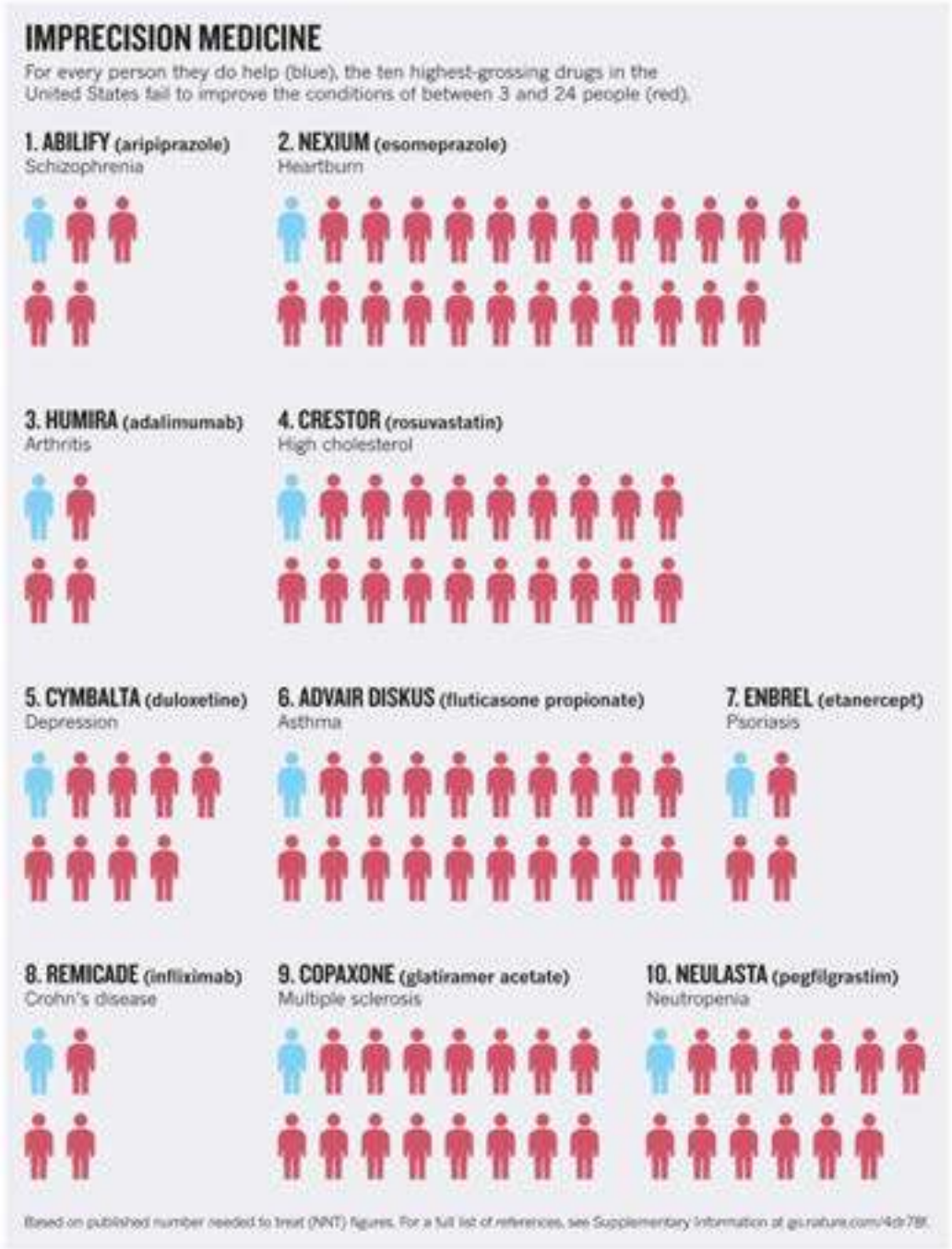
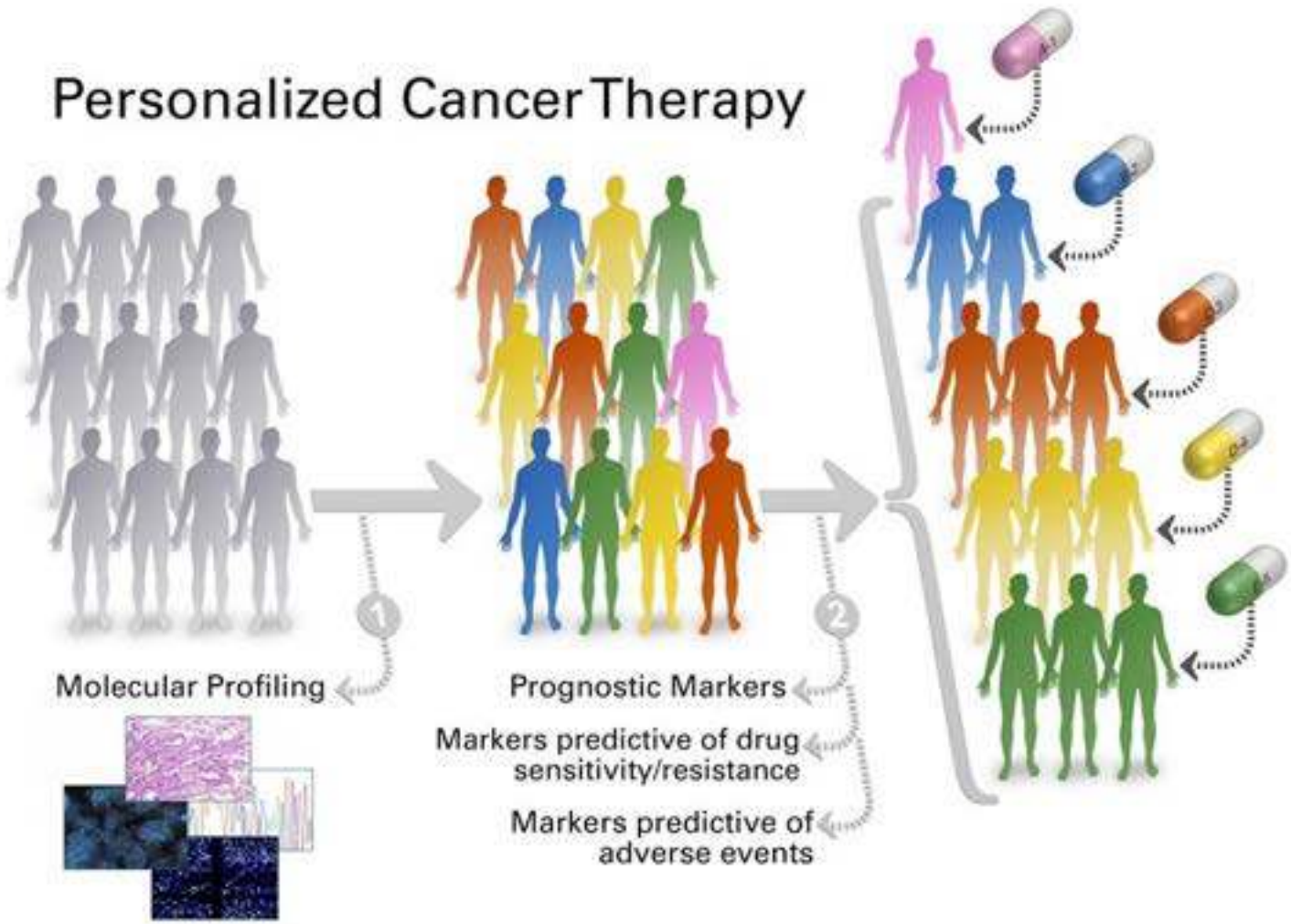
Qué grandes eventos están moldeando el futuro de la médicina de precision?



Precision Medicine



Next Generation Sequencing

DNA sequencing
is the technology that experienced
the *most dramatic advances*
in the human history

the last ten years

2008 — 2018

50,000 b
day
1 equipment

0.000016
human genomes
day

100,000,000 USD

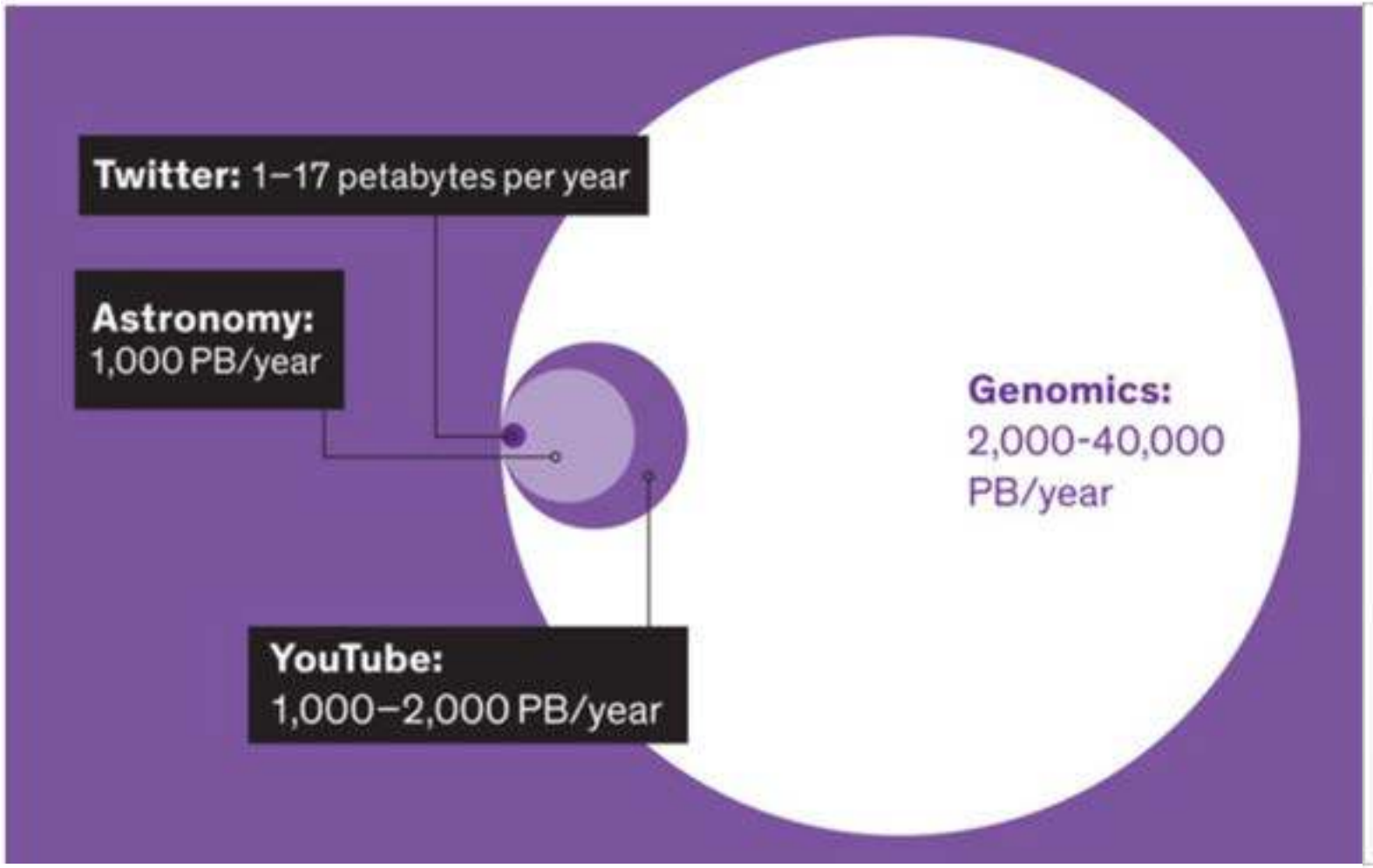
18,000,000,000,000 b
day
1 equipment

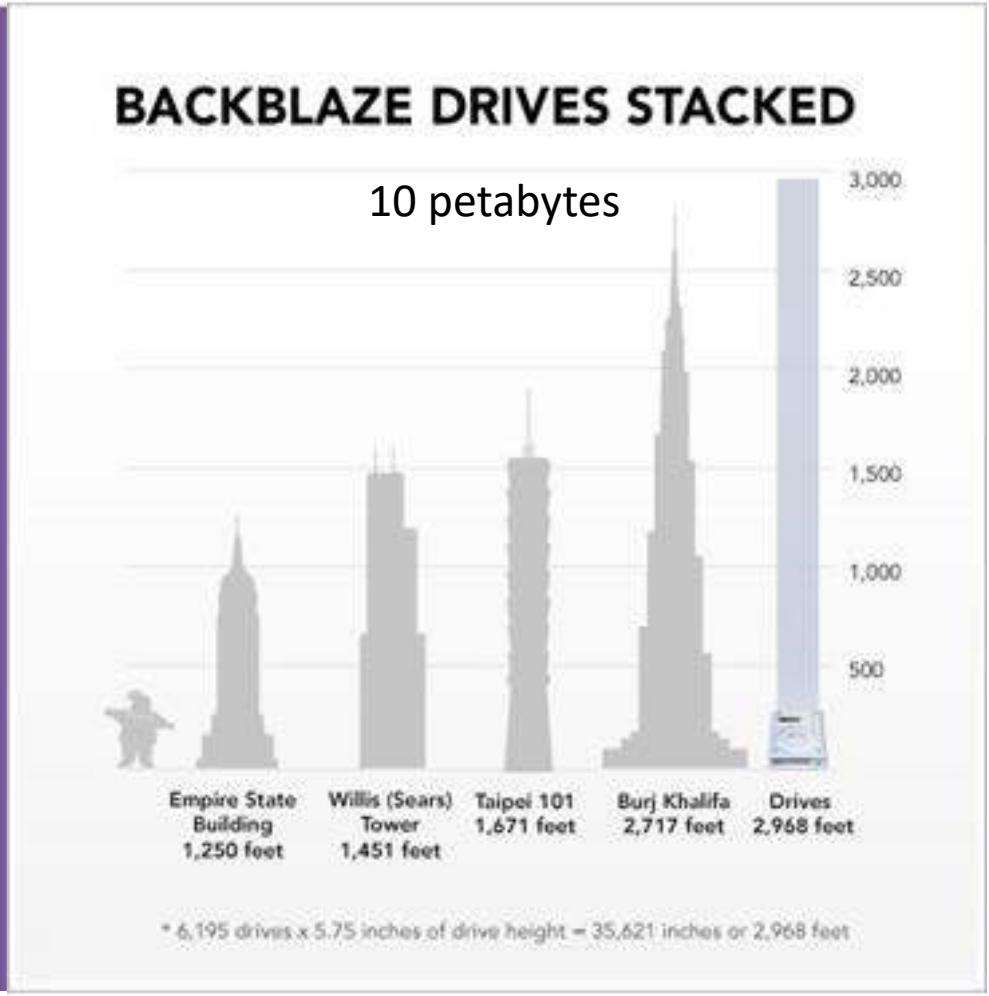
600
human genomes
day

1,000 USD

illumina

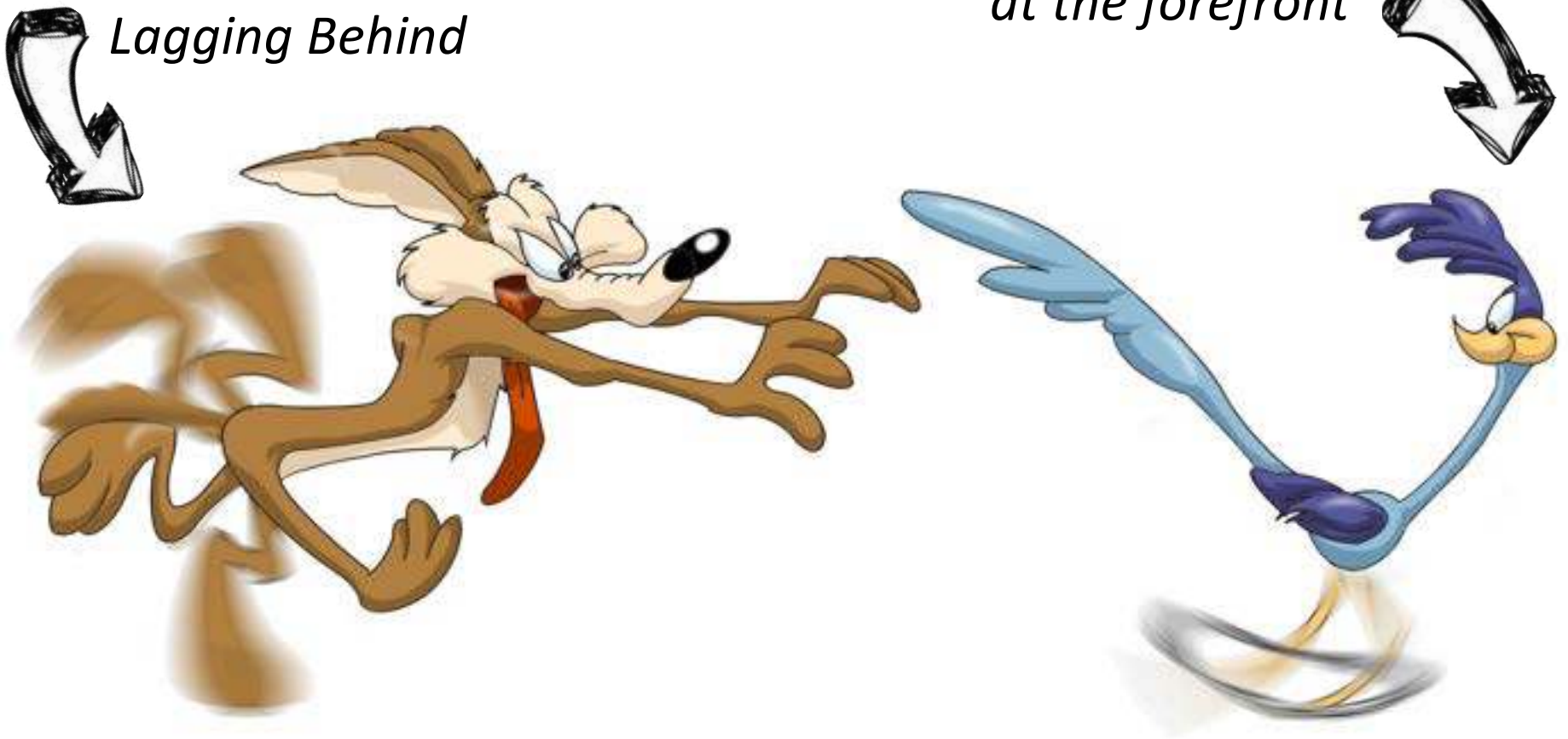
Projected annual storage in 2025





Biological interpretation
(social, legal issues)
Lagging Behind

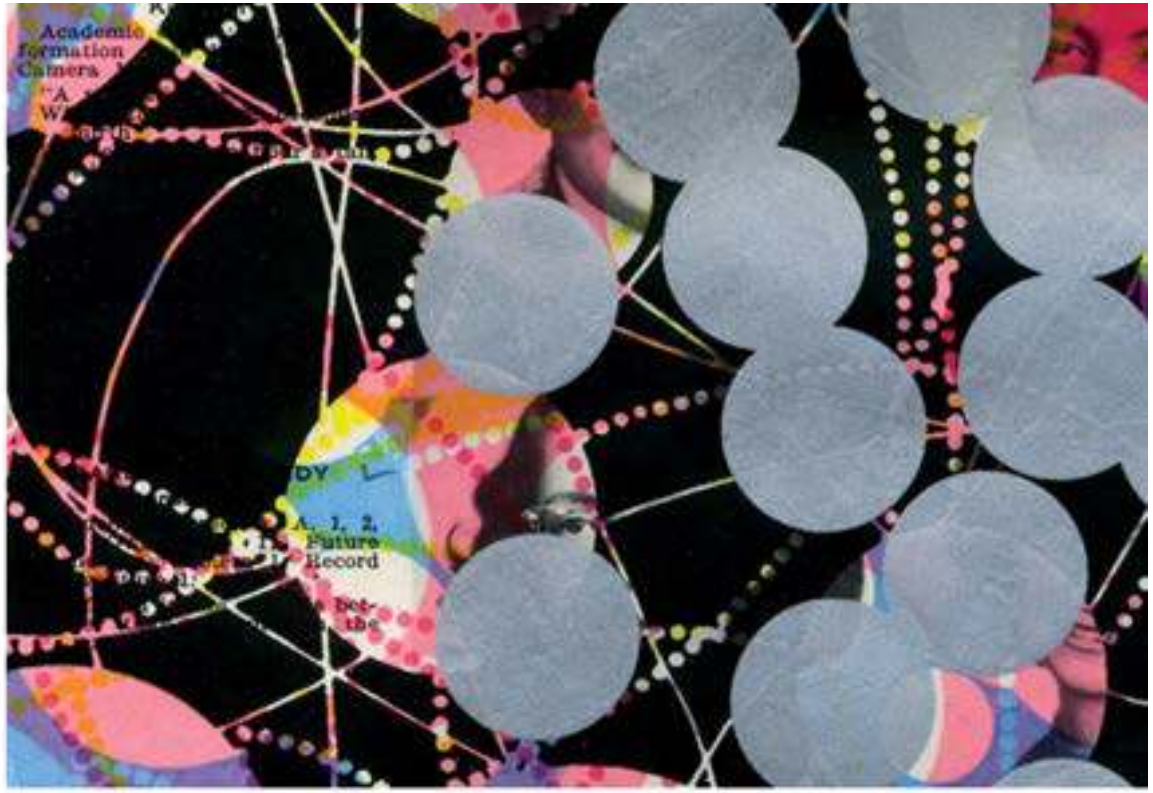
Technology
at the forefront



02

El valor de los datos

Harvard Business Review



DATA

Data Scientist: The Sexiest Job of the 21st Century

by Thomas H. Davenport and D.J. Patil

FROM THE OCTOBER 2012 ISSUE

Mashable SOCIAL MEDIA TECH BUSINESS ENTERTAINMENT WORLD LIFESTYLE WATERCOOLER

Business

Ads by Google ▶ Data Scientist ▶ Hadoop Big Data ▶ Salary Guide ▶ Hadoop Analytics

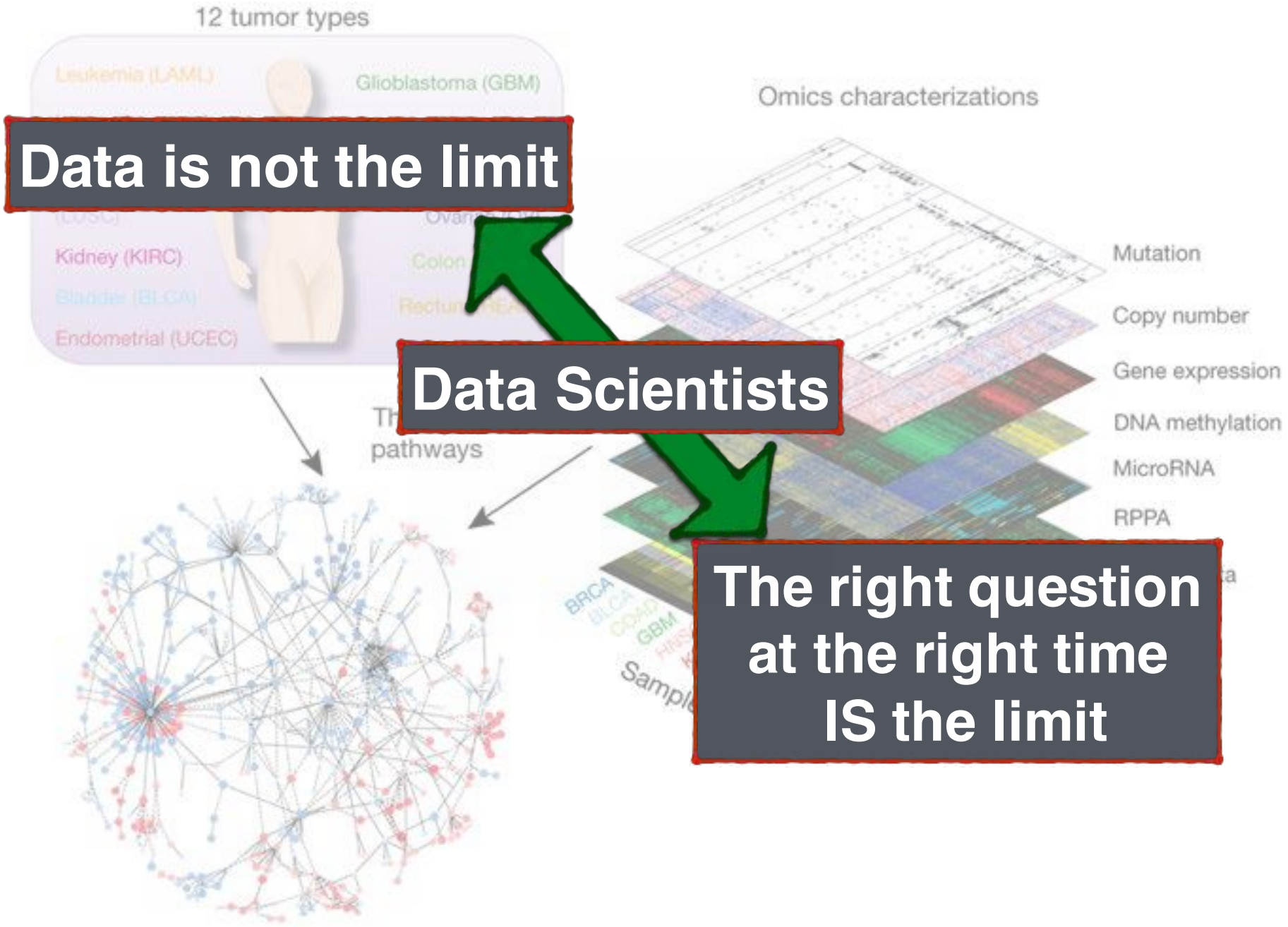
So you wanna be a data scientist? A guide to 2015's hottest profession

Science
1.Math
2.Machine learning

Data
1.Statistics
2.R programming

Art
1.Visualisation
2.Creativity
(find signal in noise)

Big Data in genomics



Data is not the limit

Data Scientists

The right question at the right time IS the limit

Research

Clinical Diagnostics/Therapies

La traducción al paciente

CAREERS

TRANSITIONS From building houses to building molecules **p.153** | **FUTURE PLANS** Three steps to prepare for the next five years **go.nature.com/bpd1rc** | **NATUREJOBS** For the latest career listings and advice **www.naturejobs.com**

DRA_SCHWARTZ/GETTY

GENETICS

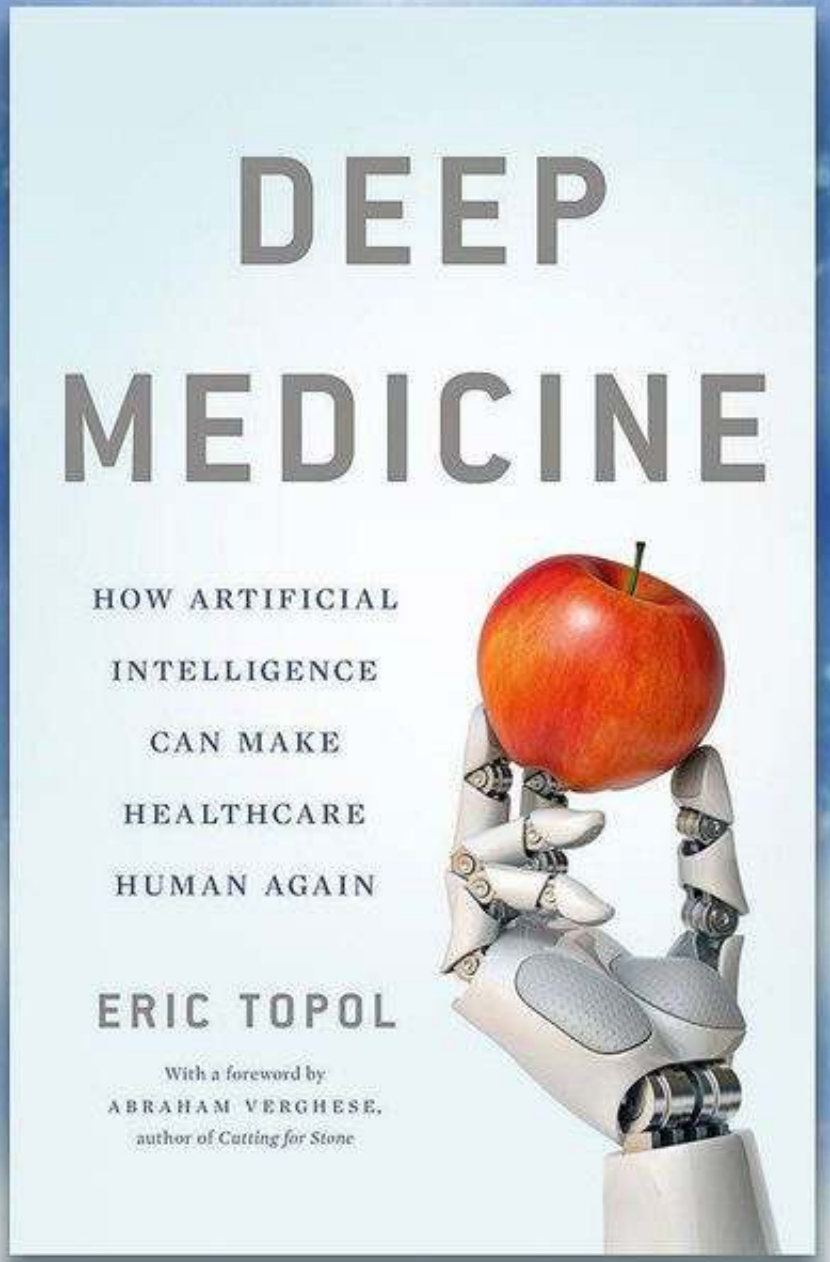
Fluent in DNA

As genomics migrates to the clinic, job options are emerging for genetic counsellors to explain the meaning in mutations.

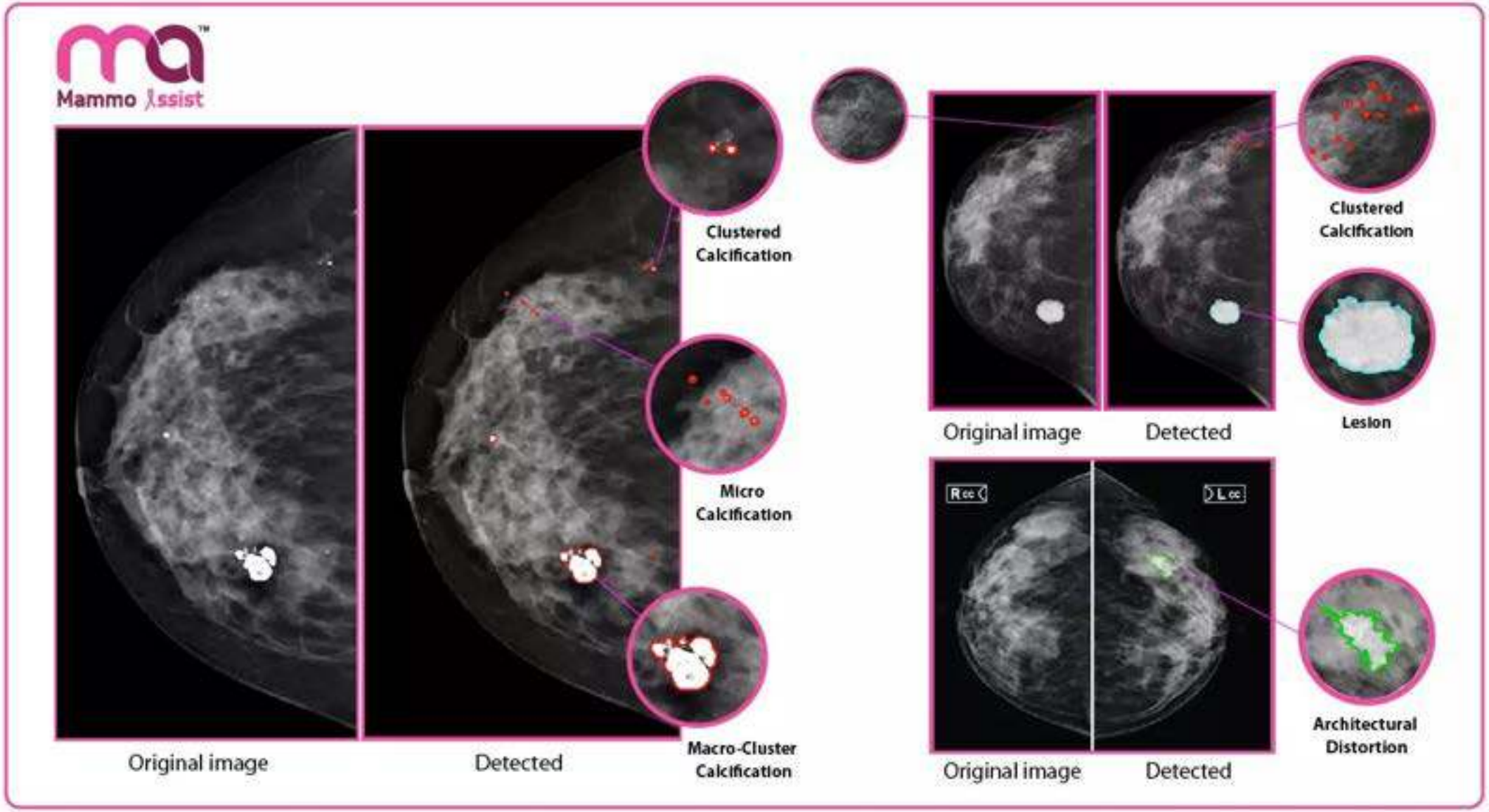
Genetic Counsellor
Is the next big thing
in hot professions

04

Inteligencia Artificial (Aumentada)



AI: Deep learning in image classification in Early Breast Cancer



Fibrilación Atrial Familiar

SÍNDROME DE QT LARGO

SÍNDROME DE BRUGADA

SÍNDROME DE QT CORTO

TAQUICARDIA VENTRICULAR CATECOLAMINÉRGICA POLIMÓRFICA

FIBRILACIÓN ATRIAL FAMILIAR

La fibrilacion atrial (FA) familiar es una manifestación asocida a diversos fenotipos electrofisiológicos y/o inclusive cardiopatías estructurales, en los que el desarrollo de FA puede presentarse en forma primaria.

GENES COMPROBADOS			
GJA5	KCNQ1	SCN5A	

GENES EMERGENTES			
ABCC9	DSC2	EMD	HCN4
JPH2	KCNA5	KCND3	KCNE1
KCNE2	KCNE3	KCNJ2	KCNJ8
LMNA	MYH6	NKX2-5	NPPA
SCN3B	SCN4B		

AFib – AI machine learning

05

Dispositivos móviles

JAMA

VIEWPOINT

Personal Health Records
More Promising in the Smartphone Era?

As health care delivery organizations shift from imple-

The Lancet

Editorial

Wearable technology and lifestyle management:
the fight against obesity and diabetes

In January, The Lancet published two Commissions

NEJM

The NEW ENGLAND JOURNAL of MEDICINE

REVIEW ARTICLE

FRONTIERS IN MEDICINE

Mobile Devices and Health

Ida Sim, M.D., Ph.D.

MOBILE HEALTH — THE APPLICATION OF SENSORS, MOBILE APP

JAMA

VIEWPOINT

Wearable Devices for Cardiac Rhythm Diagnosis and Management

James E. Ip, MD

With the increasing use of direct-to-consumer medical devices, it is paramount for clinicians to recognize the potential utilization for patient management. The

Combining data from PPG sensors with acc

www.nature.com/npjdigitalmed

NATURE

npj | Digital Medicine

PERSPECTIVE OPEN

Best practices for analyzing large-scale health data from wearables and smartphone apps

Jennifer L. Hicks, Tim Althoff, Rok Sosic, Peter Kuhar, Bojan Bostjancic, Abby C. King, Jure Leskovec and Scott L. Delp

Smartphone apps and wearable devices for tracking physical activity and other health behaviors have become popular in recent years and provide a largely untapped source of data about health behaviors in the free-living environment. The data are large in

BIOLOGY

RESEARCH ARTICLE

Digital Health: Tracking Physiomes and Activity Using Wearable Biosensors Reveals Useful Health-Related Information

Xiao Li, Jessilyn Dunn, Denis Salins, Gao Zhou, Wenyu Zhou, Sophia Miryam Schüssler-Fiorenza Rose, Dalia Perelman, Elizabeth Colbert, Ryan Runge, Shannon Rego, Ria Sonecha, Somalee Datta, Tracey McLaughlin, Michael P. Snyder

2019-2020

06

10% Human

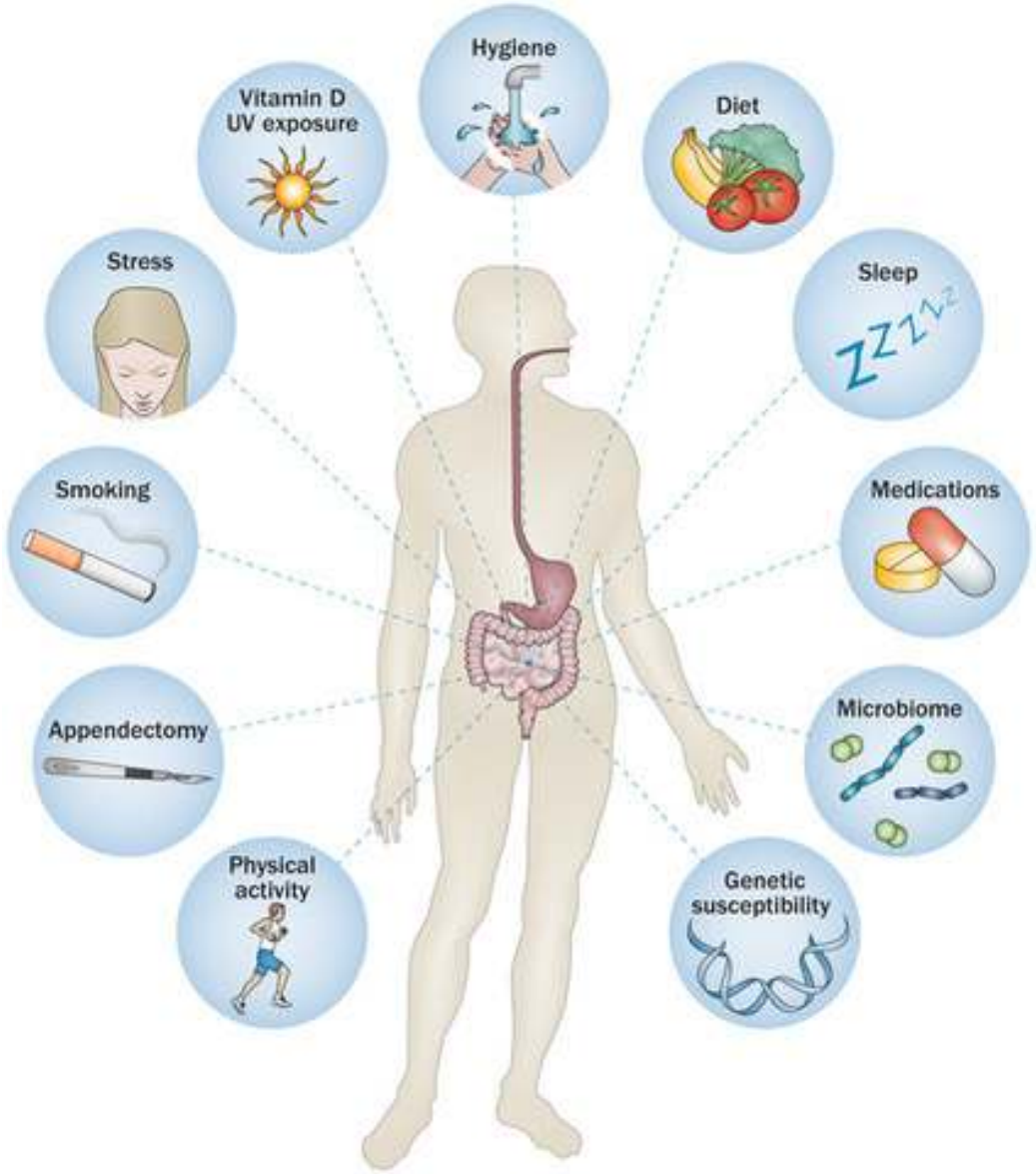
nature
International journal of science

ARTICLE

doi:10.1038/nature25973

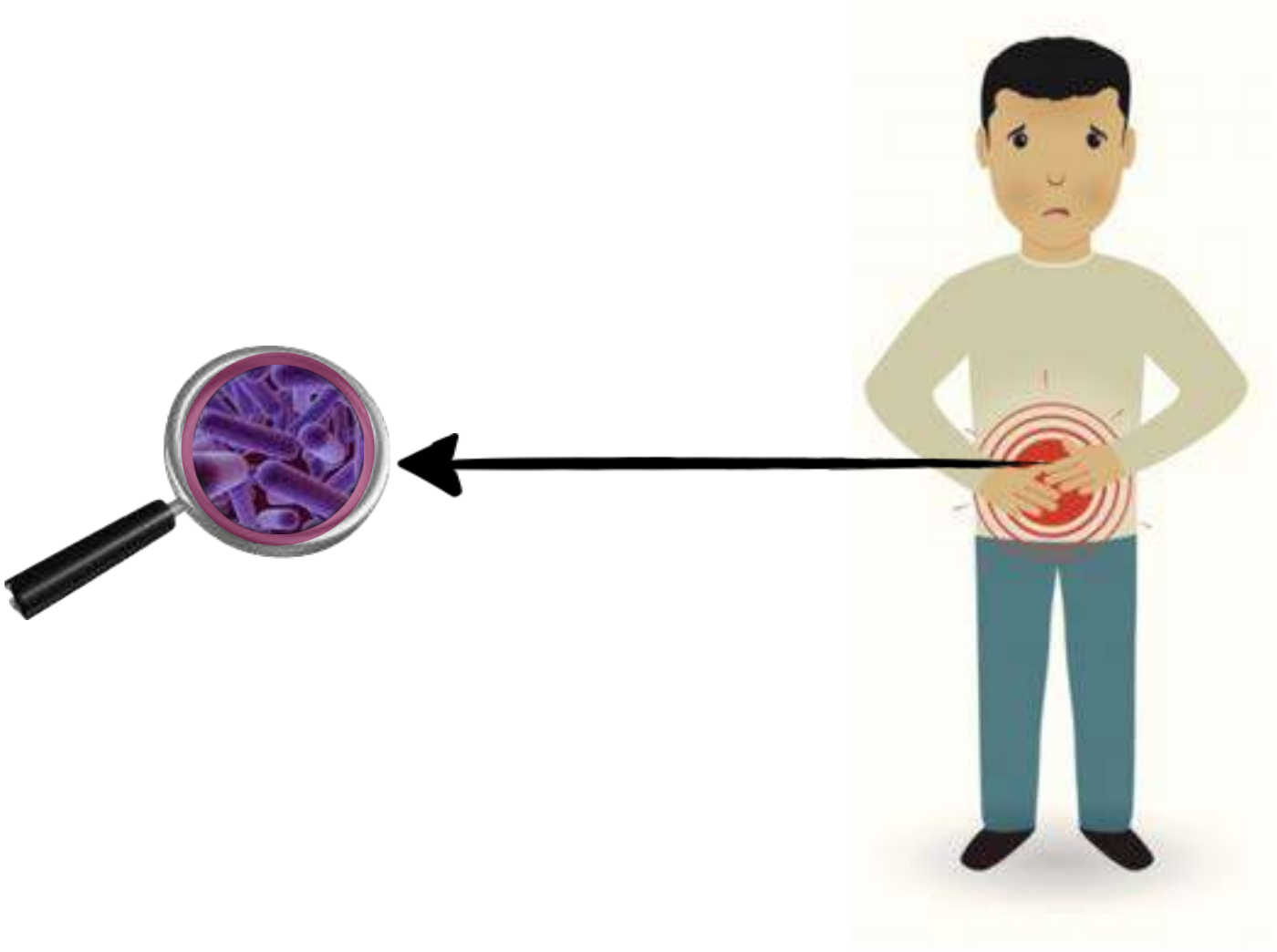
Environment dominates over host genetics in shaping human gut microbiota

Daphna Rothschild[1,2]*, Omer Weissbrod[1,2]*, Elad Barkan[1,2]*, Alexander Kurilshikov[3], Tal Korem[1,2], David Zeevi[1,2], Paul I. Costea[1,2], Anastasia Godneva[1,2], Iris N. Kalka[1,2], Noam Bar[1,2], Smadar Shilo[1,2], Dar Lador[1,2], Arnau Vich Vila[3,4], Niv Zmora[5,6,7], Meirav Pevsner-Fischer[5], David Israeli[8], Noa Kosower[1,2], Gal Malka[1,2], Bat Chen Wolf[1,2], Tali Avnit-Sagi[1,2], Maya Lotan-Pompan[1,2], Adina Weinberger[1,2], Zamir Halpern[7,9], Shai Carmi[10], Jingyuan Fu[3,11], Cisca Wijmenga[3,12], Alexandra Zhernakova[3], Eran Elinav[5]§ & Eran Segal[1,2]§



Nature Reviews | Gastroenterology & Hepatology

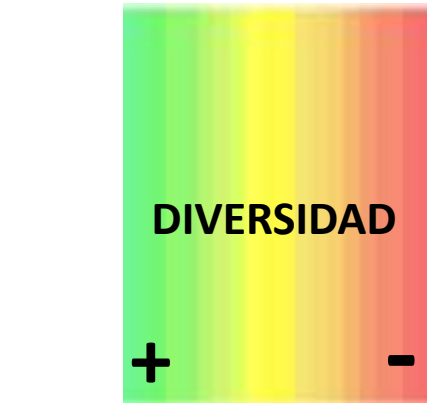
Microbioma Humano y salud



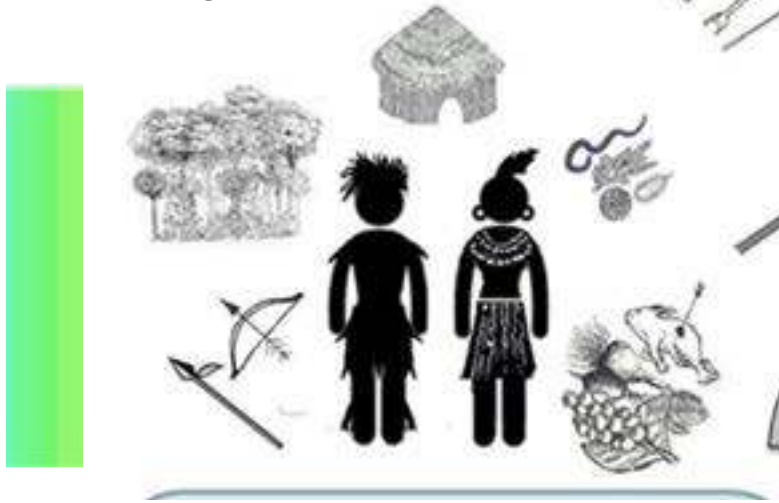
- Obesidad
- Intolerancia Alimentos
- Diabetes
- Autoinmunidad
- Cancer colon
- Homeostasis riñon
- Enfermedad periodontal
- Esofagitis
- Gastritis
- Gastroenteritis
- Colon Irritable
- Enfermedad de Crohn
- Artritis Reumatoidea
- Parkinson
- Enfermedades psiquiatricas
- Autismo
- Schizofrenia
- Infertilidad

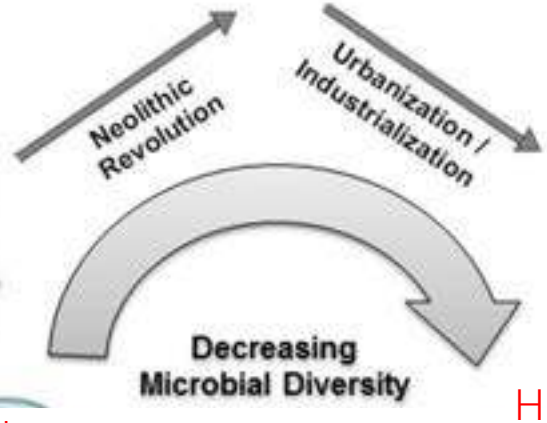
Industrialization effect- Last 100 years in human history

Rural populations



Native indigenous populations





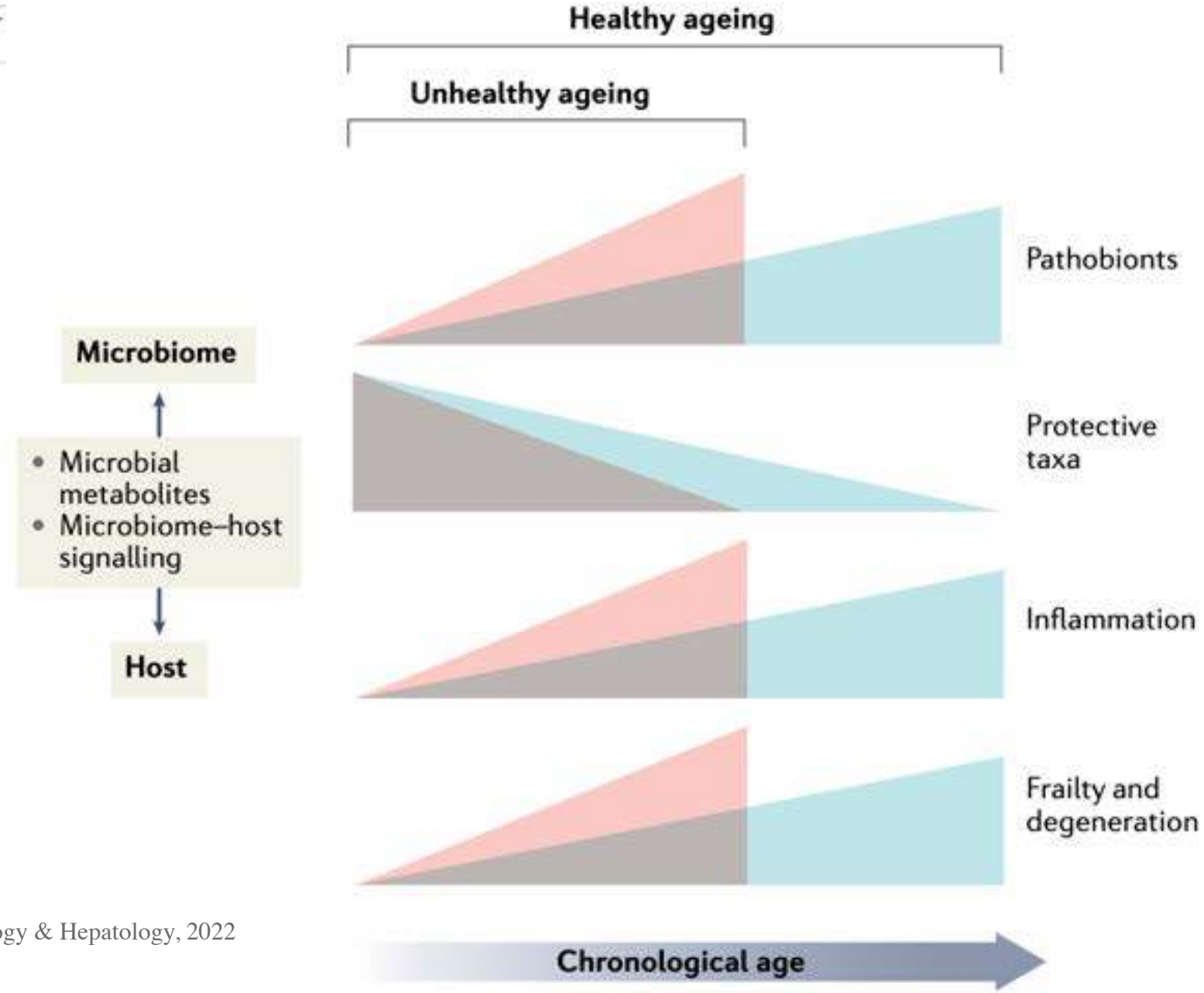
Big city populations

VERY low incidence of Chronic and inflammatory diseases

HIGH incidence of Chronic and inflammatory diseases

REVIEW ARTICLE,
Gupta VK, Paul S and Dutta C (2017)
Front. Microbiol., 23 June 2017

The gut microbiome as a modulator of healthy ageing



Nature Reviews | Gastroenterology & Hepatology, 2022

Next Generation Sequencing

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Inteligencia Artificial

Dispositivos móviles

Microbioma Humano