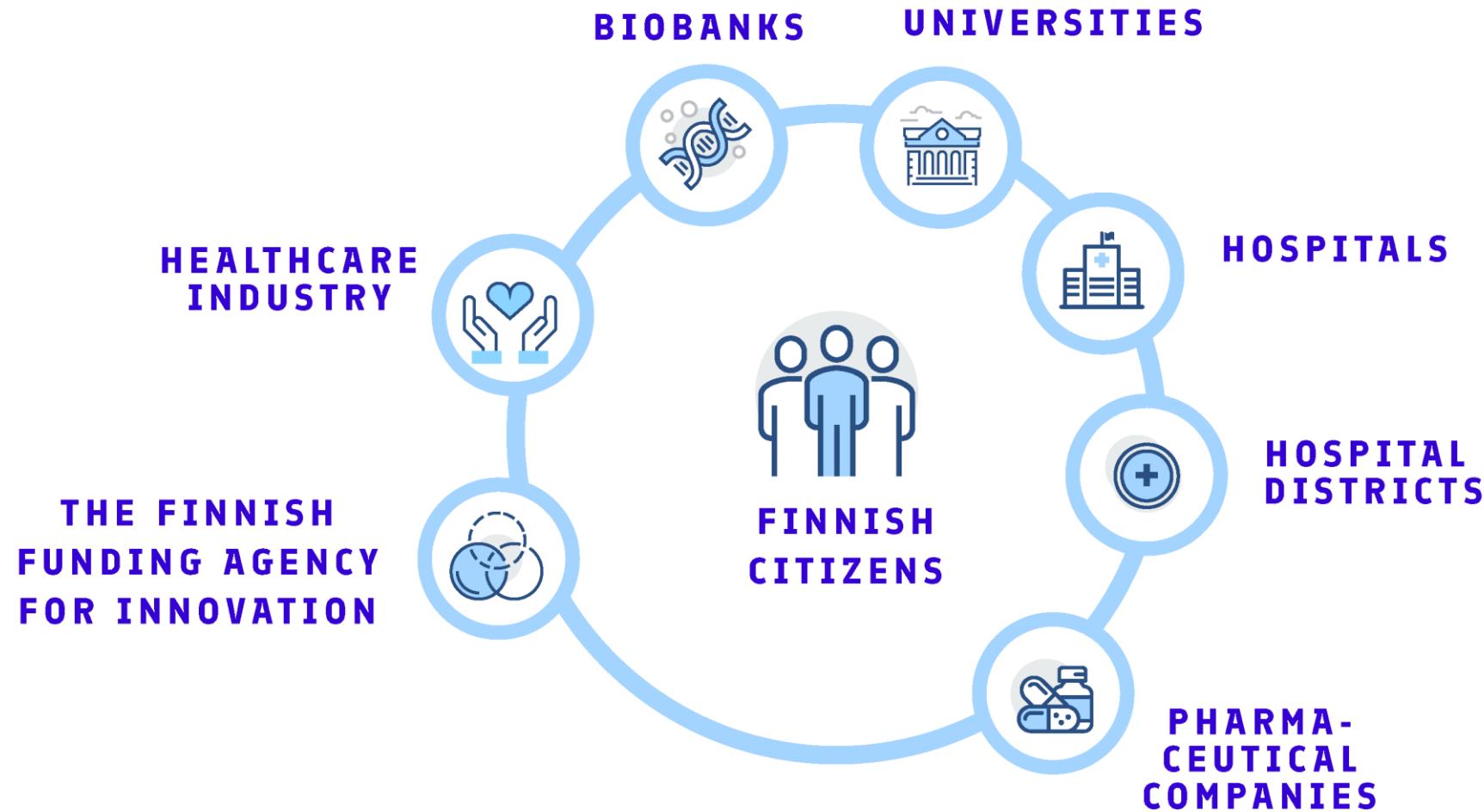


10 % of the  
population

Step 2:  
Combining  
genome data  
with digital  
health care data



# Partners



# Funding



TEKES 20 M€

PHARMACEUTICAL INDUSTRY 39 M€  
(7 GLOBAL COMPANIES)

HOSPITAL DISTRICTS AND THL DONATE DOZENS  
OF MAN-YEARS OF LABOR INPUT BY  
COLLECTING SAMPLES

THE INPUT OF FINNISH UNIVERSITIES AND THL

THE INPUT OF FINNISH COMPANIES

# Collaboration



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# Benefits



## Citizens

New, more reliable solutions for healthcare, disease prediction and prevention



## Pharma

Unique co-operation with new kind of partners. Access to valuable genotypic and phenotypic data from the Finnish population, possibility to identify new potential drug targets.



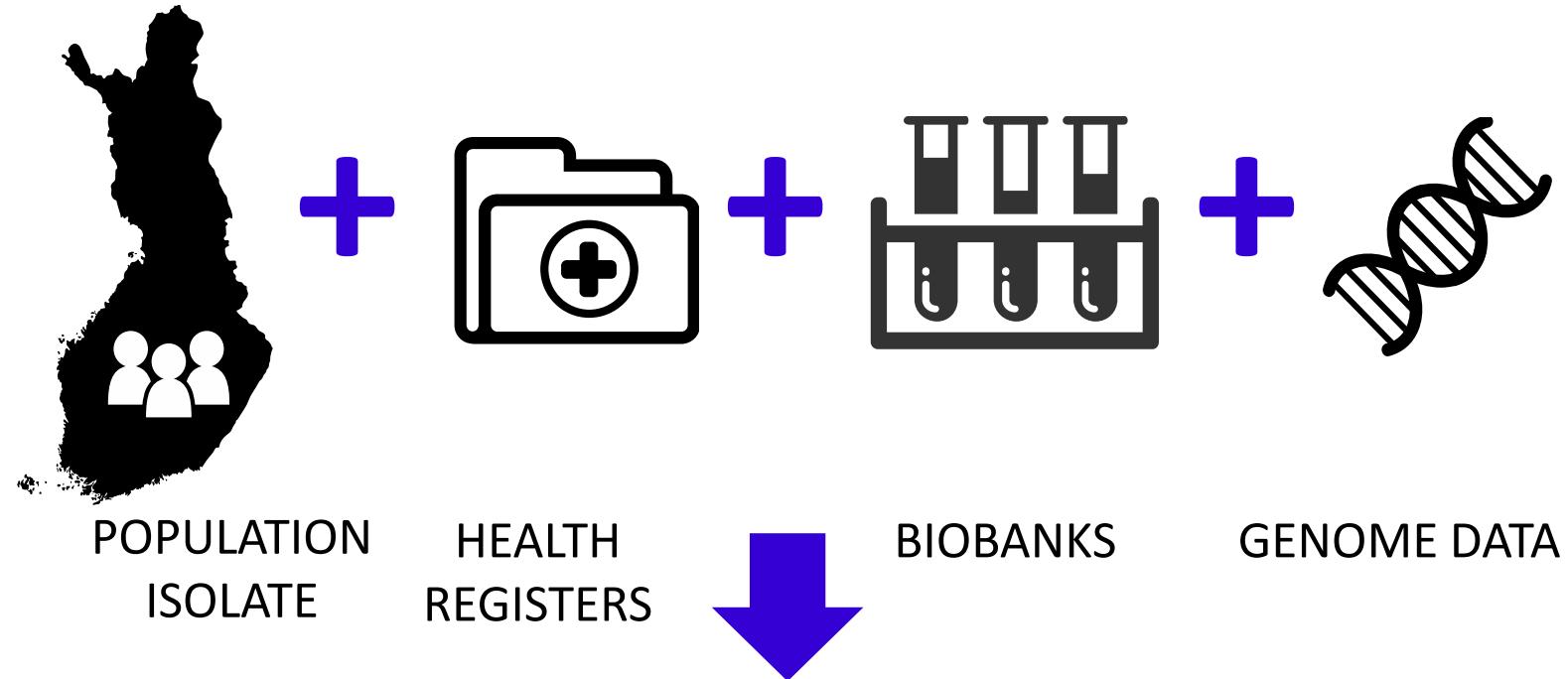
## Biobanks

Expanding the sample collections and enriching the value of the samples with genomic data. Highlighting the excellence of Finnish biomedical research.

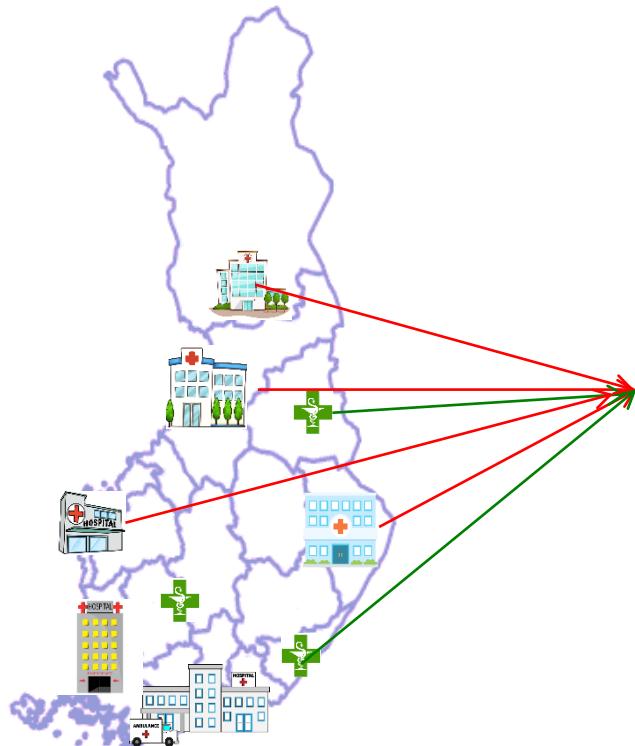


## Research

The data generated will remain in Finland and can be used for future research purposes increasing the attractiveness of Finland as a partner.

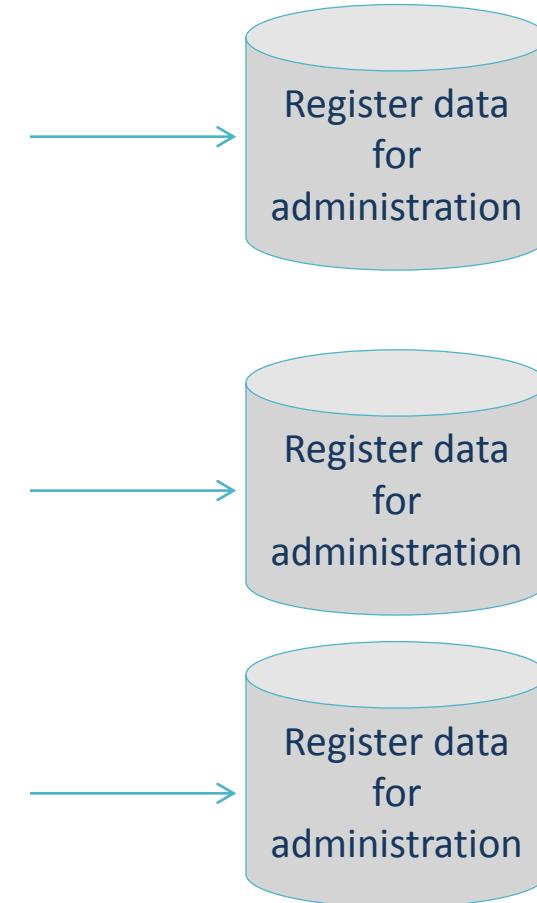


# National registers

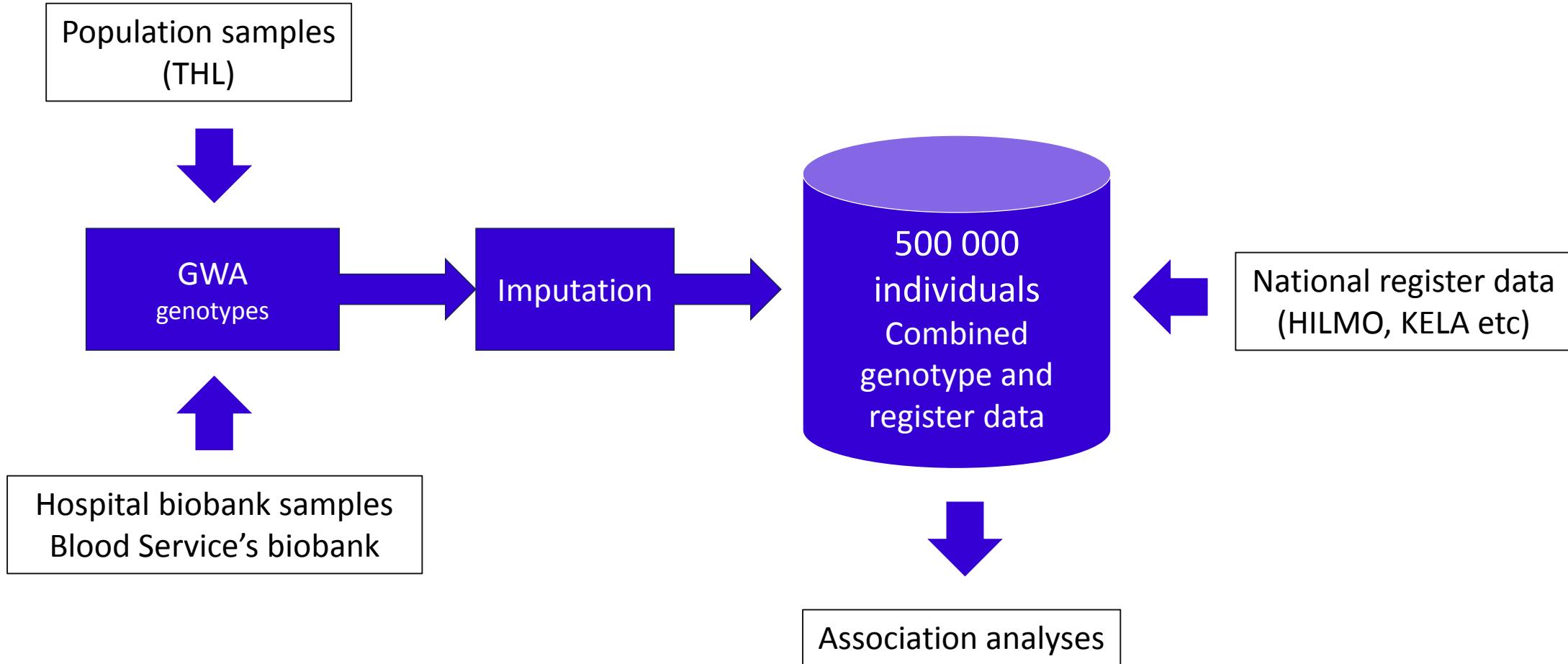


All data harmonized  
Interconnected by the 11 digit person  
number

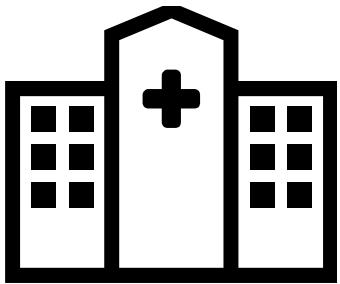
- Hospital discharge
- Hospital procedure
- Outpatient visit
- Outpatient procedure
- Primary care
- Primary care procedure
- Cancer register
- Cause of death
- Drug purchase
- Drug reimbursement



# FinnGen samples and data



Prospective collections 300 000



Hospital biobanks

Legacy collections 200 000



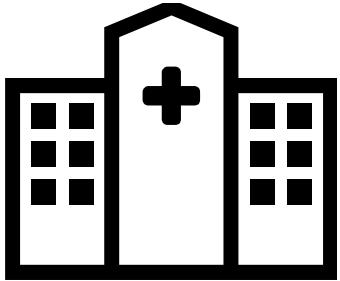
THL



- Epidemiological cohorts (Finrisk, H2000)
- Disease collections:
  - Diabetes, Botnia
  - Migraine
  - Schizophrenia



Prospective collections 140 000



Hospital biobanks

Legacy collections 200 000

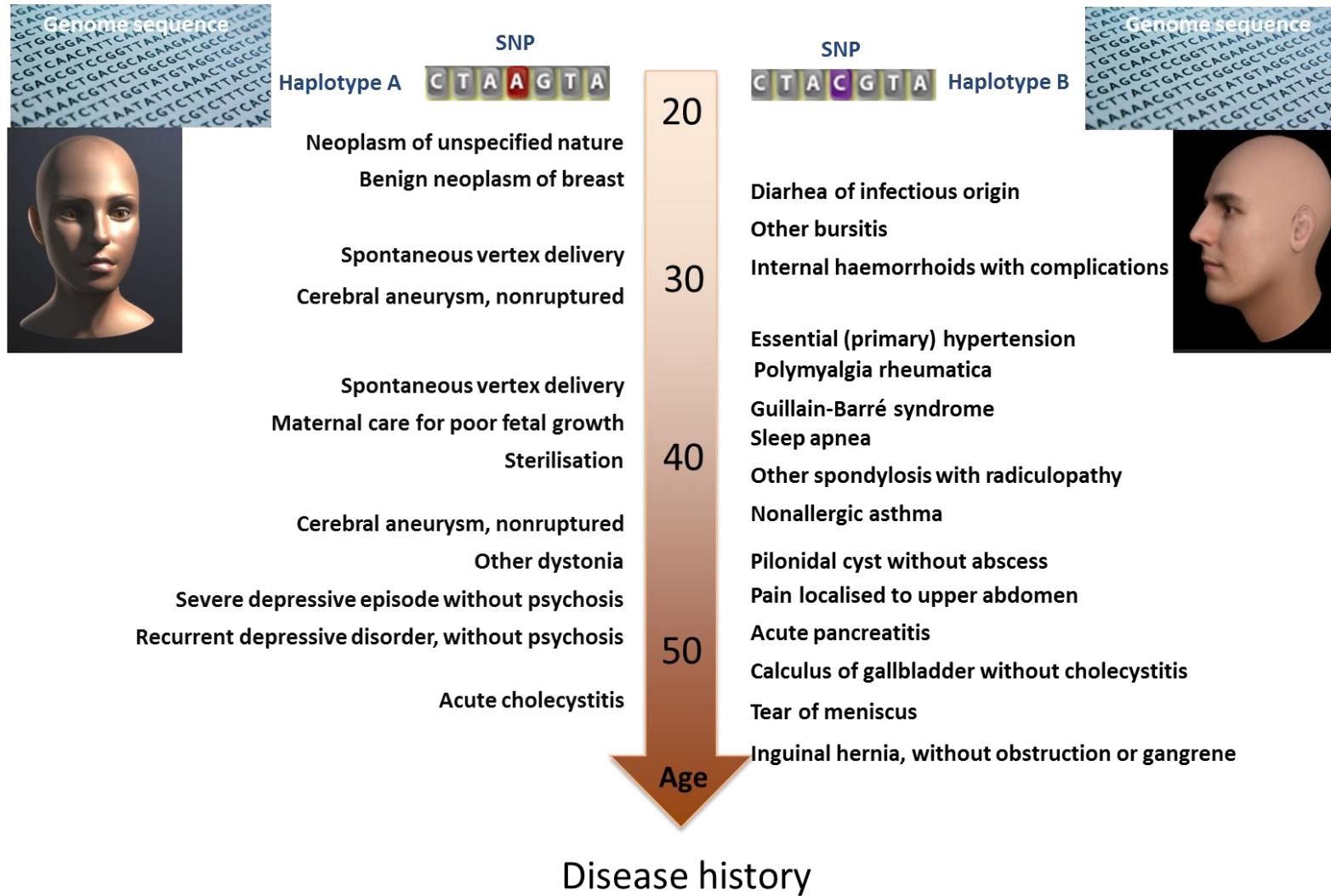


- Epidemiological cohorts (Finrisk, H2000)
- Disease collections:
  - Diabetes, Botnia
  - Migraine
  - Schizophrenia

FinnGen 1  
First 3 years

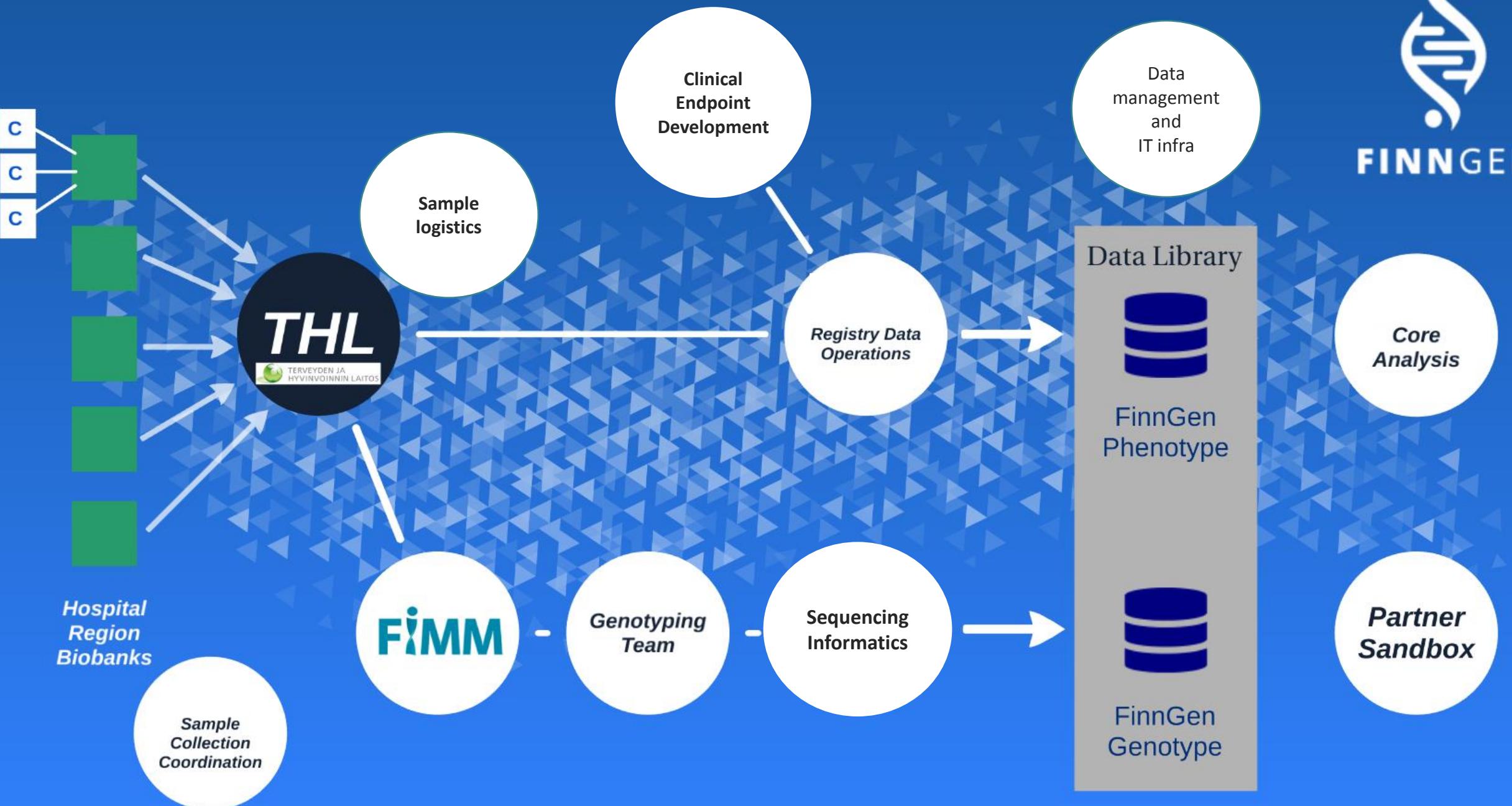


# EXAMPLE OF HEALTH HISTORIES FROM TWO PERSONS FROM THE NATIONAL BIOBANKS WITH A 40 YEAR FOLLOW-UP





FINN GEN



# FinnGen analysis strategies and scientific aims

*Utilize genetic strategies to understand disease mechanisms*

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## GWAS

Genome-wide association analysis

## PheWAS

Wide phenotypic mining

Better understanding of genetic background of diseases

Common risk factors between different diseases

Identification of causative genetic variants

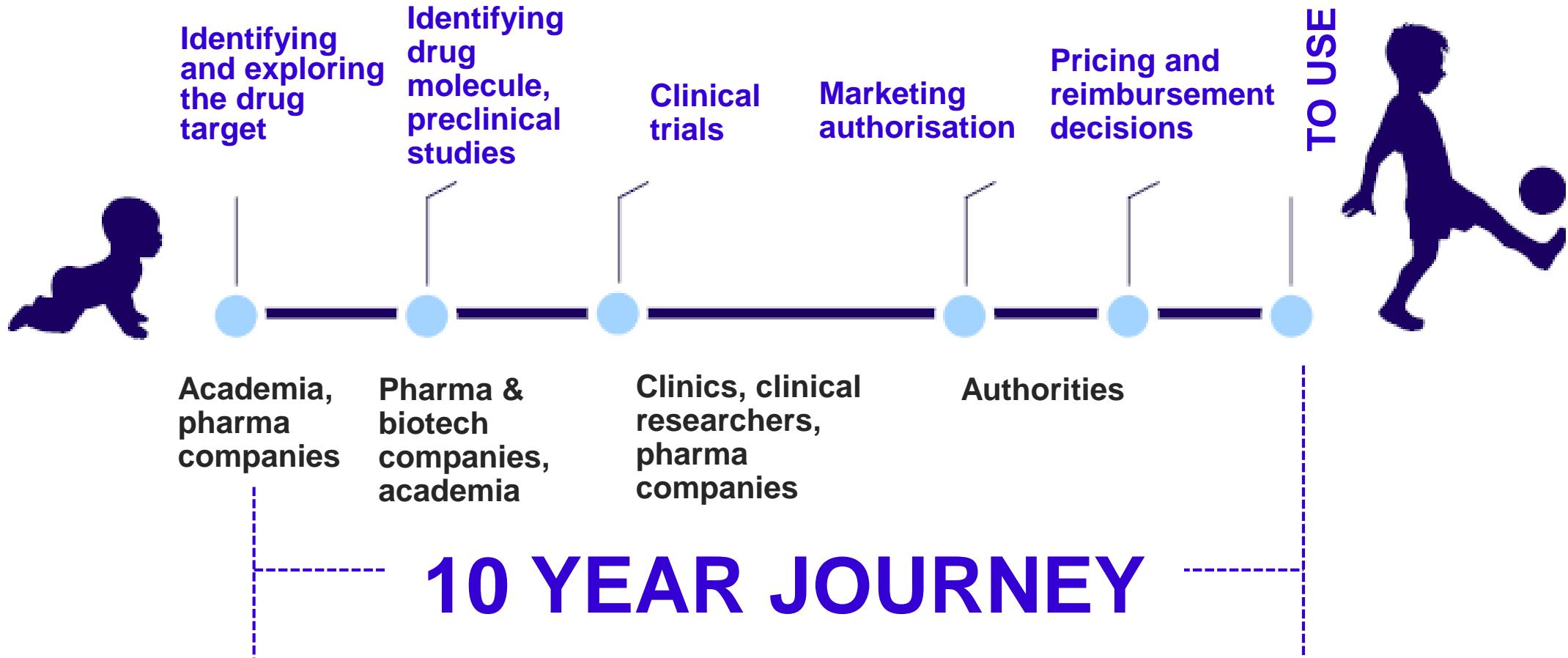
Identification of disease subgroups  
(stratification)

Identification of risk groups  
(prevention)

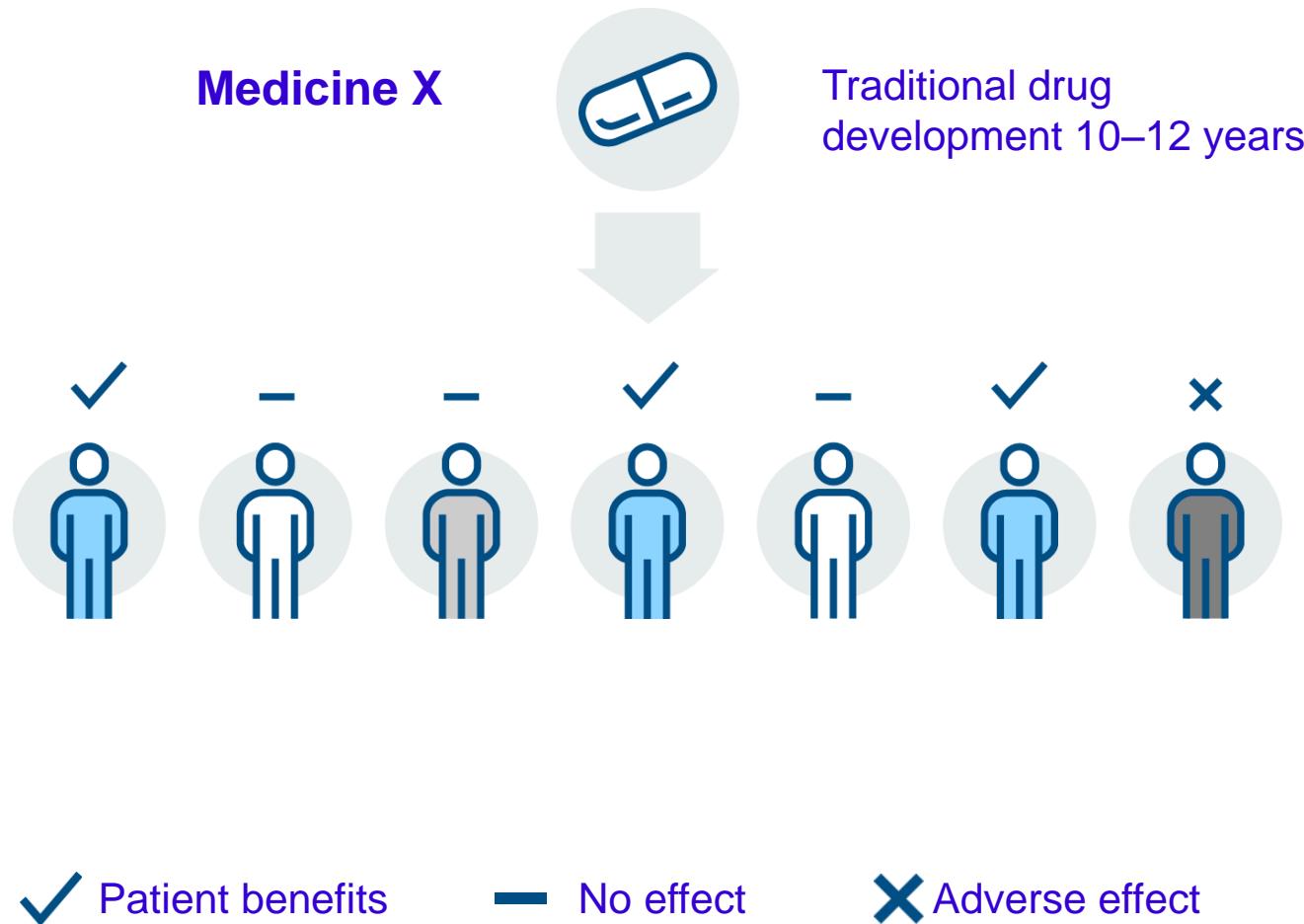
Identification of protective variants

# Benefits for the pharma partners?

# Drug development takes time



# Personalized medicine



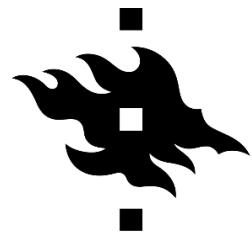
# TEKES-hakemuksessa mukana olleet yritykset



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- BCB Medical,
- BC Platforms, 
- Blueprint Genetics,
- MediSapiens, 
- Negen,
- Orion,
- Terveystalo 
- Woble Genomics

# Coordinated by:



HELSINGIN YLIOPISTO  
HELSINGFORS UNIVERSITET  
UNIVERSITY OF HELSINKI



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|



Institute for Molecular Medicine Finland  
Nordic EMBL Partnership for Molecular Medicine



HELSINGIN BIOPANKKI  
HELSINGFORS BIOBANK  
HELSINKI BIOBANK

HiLIFE UNIT

# Funding partners:

abbvie

AstraZeneca 

Biogen. 

Celgene 

Genentech  
*A Member of the Roche Group*

 MSD

 Pfizer

BUSINESS  
FINLAND

# In co-operation:



**Hospital District of Southwest Finland  
University of Turku  
Satakunta Hospital District  
Vaasa Hospital District**

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**Hospital District of Helsinki and Uusimaa (HUS)  
University of Helsinki  
Kymenlaakso Social and Health Services (Carea)  
South Karelia Social and Health Care District (Eksote)**



**FHRB**  
Biobank

**Finnish Red Cross Blood Service  
Finnish Association of Hematology  
Institute for Molecular Medicine Finland (FIMM), HiLIFE,  
University of Helsinki**

# In co-operation:



**Northern Savo Hospital District**  
**University of Eastern Finland**  
**South Savo Social and Health Care Authority**  
**Joint Municipal Authority for North Karelia Social and Health services (Siun sote)**  
**Eastern Savo Hospital District**

**Central Finland Health Care District**  
**University of Jyväskylä**

**Northern Ostrobothnia Hospital District**  
**University of Oulu**  
**Nordlab**  
**Central Ostrobothnia's Joint Municipal Authority for Specialised Medical Care and Basic Services**  
**Kainuu Social and Health Care Joint Municipal Authority**  
**Lappi Hospital District**  
**Länsi-Pohja Hospital District**



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# In co-operation:



Finnish Clinical  
Biobank Tampere

Pirkanmaa Hospital District  
University of Tampere  
Kanta-Häme Hospital District  
South Ostrobothnia Hospital District

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THL BIOBANK

The National Institute of Health and Welfare



The Finnish Red Cross Blood Service

# Personalized medicine

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