

The Microbiome: Lessons From the Gut – Part 1


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 Gut Microbiota for Health

2021 at a glance: hotspots in gut microbiome research

2021 at a glance: hotspots in gut microbiome research and predictions for the field's future development. Despite the global focus on COVID-19,...

1 week ago




 Premium Beauty News

Focus on microbiome creates new skincare generation

Indeed, the brand has developed toothpaste with prebiotics whose microbiome-friendly action was confirmed by an independent laboratory, just...

15 hours ago




 Genetic Engineering and Biotechnology News

Monitoring Strains over Species in the Gut Microbiome

The human Microbiome, genetic material of all the microbes that live on and inside the Source: Design Cells/Getty Images. OMICs · Microbiome...

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 Medical News Today

3 bacteria in human gut may help defend against SARS-CoV-2

All humans have a microbiome comprising thousands of microorganisms, such as bacteria, fungi, and viruses, which co-exist naturally in the body.

2 weeks ago




 SciTechDaily

Consuming Artificial Sweeteners During Pregnancy May Affect Baby's Microbiome and Obesity Risk

Pregnant rats fed with stevia or aspartame gave birth to pups that had a higher risk of obesity and specific changes in their gut microbiome...

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 Nutra Ingredients

Eagle Genomics and Quadram Institute advance AI-driven ...

"Data science is also absolutely key to our research at the Quadram Institute into the gut microbiome and its influence on human health,..."

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 NC State News

Study Finds Distinct Gut Microbiomes in Male and Female ...

The finding suggests there is an unexpected sexual distinction in the gut microbiomes of carnivores, which has ramifications for future...

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 Pharmacy Times

Prototype Biomarker Could Distinguish Healthy, Disruptive ...

The gut microbiome is an incredibly diverse microbial community that is essential to human health, although antibiotics often disrupt the...

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THE BRAIN/GUT CONNECTION



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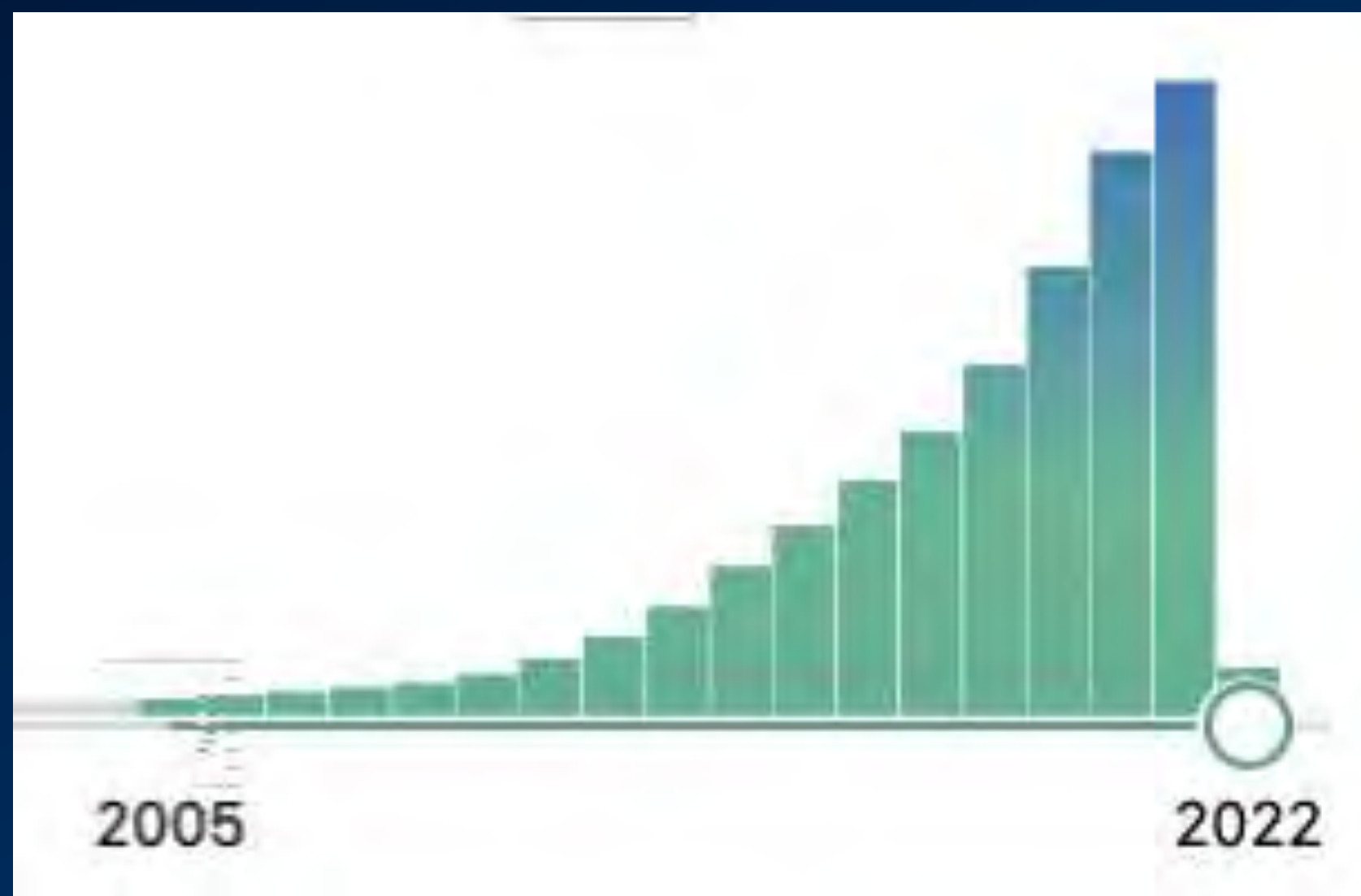
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RESULTS BY YEAR 108,719 results

2021:24310 papers



thebmj

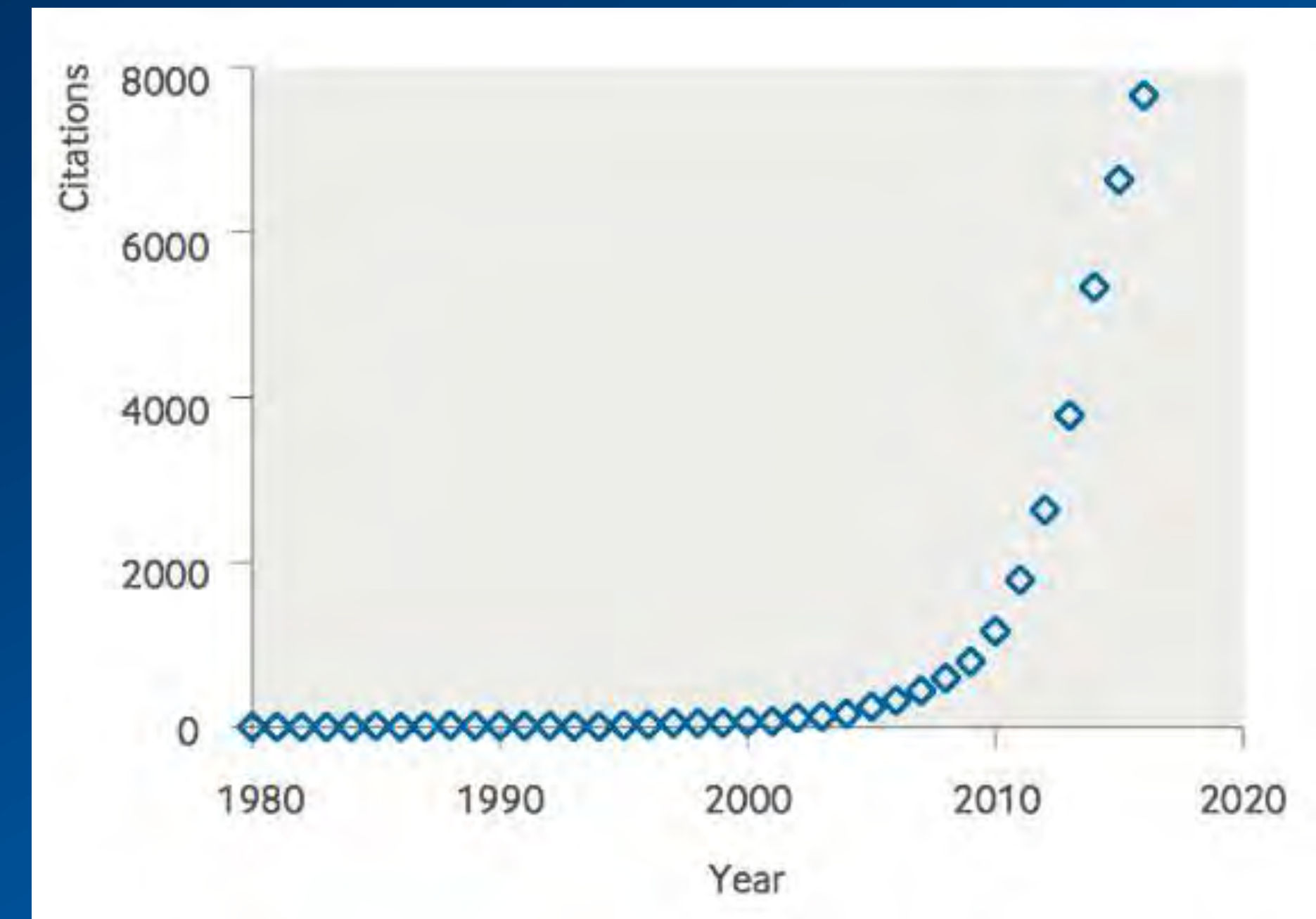
STATE OF THE ART REVIEW

The role of the microbiome in human health and disease: an introduction for clinicians

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2017



Student interest



Taking Charge of our Microbiome and Helping the Environment of our Intestines

By Simran A., 7, Southeast Michigan Mensa

Editor's Note: Simran took a different approach to our environment theme. She is focusing on our internal environment. She is on a mission to promote healthy eating habits in kids. She interviewed Dr. Vincent Young to understand the relationship between the gut microbiome, health, and disease.

Gut microbiome includes the trillions of bacteria, fungi, and viruses that are present in our large intestine. We are more bacteria than human. These microbes aid in digestion; making vitamins such as B12, thiamine, riboflavin; and regulating our immune function. They are like an organ system for humans. If we have a healthy gut microbiome, we will remain protected from several diseases.

I asked Dr. Vincent Young, an international researcher on human microbiome,



how we can build a healthy gut microbiome and prevent the growth of pathogenic bacteria such *Clostridiodes difficile* seen above.

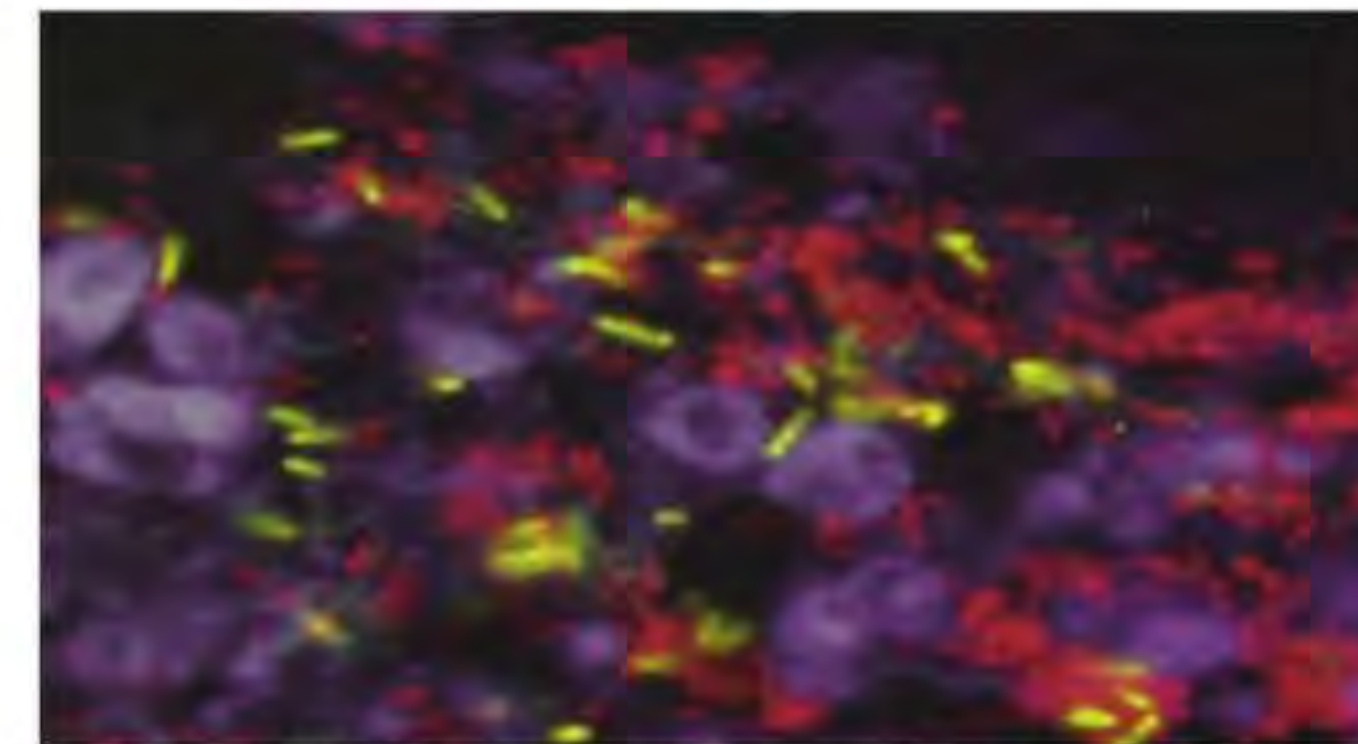
He said, "The more diverse food groups we include in our diet, the health-

ier microbiome we will build. We need to eat lots of fruits, vegetables, and whole grains and avoid processed foods like candy." Interestingly, Dr. Young pointed out that we don't need special diets or "pills containing healthy bacteria" to improve our microbiome.

Some drugs, such as antibiotics and steroids, can harm our microbiome and cause an imbalance of good and bad bacteria in our gut. This is called dysbiosis. I wondered if this could be reversed by eating healthy foods. When I asked Dr. Young, he said, "Yes, overtime, dysbiosis can be reversed through a healthy diet as long as those insults are eliminated."

Did you know that the climate crisis can indirectly affect the human microbiome over time? By using more processed and convenience foods we are also destroying the climate, which will also affect our microbiome over time.

I believe we can all do our part to build a healthy world and protect our microbiomes. ■



"FluorCDI" is from Dr Vincent Young's Laboratory. The green bacteria are *Clostridiodes difficile* (pathogenic bacteria that cause diarrhea). The red bacteria are all the other bacteria in the gut. The purple/blue are the cells of the intestine.



Never forget your teachers!



Some definitions



- **Microbiome**: The total community of microbes (bacteria, fungi, viruses) **AND** the given environment that they inhabit (such as soil or the human body)
- **Microbiota**: A group of microbes in a given environment/location

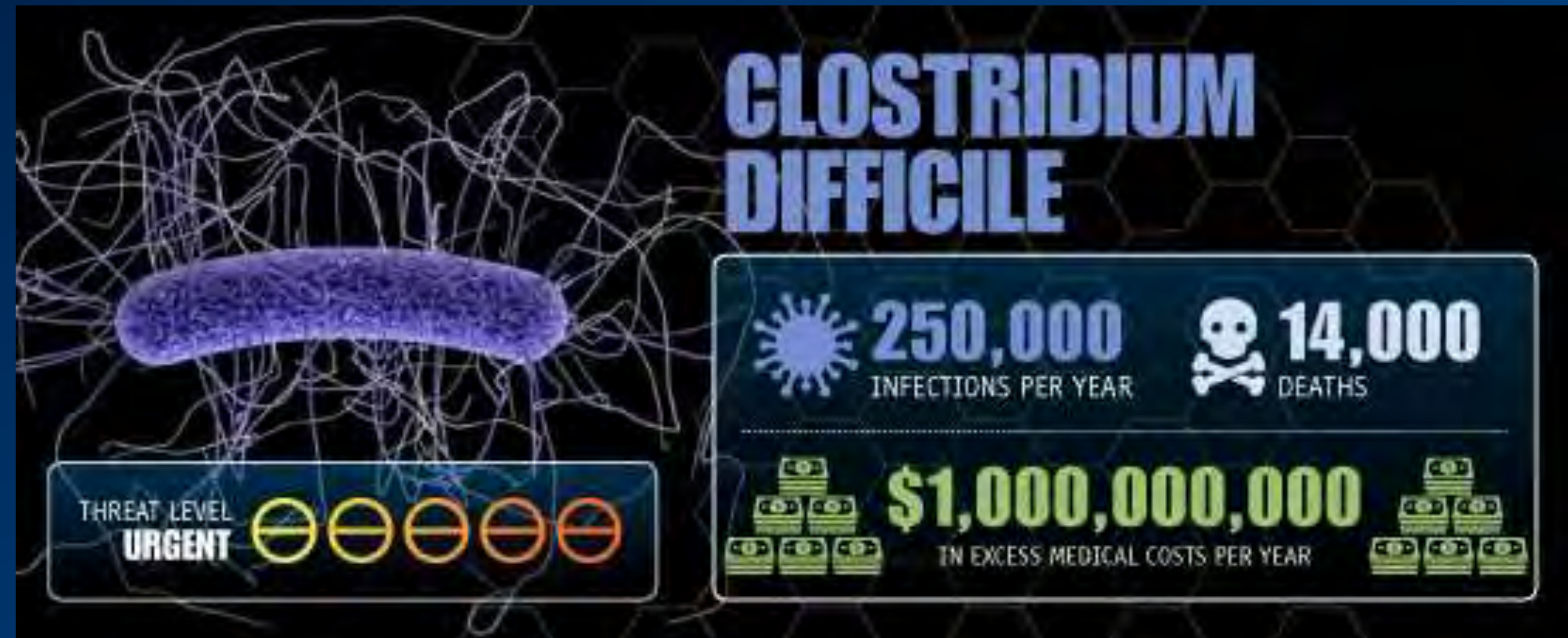
A case from the hospital

- 56 year old man admitted to the hospital with a pneumonia (not Covid-19)
- Treatment with antibiotics for suspected bacterial infection
- Hospital day three, develops abdominal pain, diarrhea, and becomes severely ill



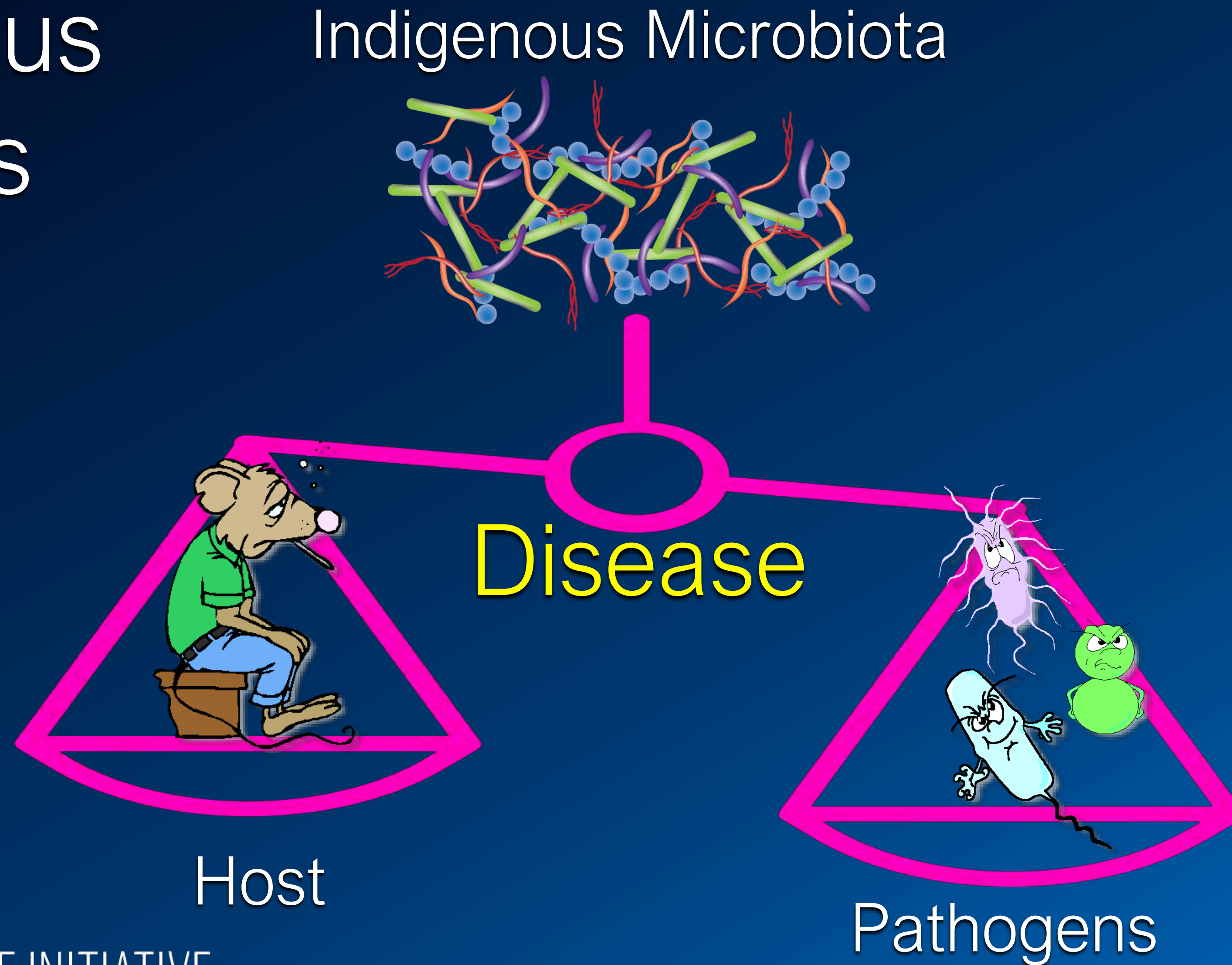
Clostridioides difficile

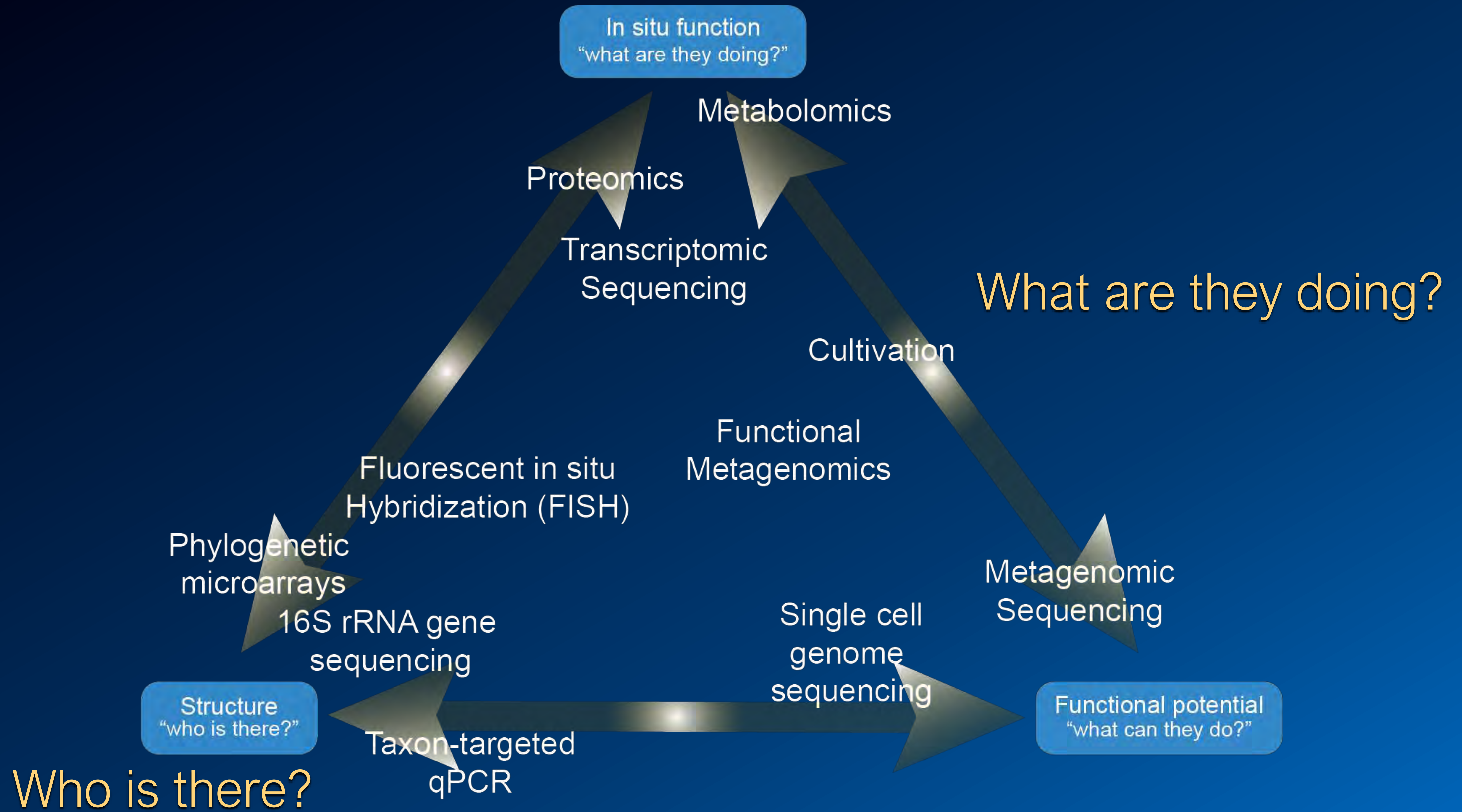
- Anaerobic, gram-positive, spore-forming, toxin producing bacterium
- Spores: environmentally stable reservoir of the organism
- Can be detected in a small fraction of the healthy population



<https://www.cdc.gov/media/releases/2015/p0225-clostridium-difficile.html>

Modern view of infectious diseases







Functions of the microbiota

