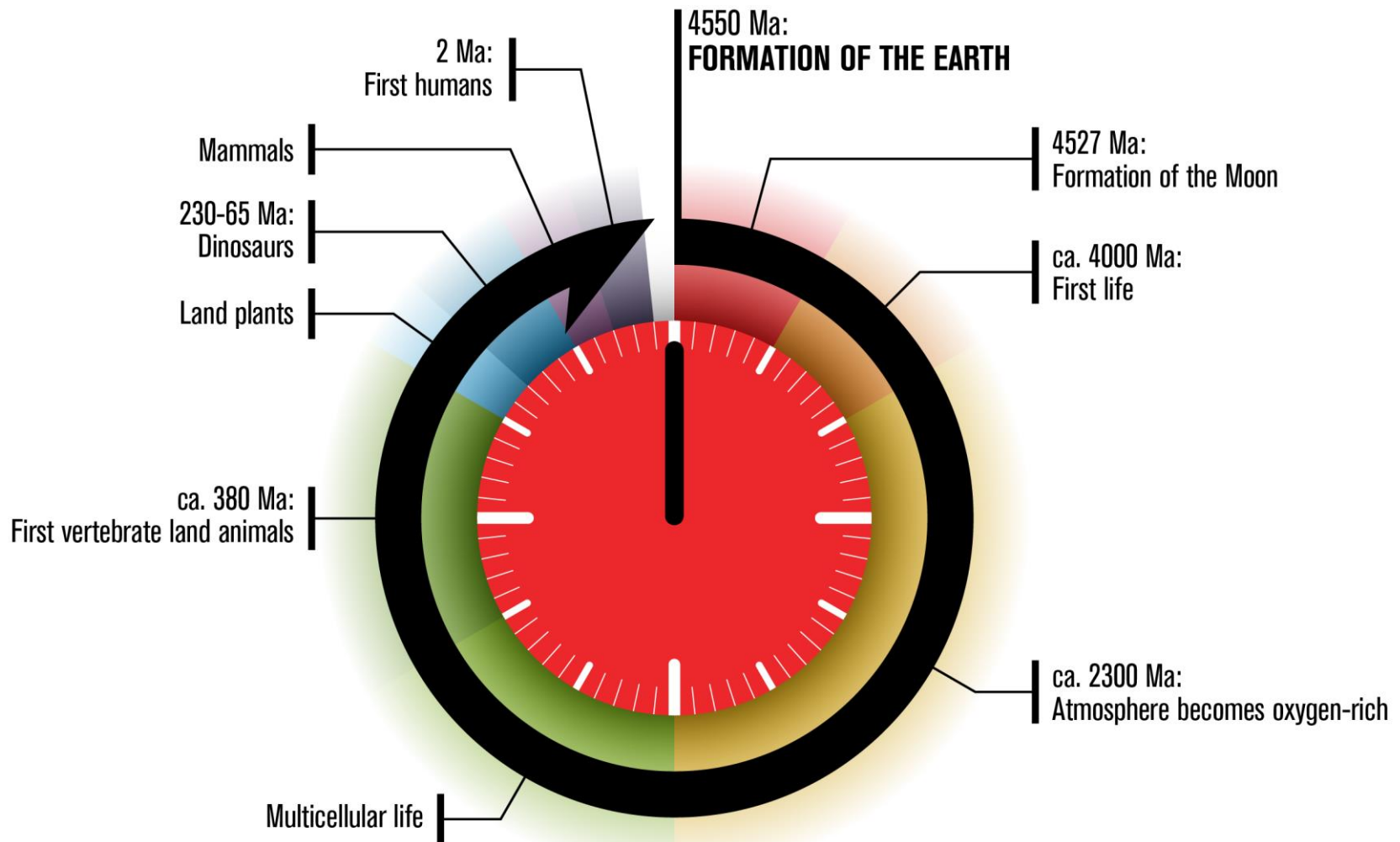
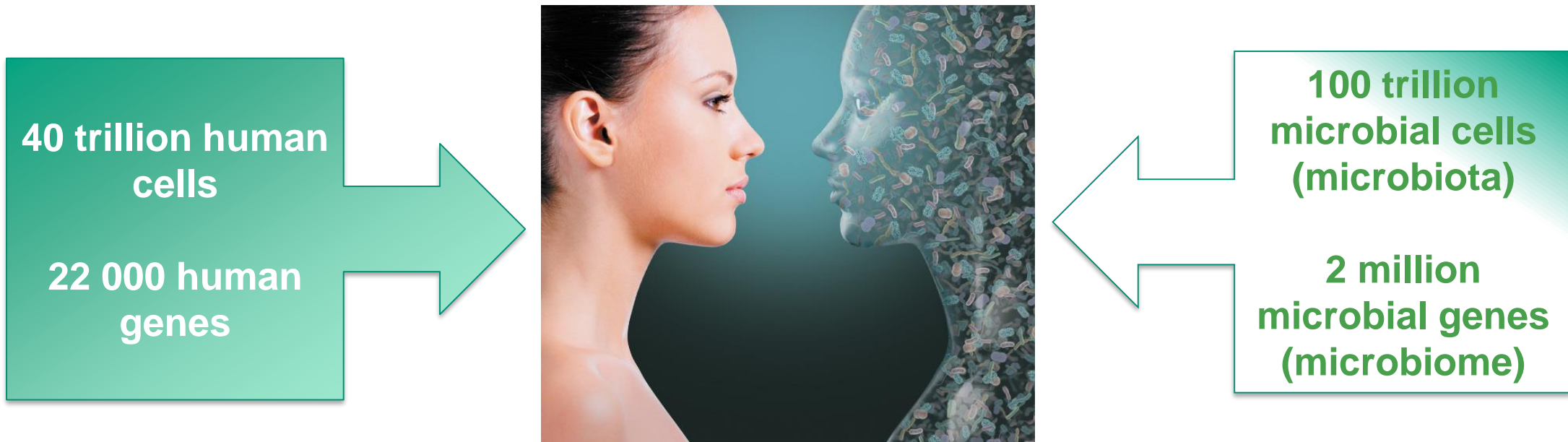


Exploring the microbiome potential towards One Health applications

The Life Clock



Understanding the microbial side

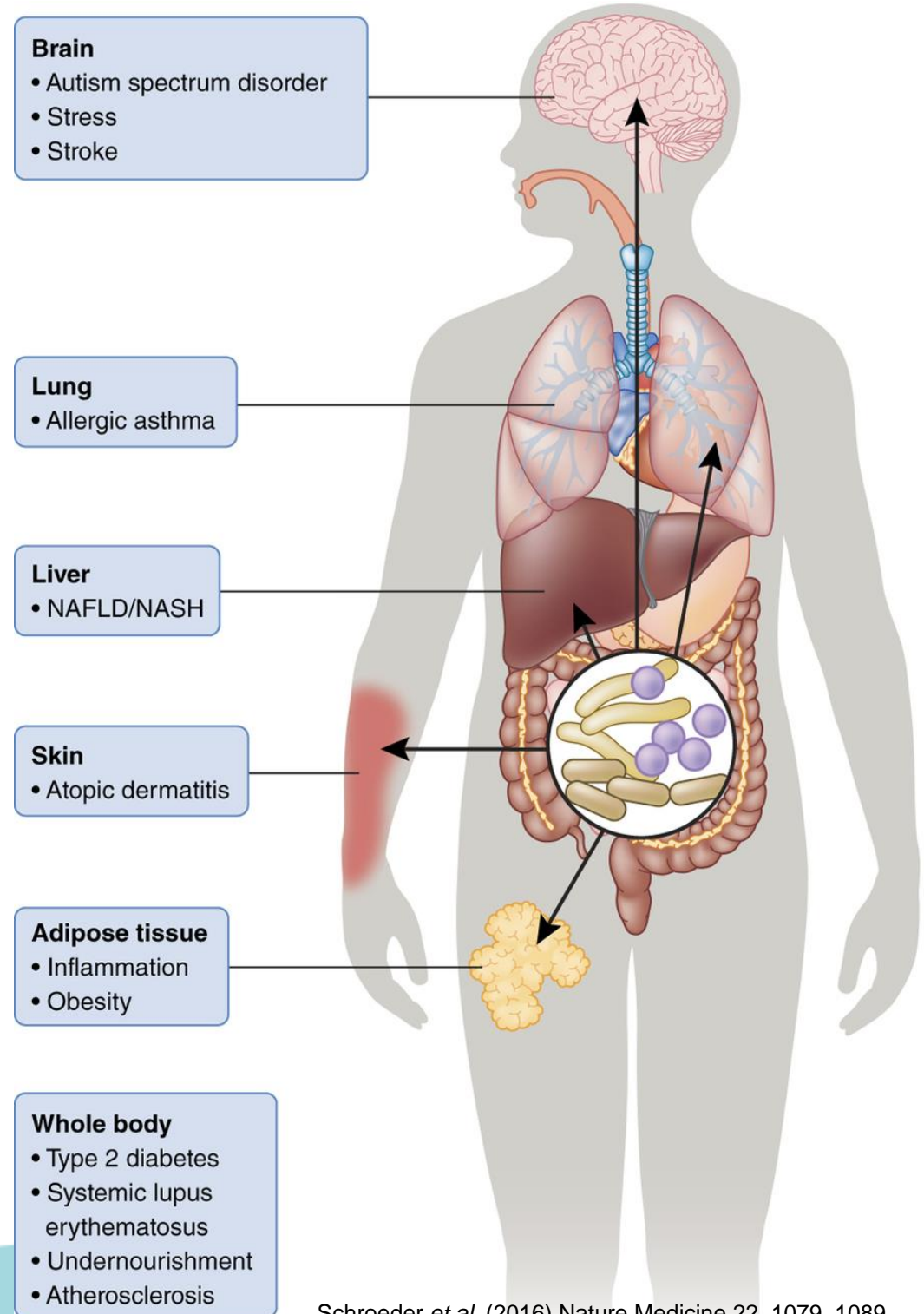


Crucially important to understand the human biology, including:

- **Drug response**
- **Infectious disease**
- **(Chronic) disease**
- **Behaviour**

The gut microbiome

- A bioreactor fueled by dietary micronutrients to produce bioactive compounds (environmental and host genetic regulation)
- The intestinal microbiota communicates with peripheral organs in the body
- Alterations of gut microbiota are associated with diseases



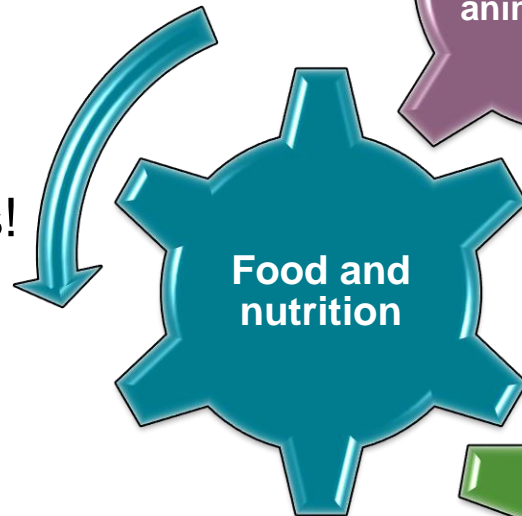
Microbiome: the nexus of environment, agriculture, animal health, nutrition and human health?

⚠ Pesticides resistance!



⚠ Metabolic disorders!

⚠ Zoonotic infections!



⚠ Cancer!

⚠ Antibiotic resistance!

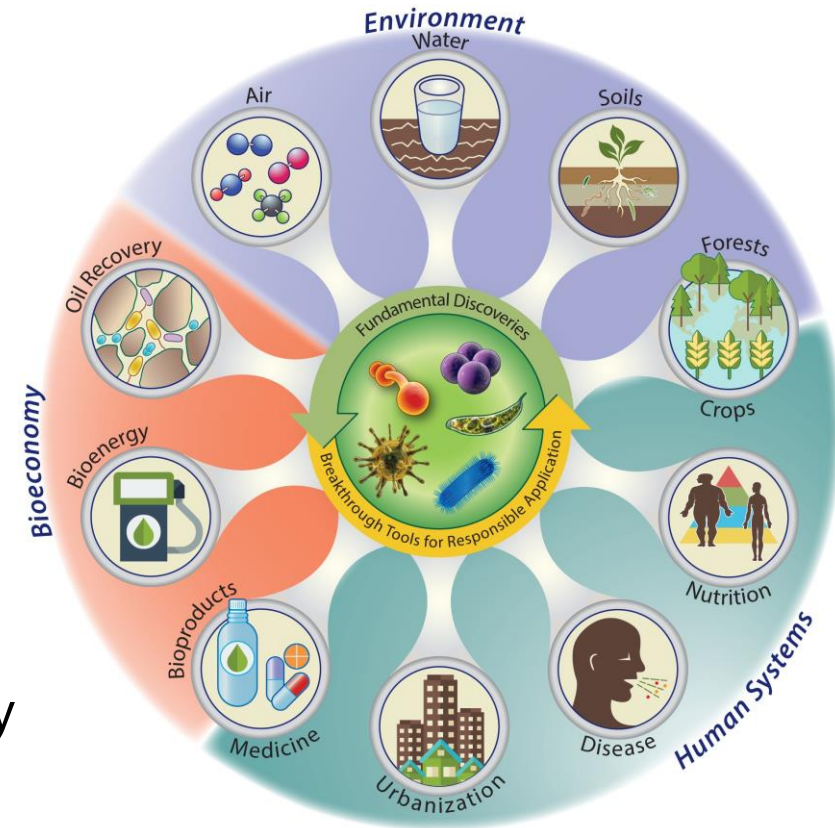


⚠ Cardiovascular
diseases!

Understanding the microbiome functioning might be fundamental to understand the interactions between systems that traditionally have been studied separately

A global microbiome perspective towards “one health”

- Recognised power of soil and plant microbiomes in enhancing agricultural productivity (provide nitrogen, phosphorus and other essential nutrients, they break down pollutants and suppress the activity of pathogenic microbes)
- Microbiome and climate change (microbes in the oceans produce 50% of the oxygen we breathe, and — through photosynthesis — remove roughly the same proportion of carbon dioxide from the atmosphere)
- Marine bacteria, archaea, viruses and eukaryotic microbes as global primary producers at the base of the food chain, remineralisation and deposition of carbon



Existing microbiome initiatives

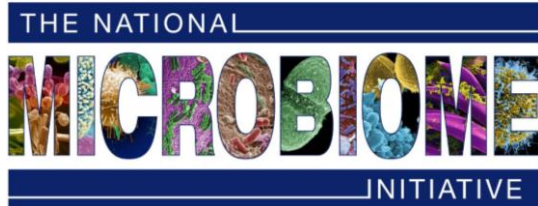


€ 243 029 725.14
91 funded projects



€ 187 694 294.80
60 projects

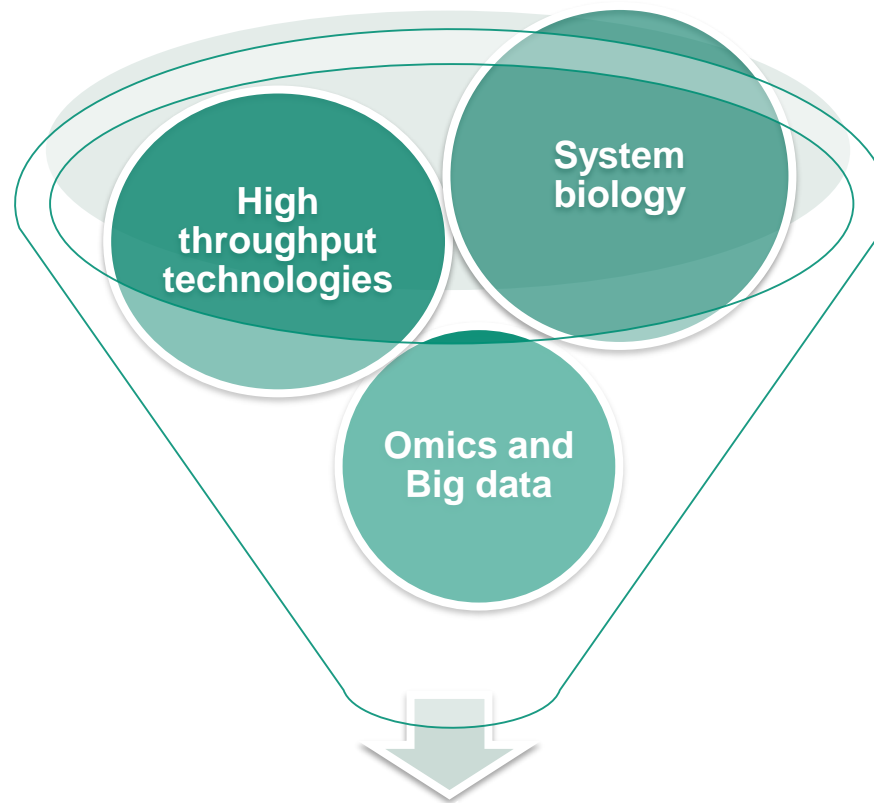
National Microbiome Initiative (NMI)
of The White House



International Human Microbiome Consortium



Where next for microbiome research?



- Moving towards the “One health” concept and going beyond the disciplinary silos
- Engaging new sectors and start new collaborations (i.e. biotech, food and nutrition, cosmetics etc.)
- New business opportunities for industries and SMEs



Thank you

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