

Genomics Lite: Human Microbiome in Focus

Learning Resources



These resources are designed to support and further attendees understanding of the human microbiome, and are aimed at students in upper secondary years (e.g. year 10 and higher).

For further resources, visit yourgenome.org

What is a microbiome?

The word 'microbiome' comes from the words 'micro' - meaning small, and in biology referring to microbes - and 'biome' - referring to naturally occurring organisms occupying a shared habitat. Just as there are different habitats and biomes on earth, the human body contains different 'habitats' and different microbiomes.

<https://learn.genetics.utah.edu/content/microbiome/ecosystem/>

There are trillions of microbes that make up the human microbiome. This infographic highlights some statistics about the number and diversity of microbes in the human microbiome, and this phylogenetic tree highlights the families of microbes that are commonly found in the human microbiome.

<https://worldmicrobiomeday.com/wp-content/uploads/2019/06/2019-Microbiome-in-Numbers-1.jpg>

https://archive.nytimes.com/www.nytimes.com/interactive/2012/06/19/science/0619-microbiome.html?_r=2&src=tp

The microorganisms that are found in the human microbiome can be described as being in a mutualistic symbiotic relationship with the human body - both the microbes and human benefit from their presence.

<https://examples.yourdictionary.com/examples-of-symbiosis.html>

Where does our microbiome come from? We get our very first microbes during birth and rapidly gain more from every person and object we come into contact with as babies.

<https://learn.genetics.utah.edu/content/microbiome/changing/>

This video provides an overview of what the microbiome is, how it was first studied, and what we currently know about its links to health and disease:

https://youtu.be/YB-8JEo_0bl

Microbiomes, health & disease

We often associate the presence of microorganisms in the human body with disease, but research is showing that a lack or imbalance of microorganism can negatively impact our health.

<https://learn.genetics.utah.edu/content/microbiome/disease/>

Studying the genomes - or metagenome - in the microbiome can give us a better idea of what microorganisms are present, what their functions are, and what happens if they aren't present.

<https://learn.genetics.utah.edu/content/microbiome/study/>

How can we help our microbiomes? Whilst we are still learning about our microbiomes, eating a diverse range of foods including 'pro-biotic' products, exercising and spending time outdoors, and avoiding too much processed foods have been linked to healthier microbiomes.

<https://www.nationalgeographic.org/media/whats-bacteria-your-gut/12th-grade/>