

# Julius Bär

## INVESTING IN LONGEVITY

Mark Winterburn, Investment Advisory  
London, 6th December 2018



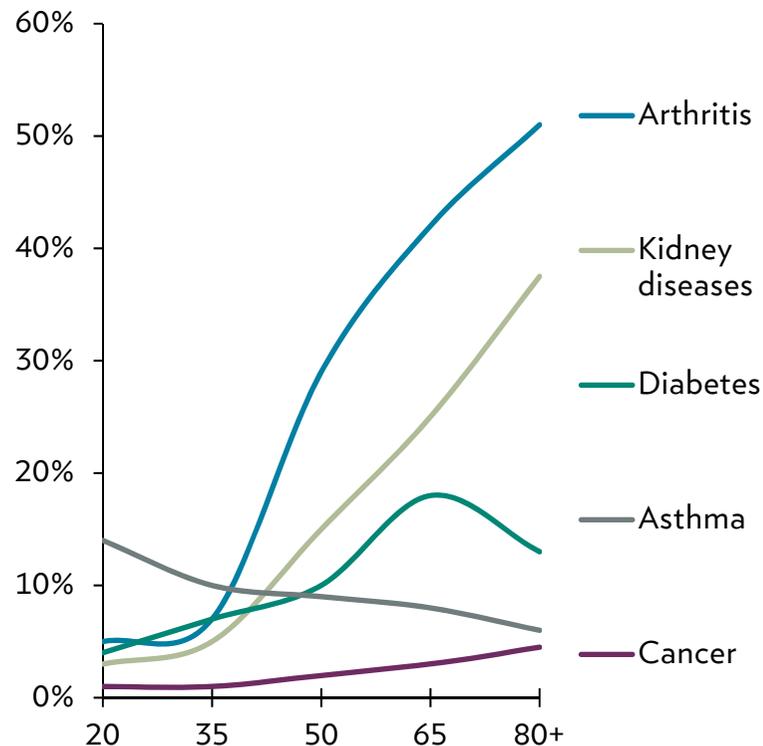
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# LONGEVITY: A CHALLENGE AND AN OPPORTUNITY

Some analysis of longevity concentrates on the rising financial burden of an aging population. It also offers opportunities.

## The incidence of many chronic diseases rises rapidly with age

Incidence of disease by age (%)

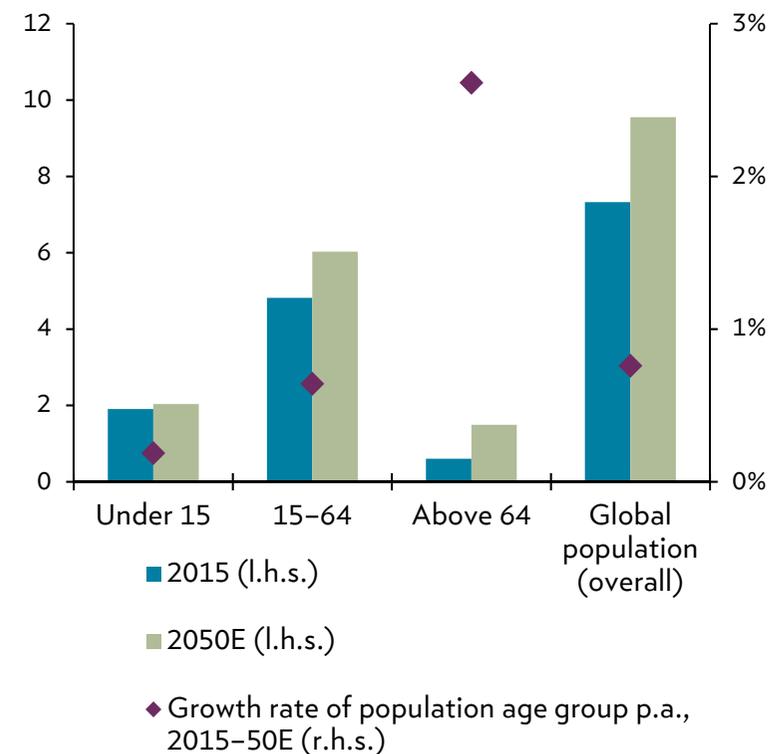


Source: World Bank, Julius Baer

## The age group above 64 is the fastest growing

World pop. (bn)

Pop. growth rate p.a. (%)

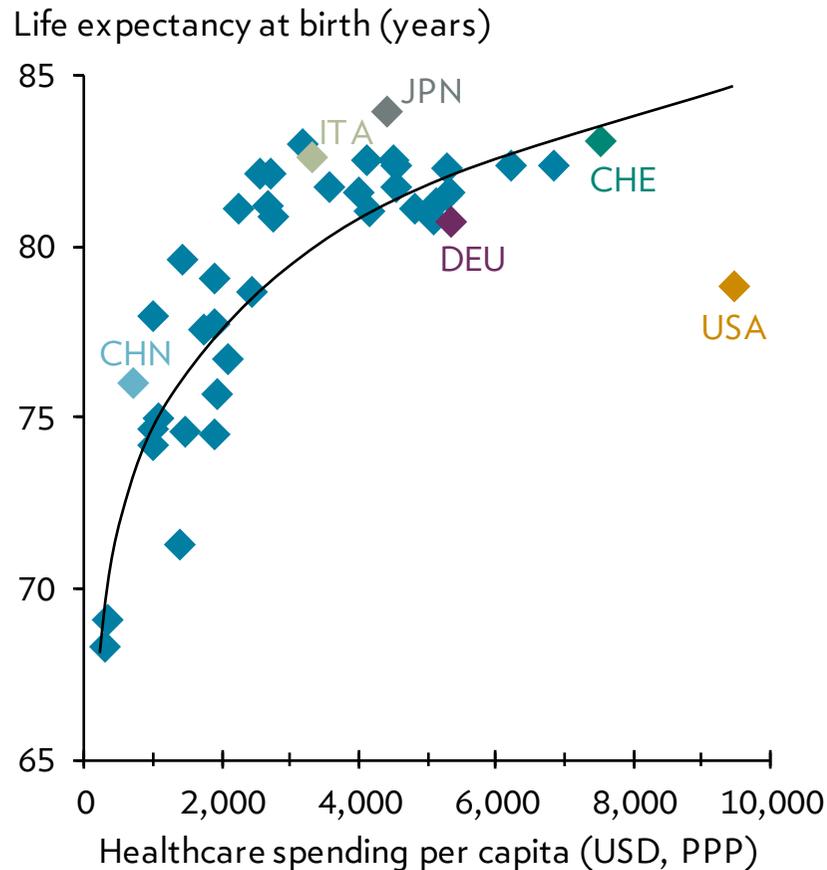


Source: World Bank, OECD, Centers for Disease Control and Prevention (CDC), Centers for Medicare and Medicaid Services (CMS), Julius Baer.

# DIGITAL HEALTH: WHO PAYS WINS

Health spending, especially in US, is becoming unaffordable; value-based care (VBC), enabled by digitalisation will shift more risk to providers.

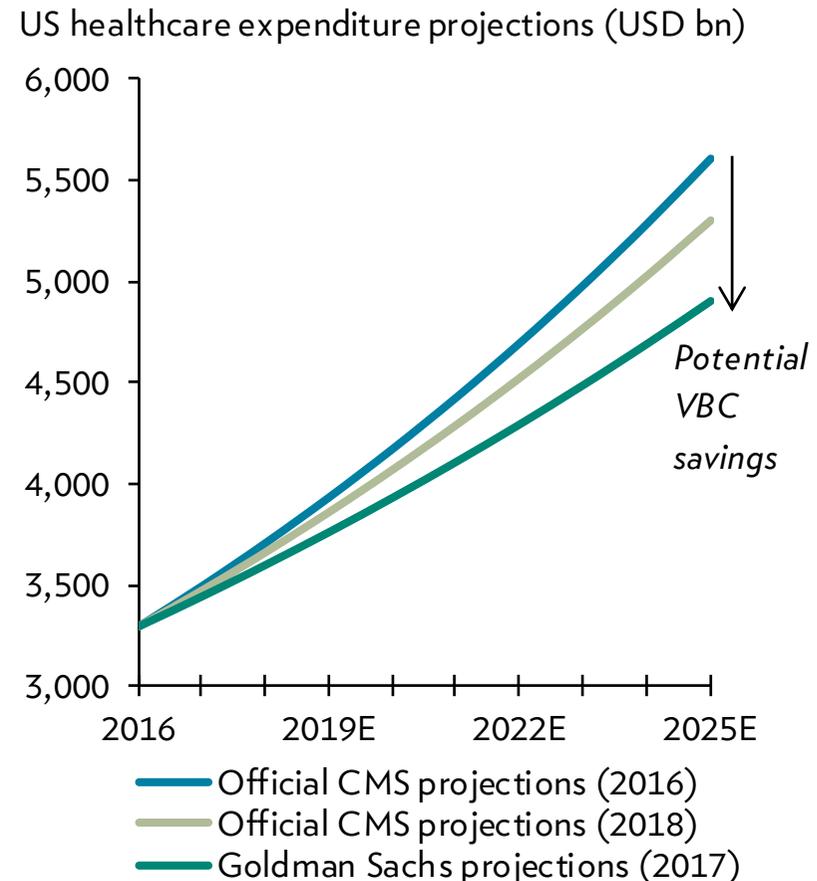
## US healthcare outcomes significantly below expectations relative to spending



**Source:** OECD, Julius Baer; **Note:** data as at 2015 or nearest available year; PPP = purchasing power parity, USA = United States, CHE = Switzerland, DEU = Germany, JPN = Japan, ITA = Italy, CHN = China

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## Value-based care, enabled by digital health solutions, could address health costs issue

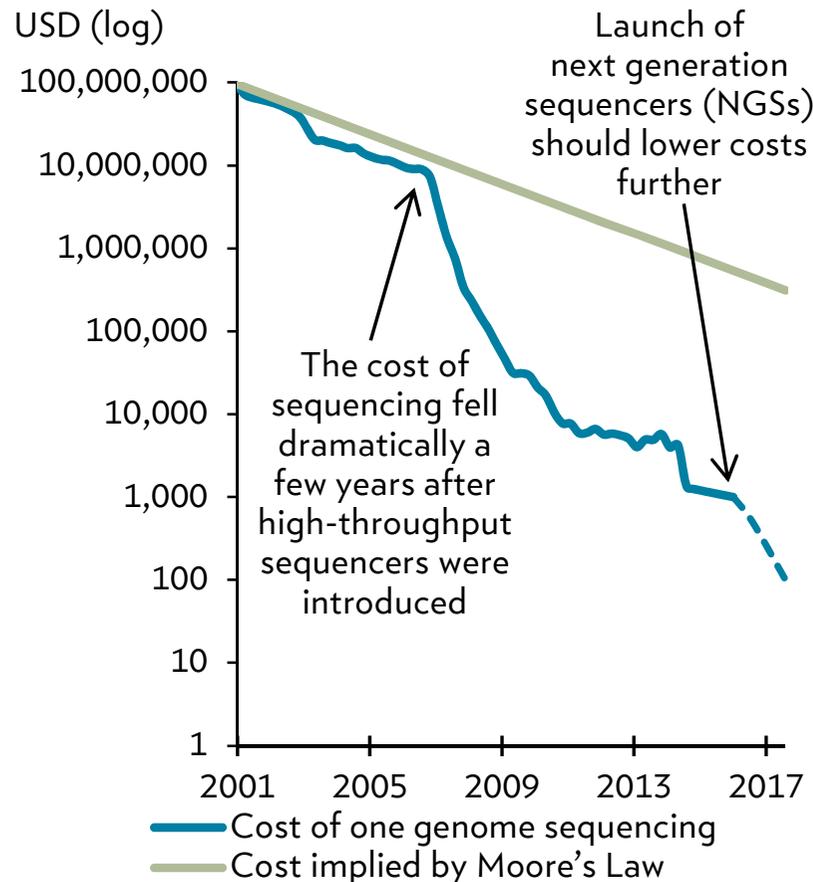


**Source:** Centers for Medicare and Medicaid Services (CMS), Goldman Sachs (GS), Julius Baer; **Note:** GS projections assume VBC-constrained US health spending growth to approximate US nominal GDP growth over 2016–2025E; E = estimate

# GENOMICS 3.0

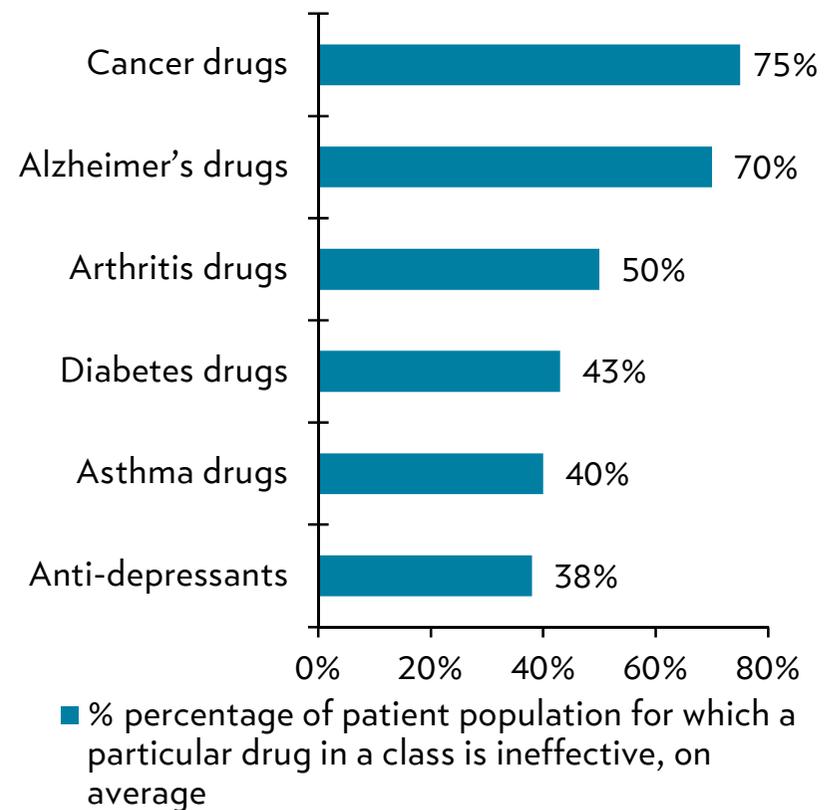
While genome sequencing costs have decreased beyond the expectations of the pioneers, the Big Data challenge (storage and analysis) is just as great an issue.

## Defying the Law: sequencing costs declined beyond “normal” technological progress



Source: Human Genome Project, Julius Baer

## The future of medicine lies in genetically tailored treatment

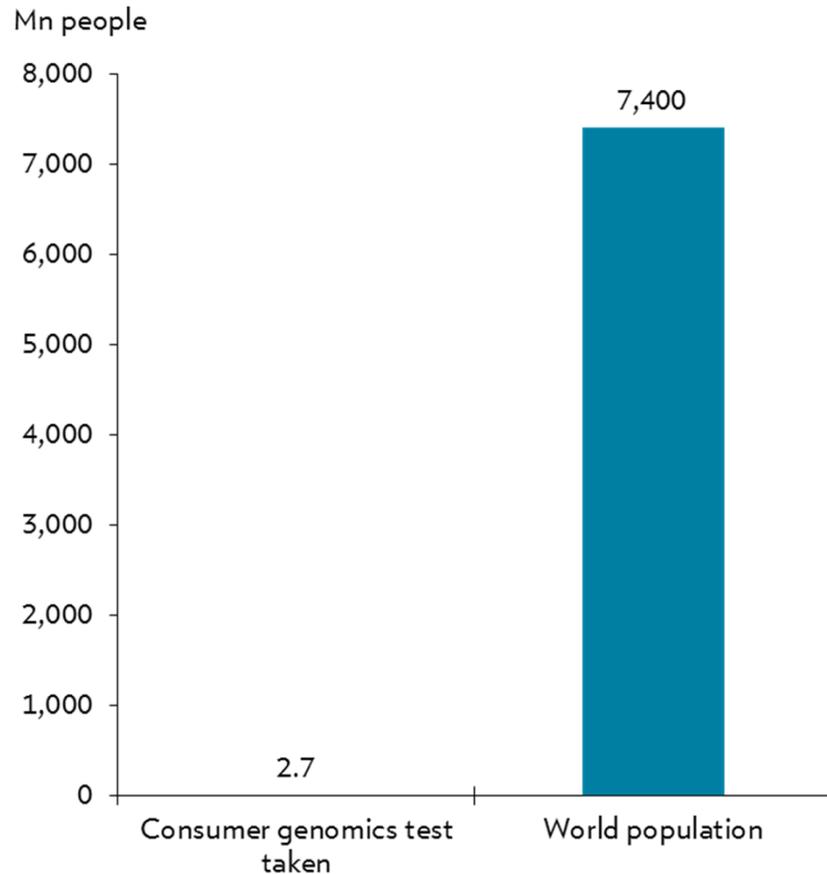


Source: Personalised Medicine Coalition, Julius Baer

# AIMING FOR 8 BILLION SEQUENCED GENOMES

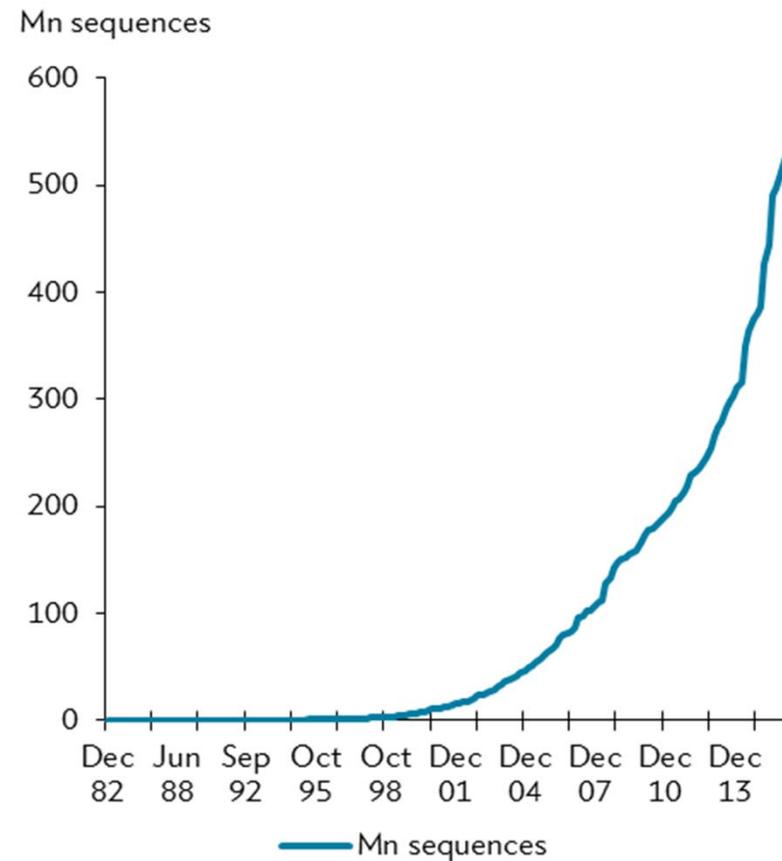
With 8–9 bn people set to populate the world by 2050, market potential for consumer genomics is enormous – will medicine or curiosity drive gene testing?

## Huge room to grow: only 0.04% of humanity's genomes have been sequenced



Source: United Nations, UBS, Julius Baer; mn=million

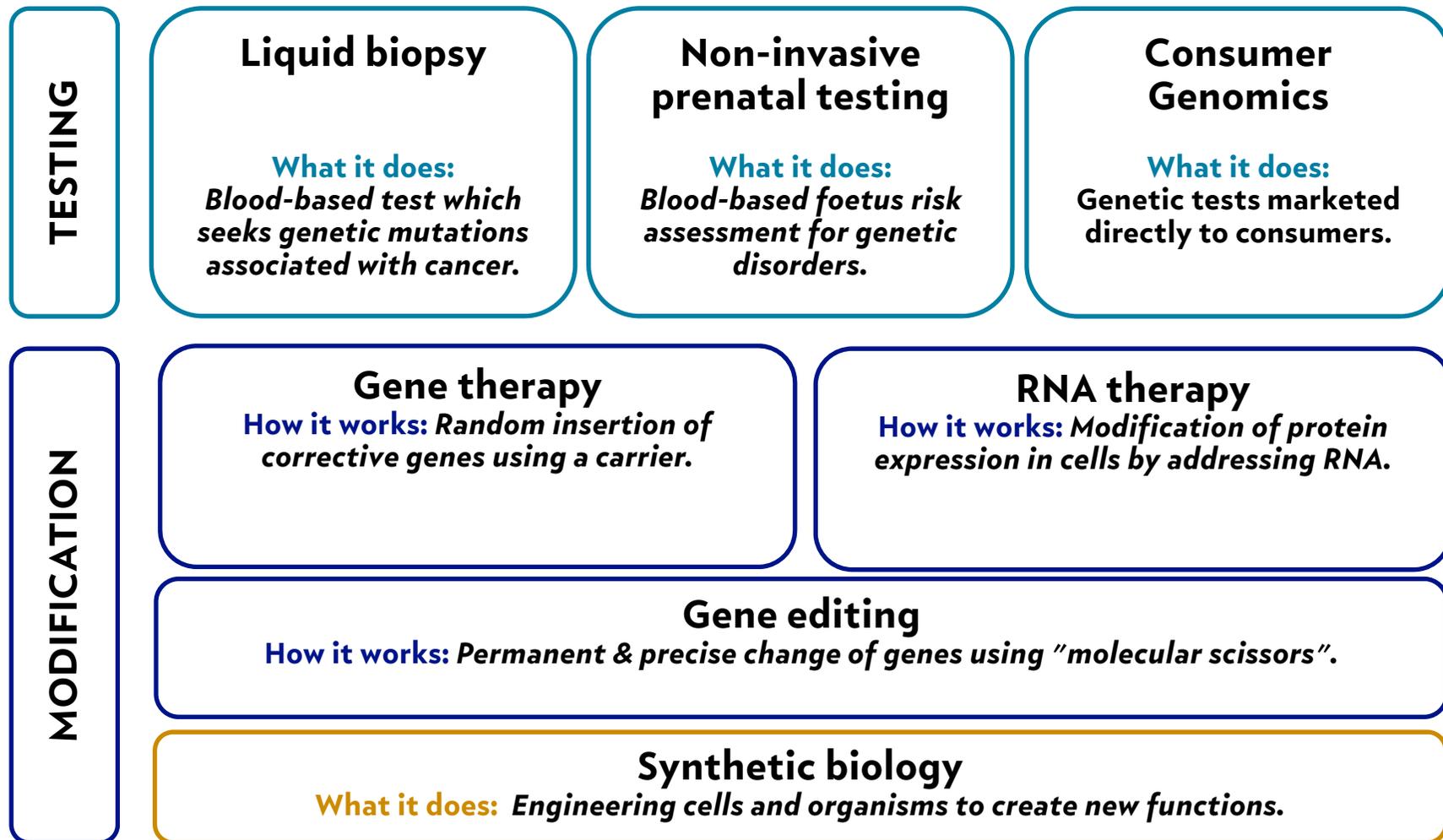
## Accelerating: the number of sequenced organisms follows an exponential path



Source: National Center for Biotechnology Information (GenBank), Julius Baer; mn=million

# GENOMICS 3.0 SEGMENTS EVOLVING

Genetic based testing segments are blossoming, as well as gene modification based therapies.



Source: Julius Baer

# GENOMICS: AREAS OF INTEREST

We see opportunities in gene testing, gene modification and Contract Research Organisations (CROs).

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- **Gene testing** - Recommend investors focus on firms that are exposed to the structural uptake in genome sequencing for both R&D and clinical purposes.
- **Gene modification** – Highly investable but investment risks are high and unpredictable. Therefore, we would recommend a diversified portfolio approach to investing in this space.
- **Contract Research Organisations (CROs)** - Use their expertise and scale in clinical services to conduct trials that would be inefficient or too costly for many biotech/pharma companies to afford on their own.

# SOME CLOSING THOUGHTS

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- Rudi Westendorp, Professor of Medicine at Old Age at the University of Copenhagen believes the first person to reach the age of 135 has already been born.
- According to Pew Research, in 1990 there were 91,000 people over 100 globally. In 2015, there were 451,000. By 2050, there will be almost 3.7 million.

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