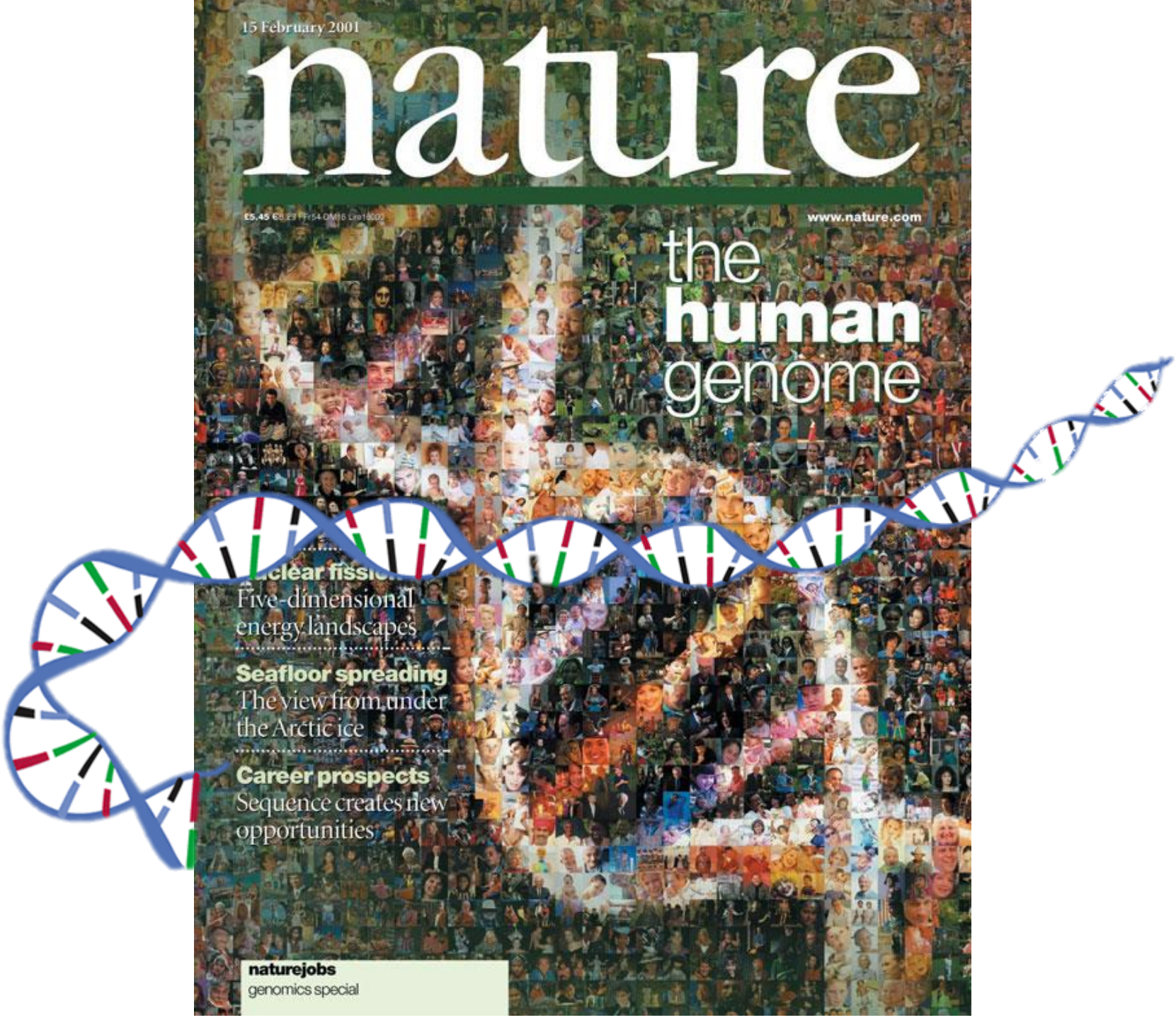
Predictive, preventive and personalized medicine (PPPM) as an upgraded model of healthcare :

How to promote the higher medical education



Irina Zhegalova

Dep. of Personalized Medicine,
I.M. Sechenov First Moscow State Medical University


15 February 2001
nature
www.nature.com
the human genome
Five-dimensional energy landscapes
Seafloor spreading
The view from under the Arctic ice
Career prospects
Sequence creates new opportunities
naturejobs
genomics special

WHAT IS PERSONALIZED MEDICINE IN ROUTINE ?

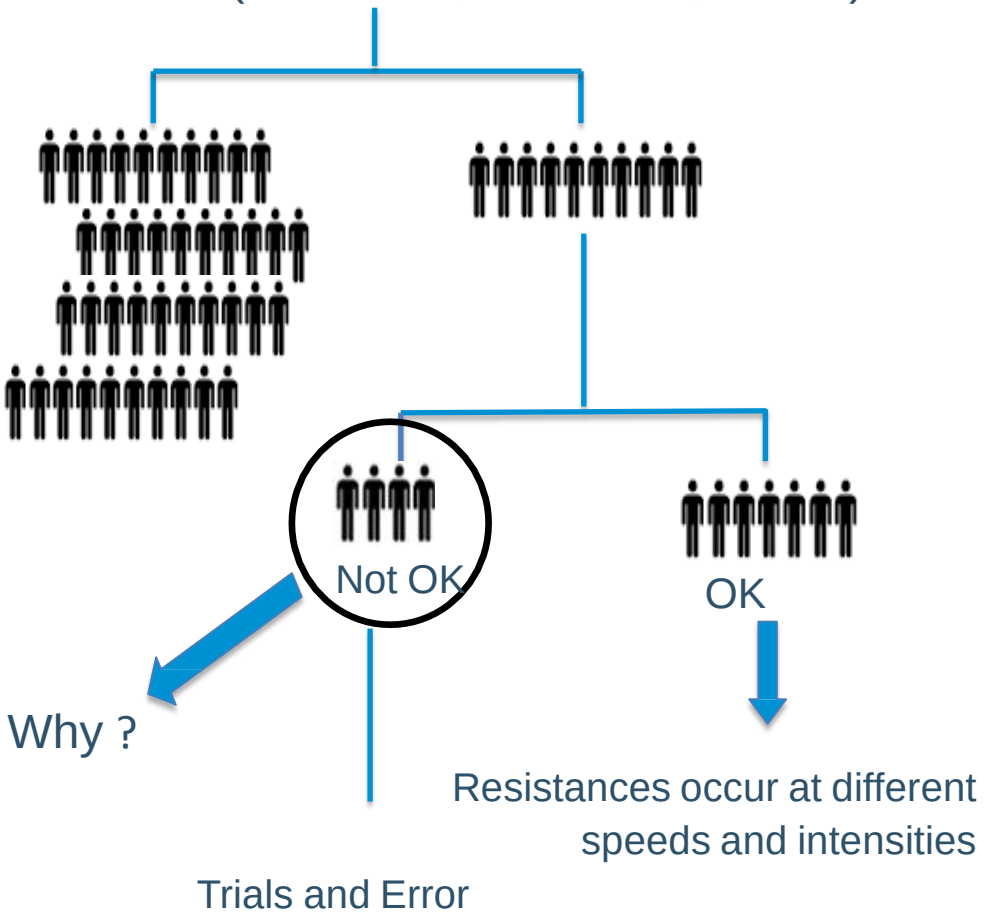
Early days

Chemotherapies
One Size fits all the patients

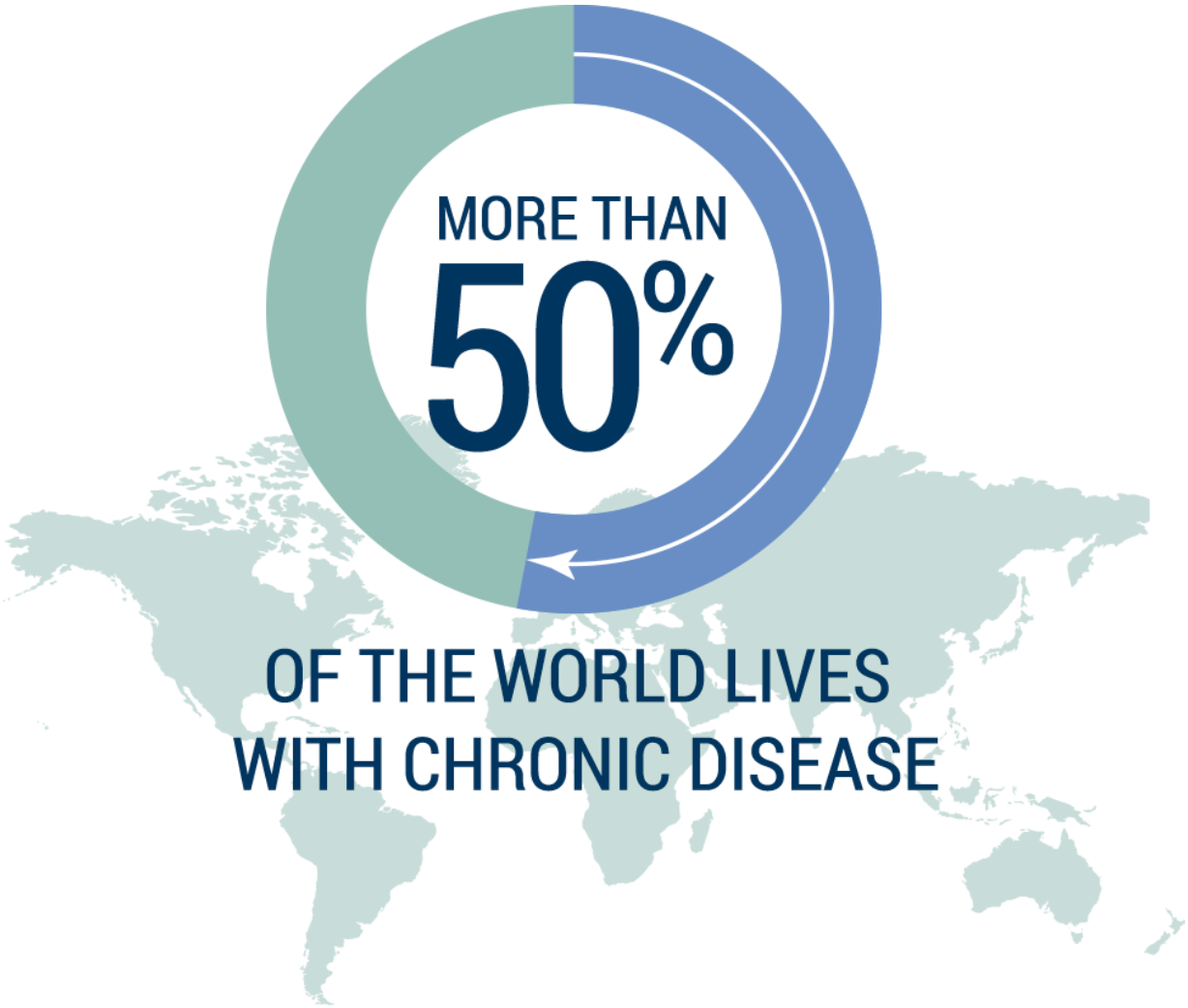
Trials and Error

From early 2000 to now

One biomarker (like HER2, BCR-ABL, EGFR)

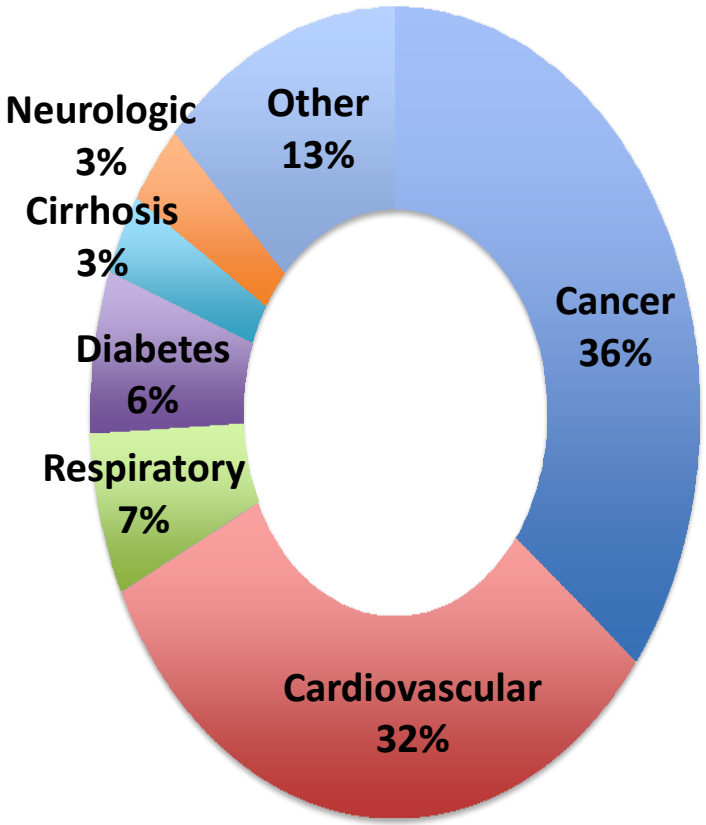


BUT STILL

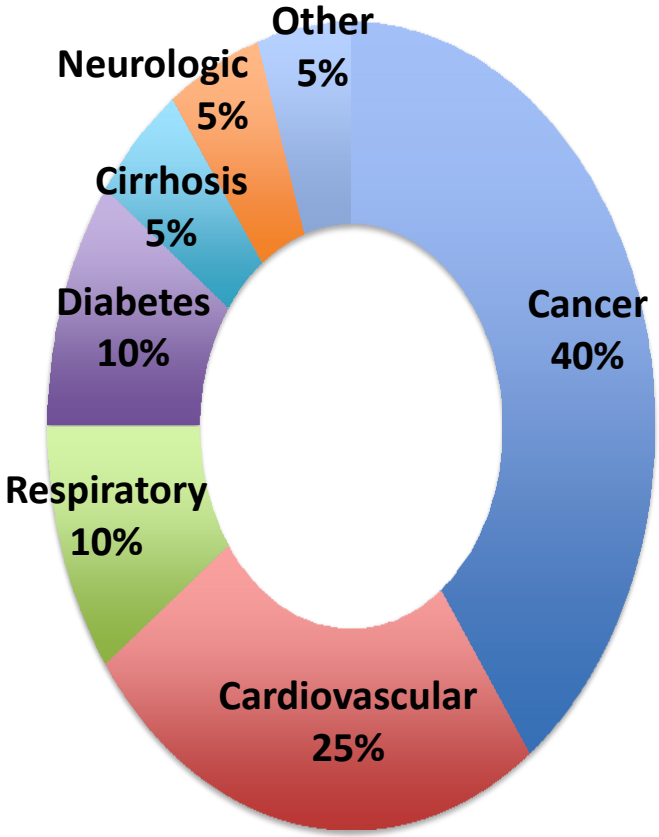


RISK AND CAUSES OF DEATH
by Gender, 50-74 yrs, 2013

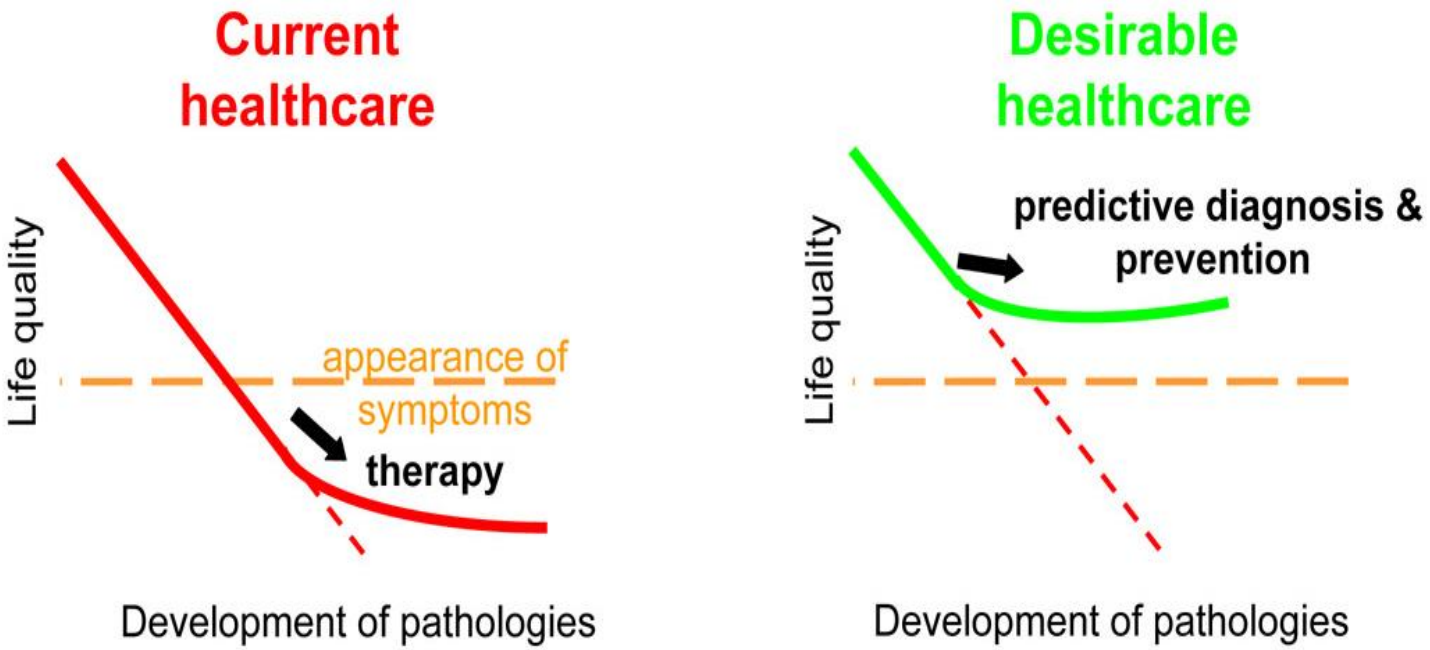
Male Risk of Death = 30%



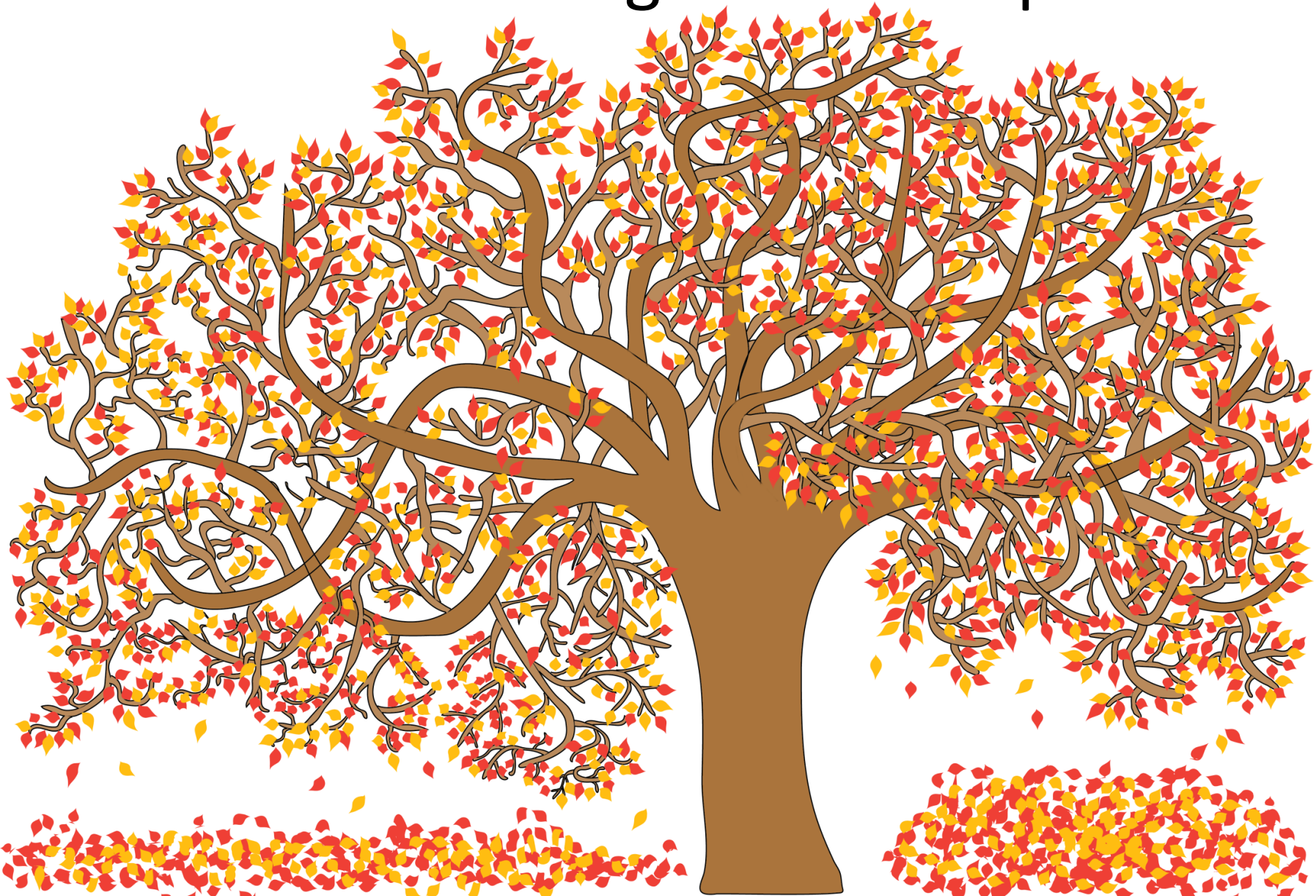
Female Risk of Death = 20%

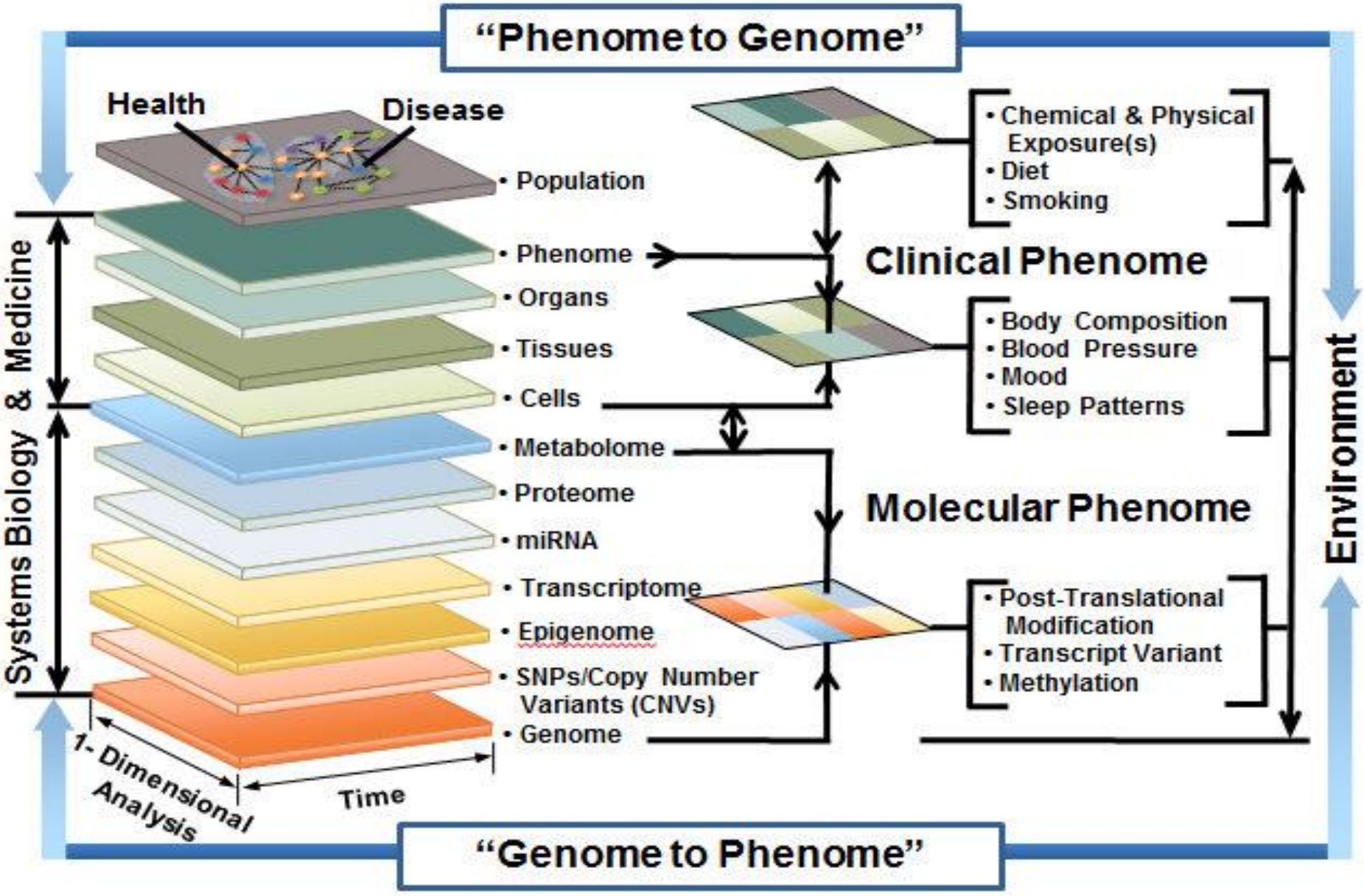


Healthcare


Current healthcare
Life quality
appearance of symptoms
therapy
Development of pathologies
Desirable healthcare
Life quality
predictive diagnosis & prevention
Development of pathologies

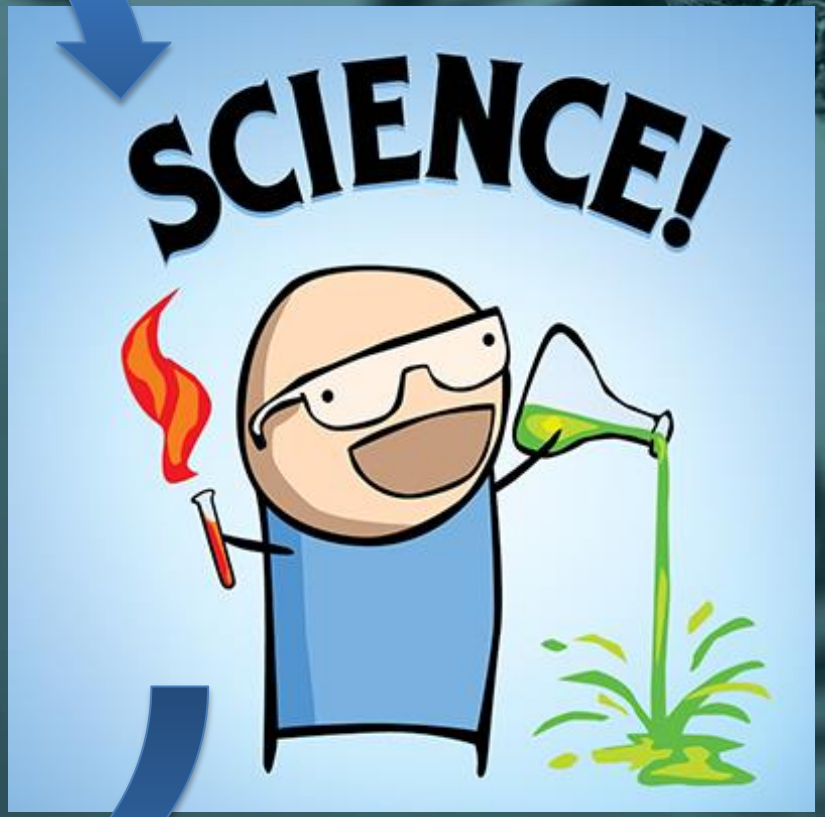
All kinds of new-generation specialists

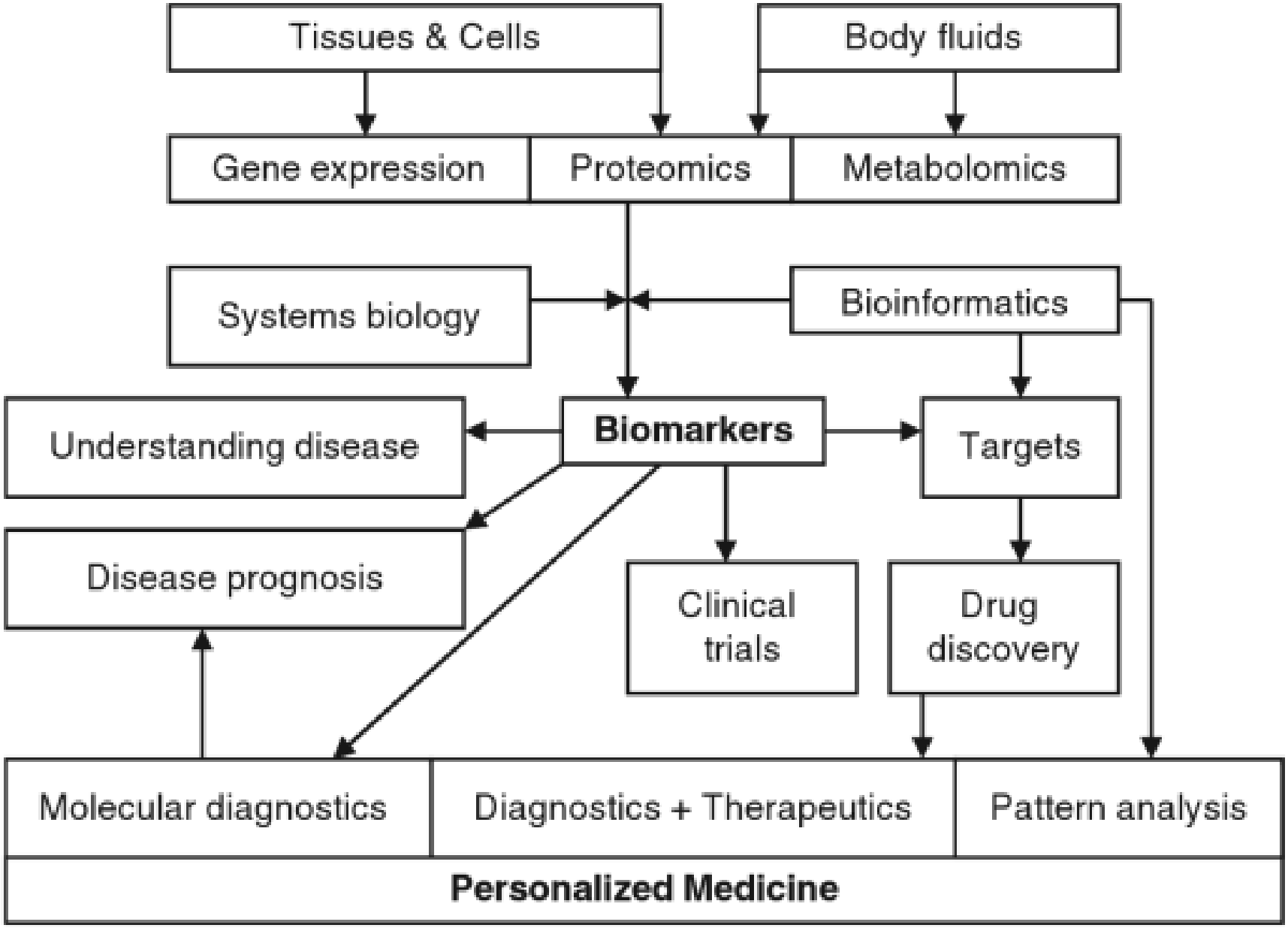



"Phenome to Genome"
Health
Disease
• Population
• Phenome
• Organs
• Tissues
• Cells
• Metabolome
• Proteome
• miRNA
• Transcriptome
• Epigenome
• SNPs/Copy Number Variants (CNVs)
• Genome
Systems Biology & Medicine
1- Dimensional Analysis
Time
• Chemical & Physical Exposure(s)
• Diet
• Smoking
Clinical Phenome
• Body Composition
• Blood Pressure
• Mood
• Sleep Patterns
Molecular Phenome
• Post-Translational Modification
• Transcript Variant
• Methylation
Environment
"Genome to Phenome"

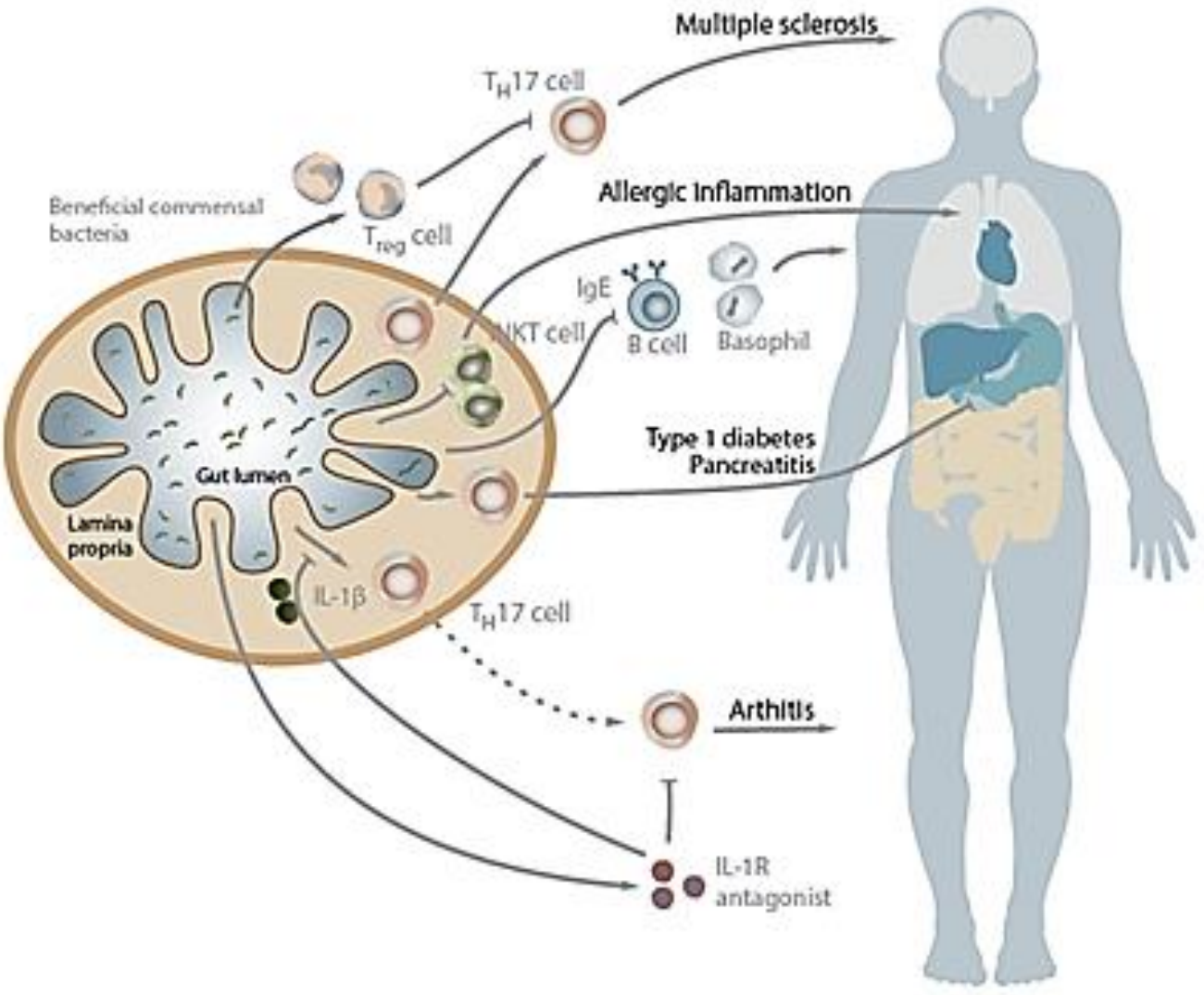
…and needs to collaborate






Tissues & Cells
Body fluids
Gene expression
Proteomics
Metabolomics
Systems biology
Bioinformatics
Understanding disease
Biomarkers
Targets
Disease prognosis
Clinical trials
Drug discovery
Molecular diagnostics
Diagnostics + Therapeutics
Pattern analysis
Personalized Medicine

Microbiologists and immunologists



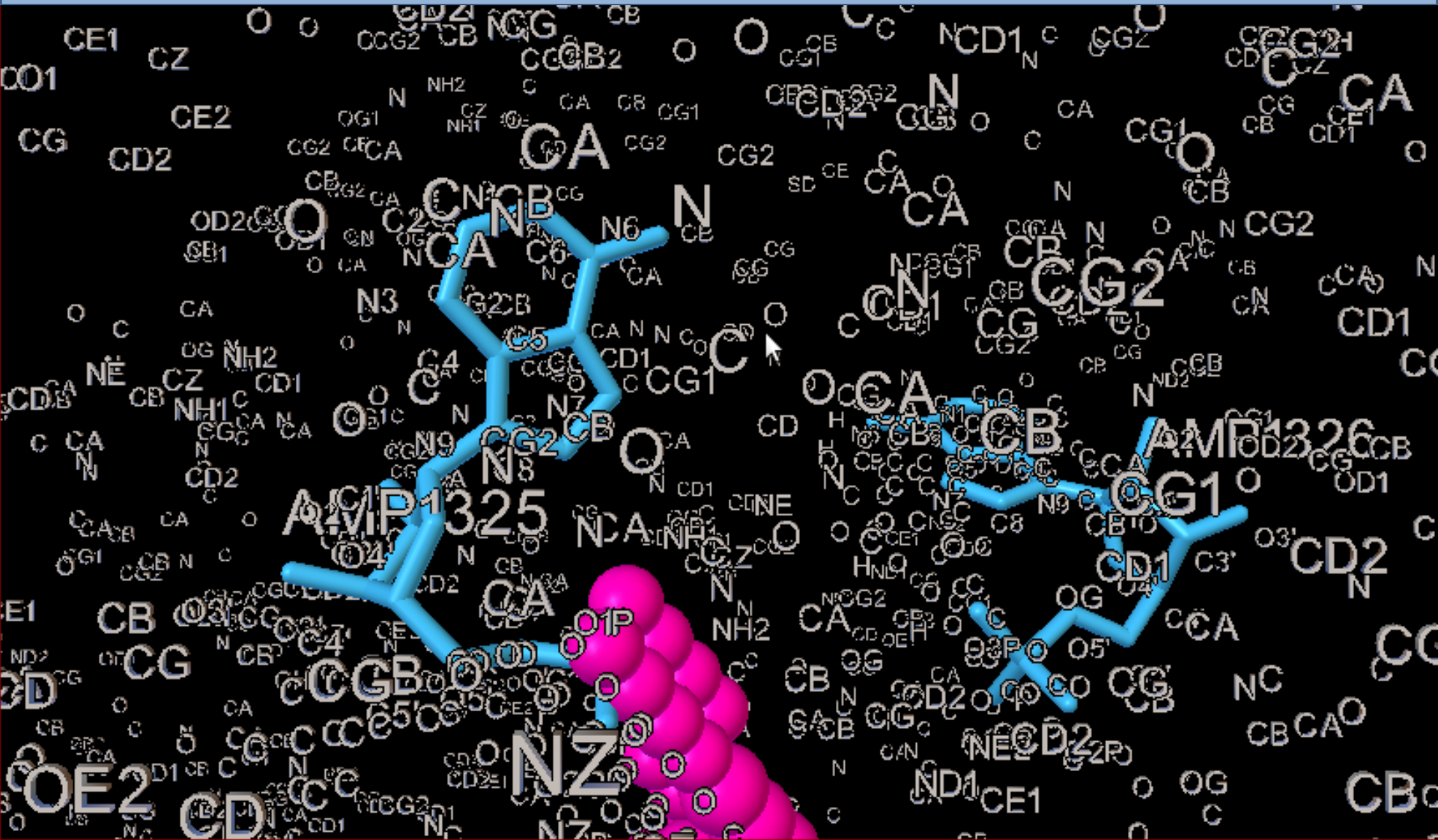
Genomists



Medical bioinformaticians



Drug designers



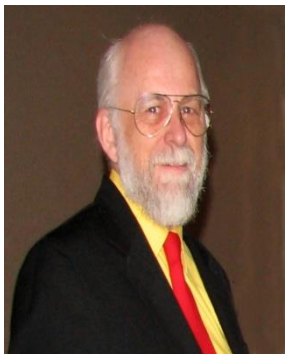
International
PPPM Research Team of Youngsters

under the aegis of

EPMA (Brussels, EU)
I.M.Sechenov First Moscow State Medical University,
A.I.Evdokimov Moscow State Medical & Dental University,
Higher School of Economy (Moscow, Russia),
UCSD, San Diego, USA
Johns Hopkins University, Baltimore, USA
University of Lancaster, UK
University of Rotterdam, The Netherlands,
NIH, Bethesda, USA



Dr Sergey Suchkov, MD, PhD
Prof in Immunology and Medicine,
I.M.Sechenov First Moscow State Medical University,
A.I.Evdokimov Moscow State Medical & Dental University,
EPMA (Brussels, EU)



Trevor Marshall
Autoimmunity Foundation
Los Angeles USA



Olga Golubnitschja
EPMA, Brussels

Leonid Gohberg
Higher School of Economy,
Moscow, Russia





Abner Notkins
NIH, USA



Noel Rose
Johns Hopkins University,
Baltimore, USA



Joost Oppenheim
NIH, Bethesda, MD, USA

EPMA-World Congress 2011

September 15th19th, Bonn, Germany



International Research Team of Youngers



EPMA World Congress 2013

Brussels, European Parliament, Sep 2013

A Satellite Session of Young Researchers and Clinicians



EPMA World Congress 2013

Europarliament, Brussels, EU, Sep 2013

Section For Young Professionals (Session)

5100

RUSSIAN ACADEMIC EXCELLENCE PROJECT

- IN OCTOBER 2013,
  THE UNIVERSITIES SCRAMBLED FOR SPECIAL RECOGNITION IN AN OPEN CONTEST BY BRANDISHING THEIR "ROADMAPS"BEFORE THE COUNCIL MEMBERS.

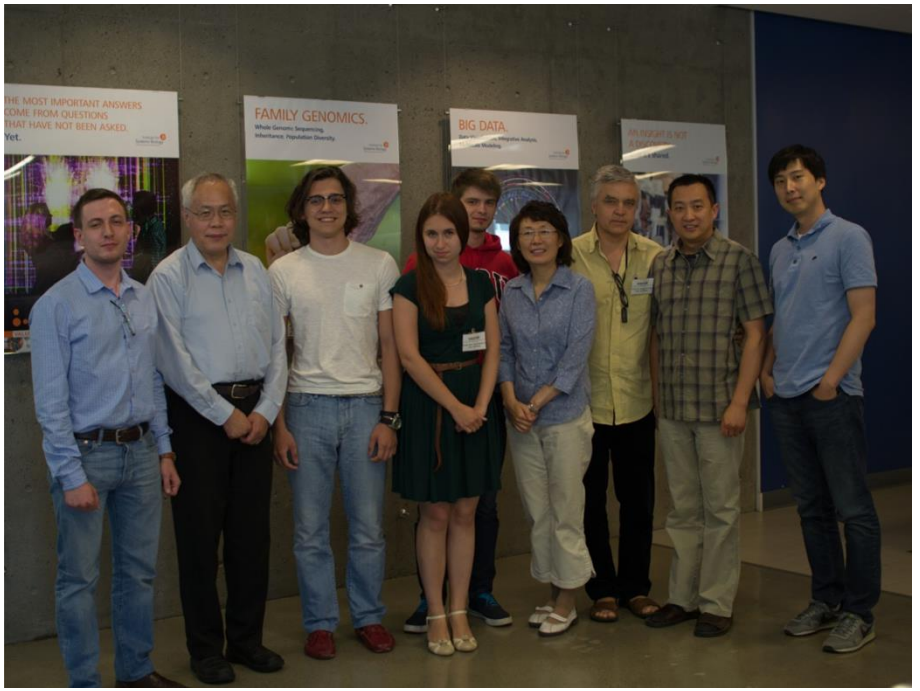
Department of Personalized Medicine





Institute of System Biology
(Seattle, USA)

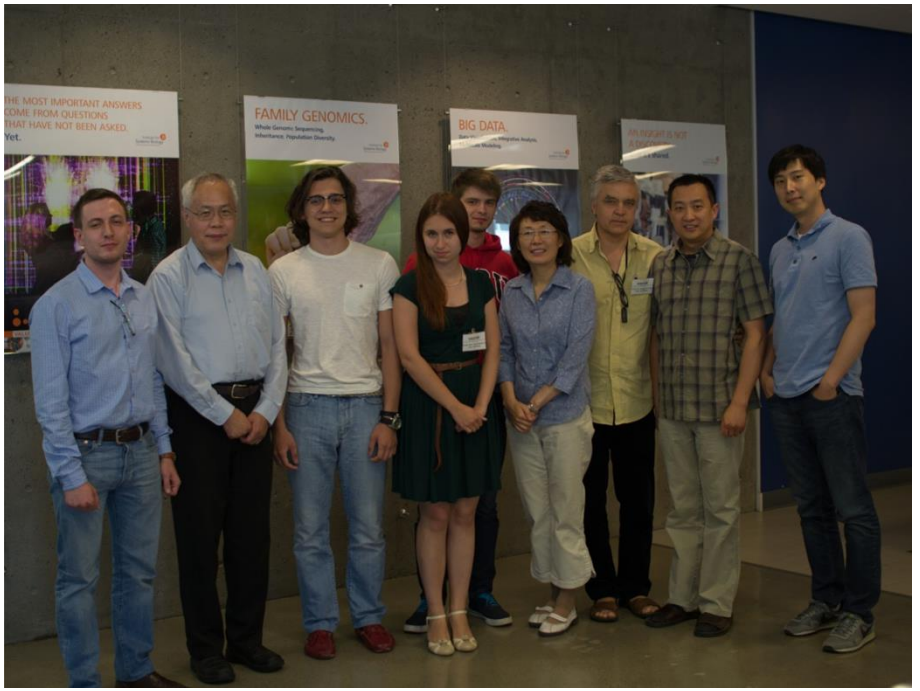
Mayo Clinic
(Rochester, USA)





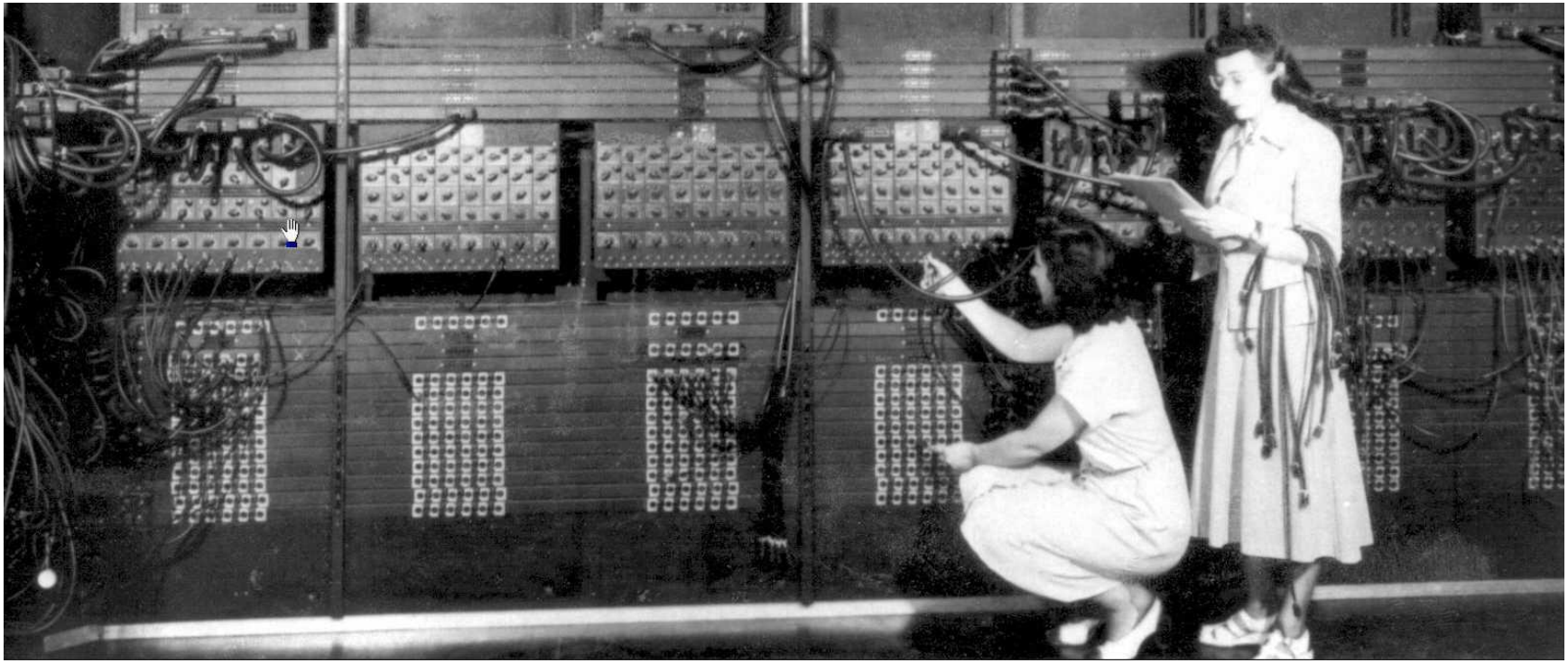
Institute of System Biology
(Seattle, USA)

Children Healthcare Research Institute
(London, ON, Canada)



ENIAC

John Mauchly
and
John Presper Eckert



Thank you for your attention!

