



H3ABioNet

Pan African Bioinformatics Network for H3Africa

16SrRNA Intermediate Bioinformatics Online Course: Int_BT

Module 2:

Introduction to the microbiome – why 16S?

Part 2.3

The human microbiome: more than just the GIT



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Shantelle Claassen-Weitz



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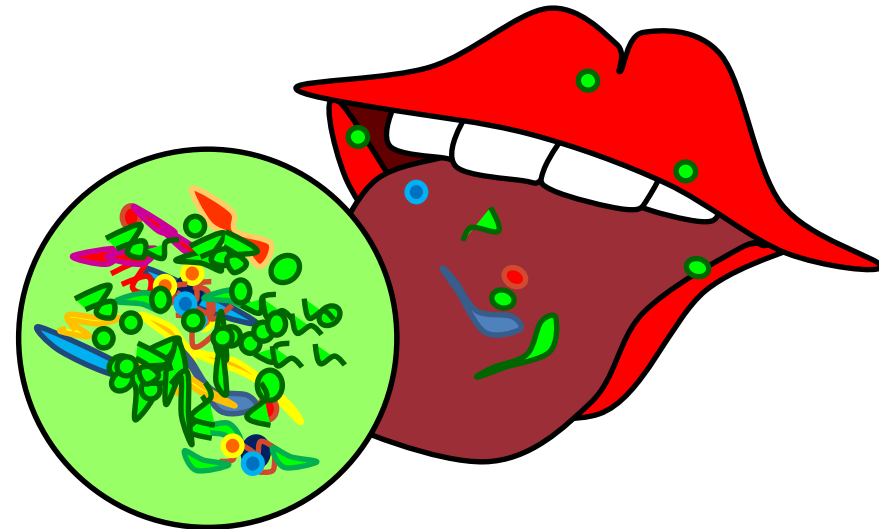
Immunology Letters

journal homepage: www.elsevier.com/locate/immlet

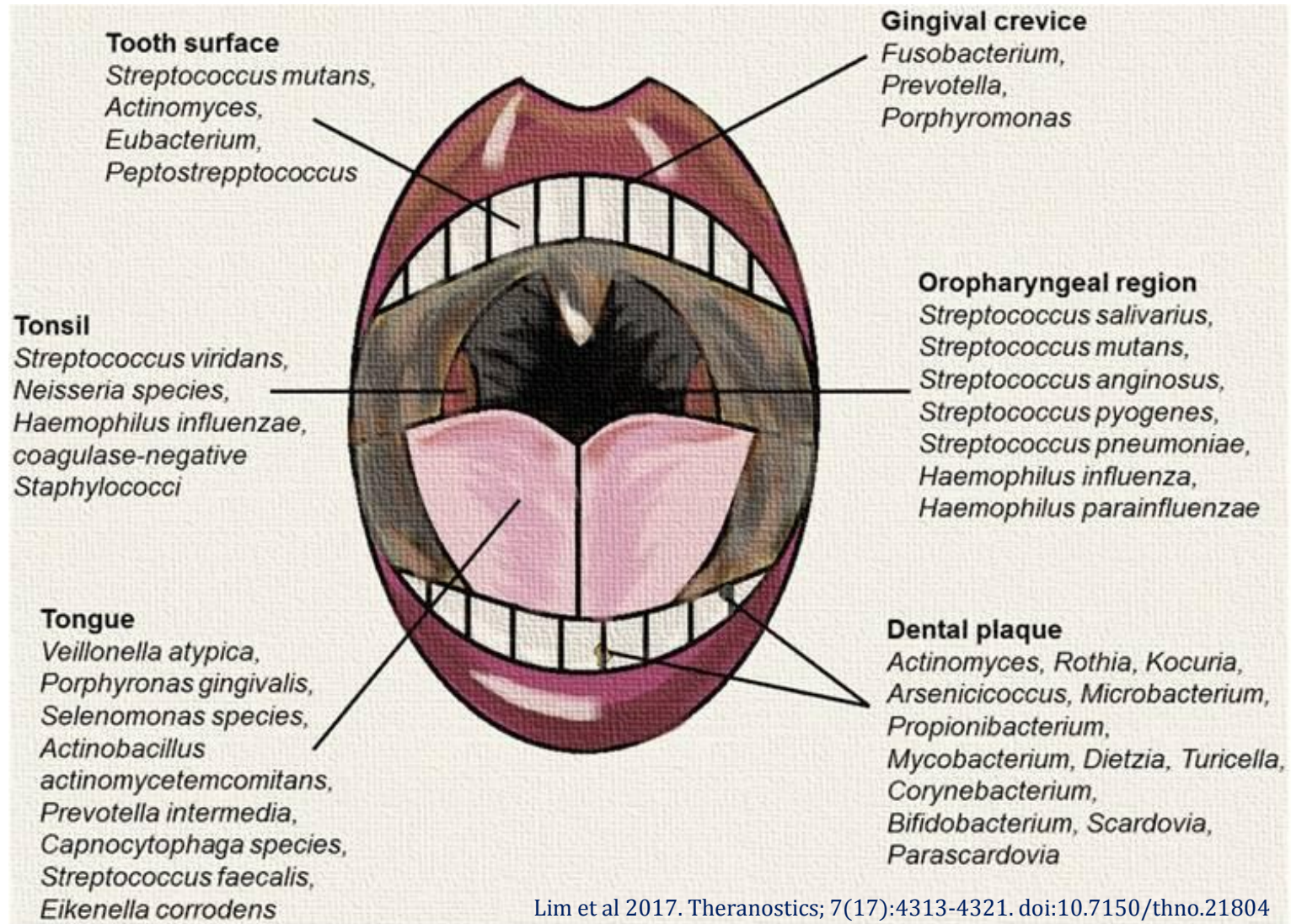


The oral microbiome and the immunobiology of periodontal disease and caries

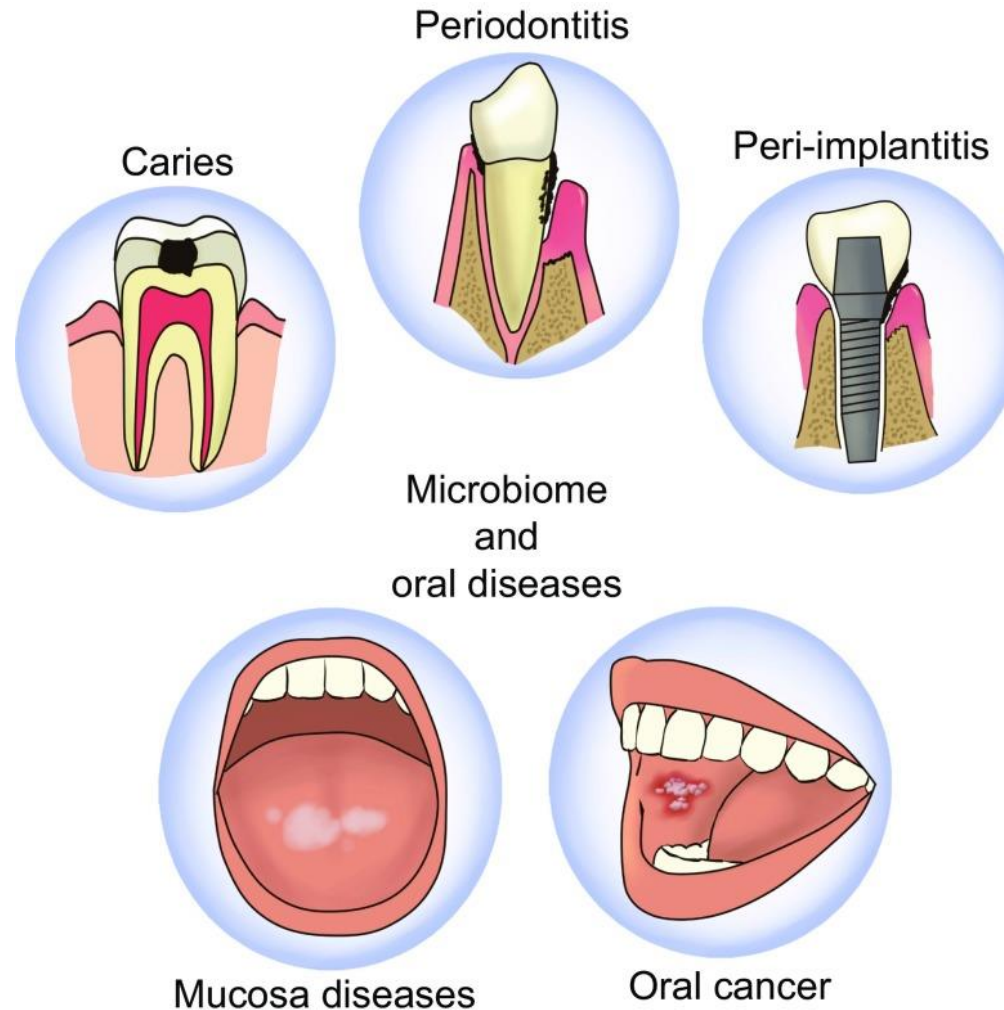
| Massimo Costalonga^{a,*}, Mark C. Herzberg^{b,c}



The human microbiome: more than just the GIT

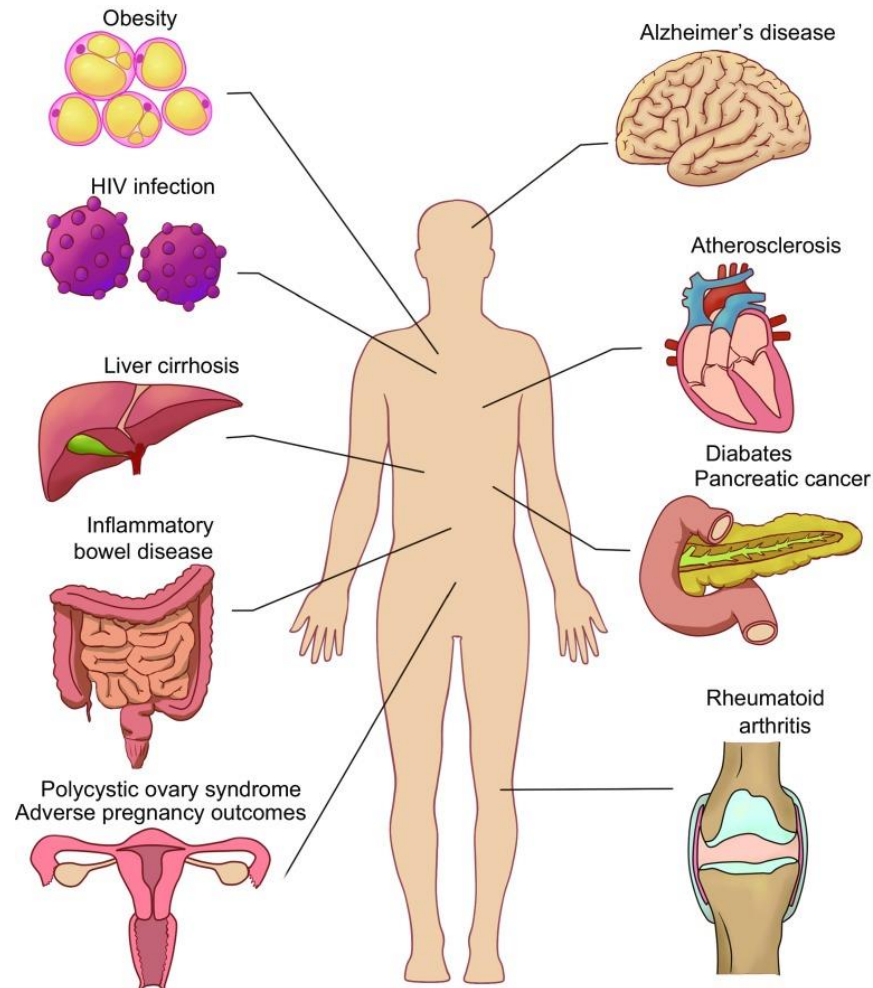


The human microbiome: more than just the GIT



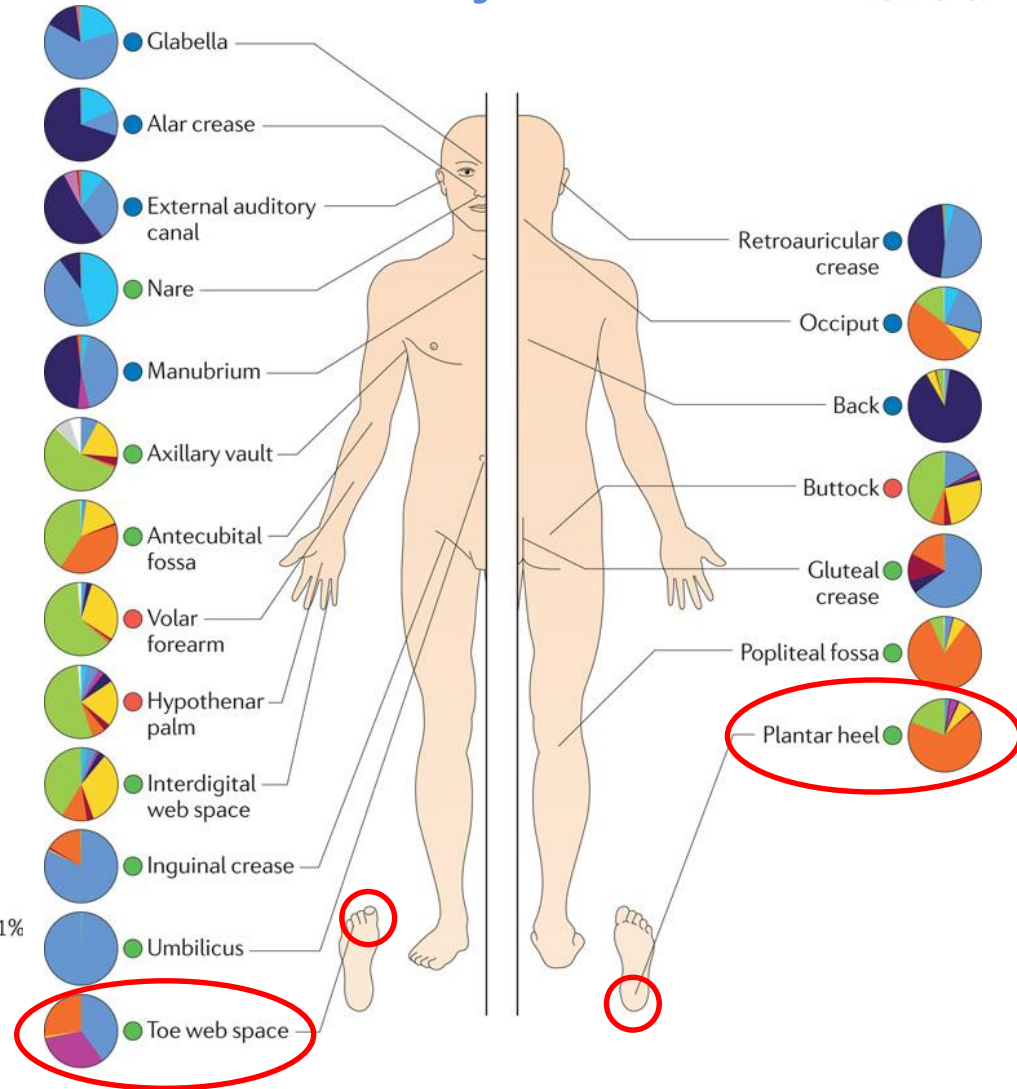
Gao et al. 2018. Protein Cell. May; 9(5): 488–500. doi: 10.1007/s13238-018-0548-1

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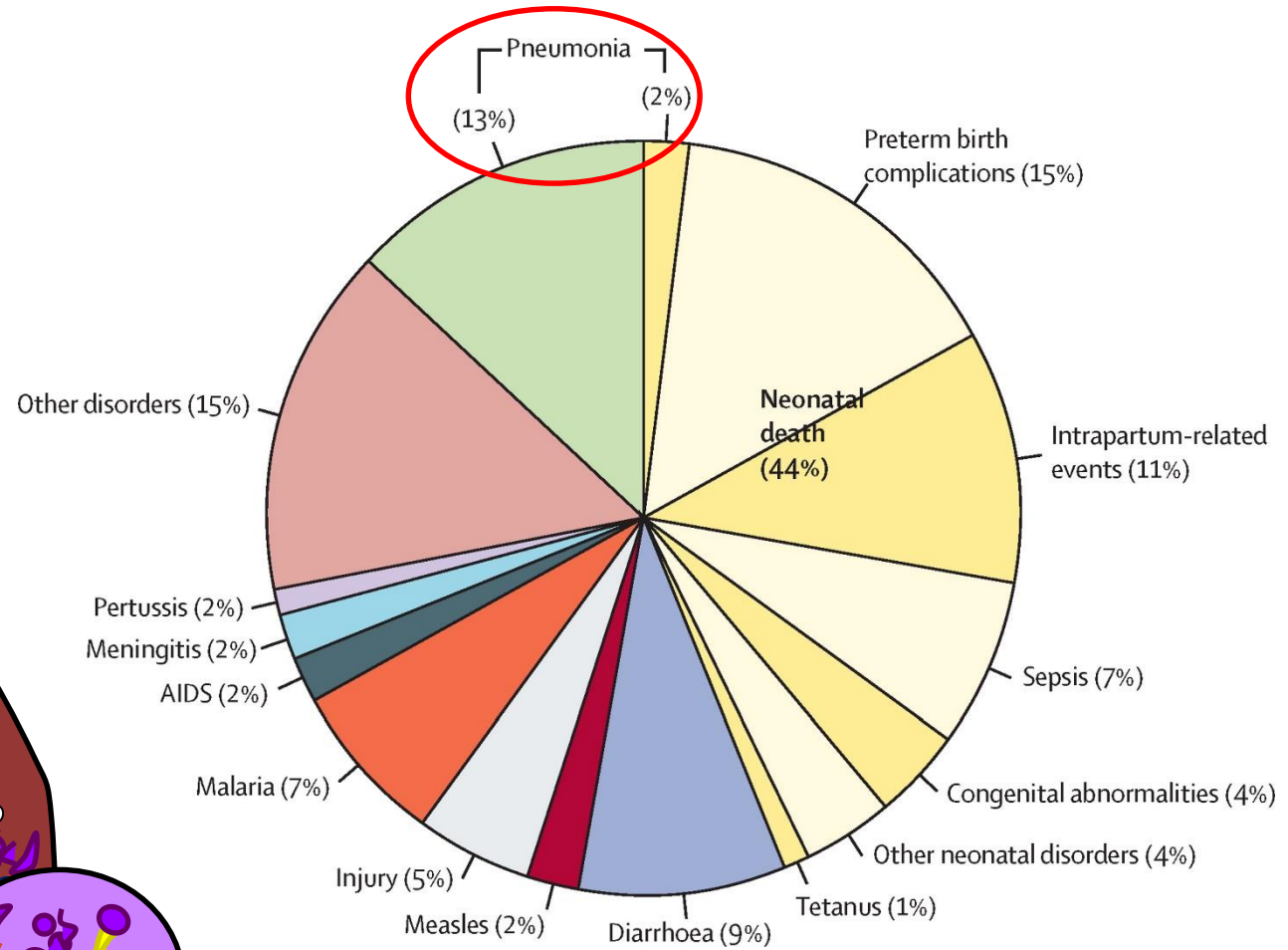
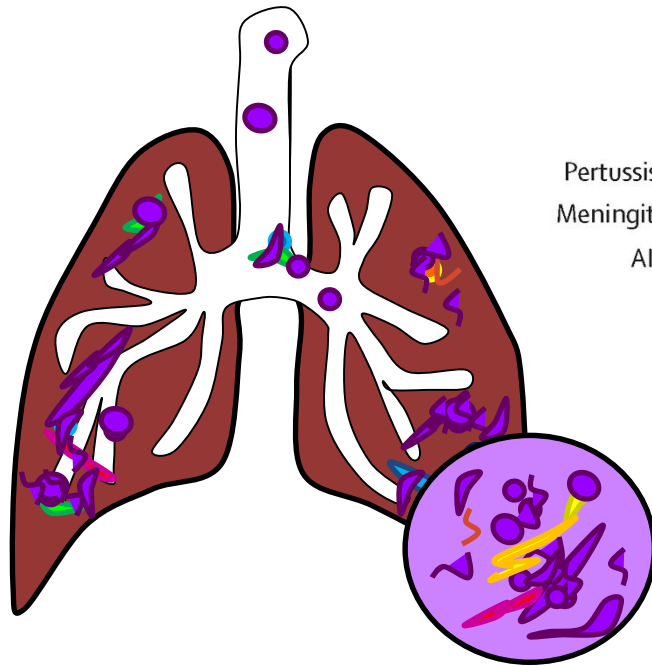
Grice and Segre 2011. Nat Rev Microbiol. Apr; 9(4): 244–253.
doi: 10.1038/nrmicro2537

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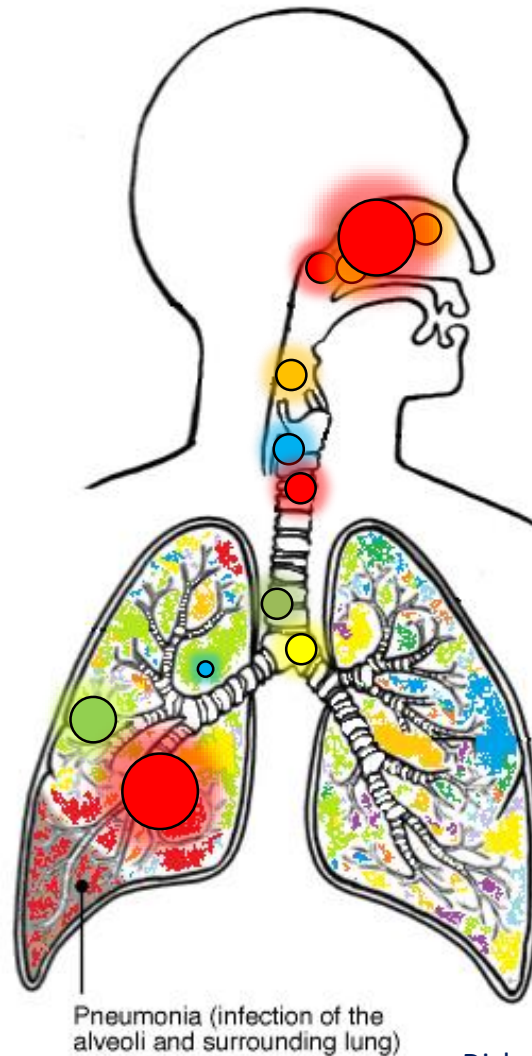
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Liu et al. (2015) *Lancet*. 385:430-440

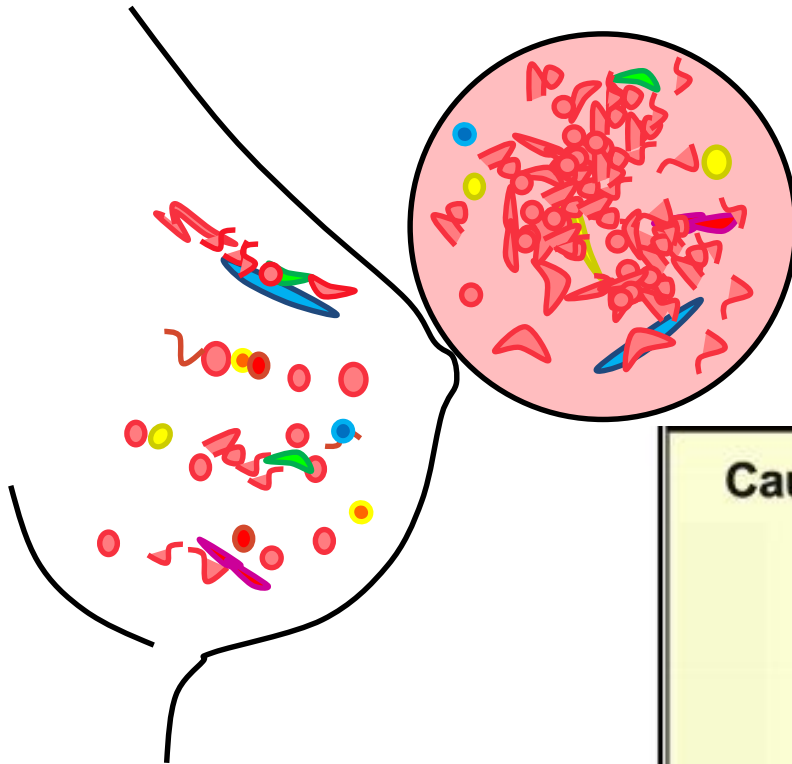
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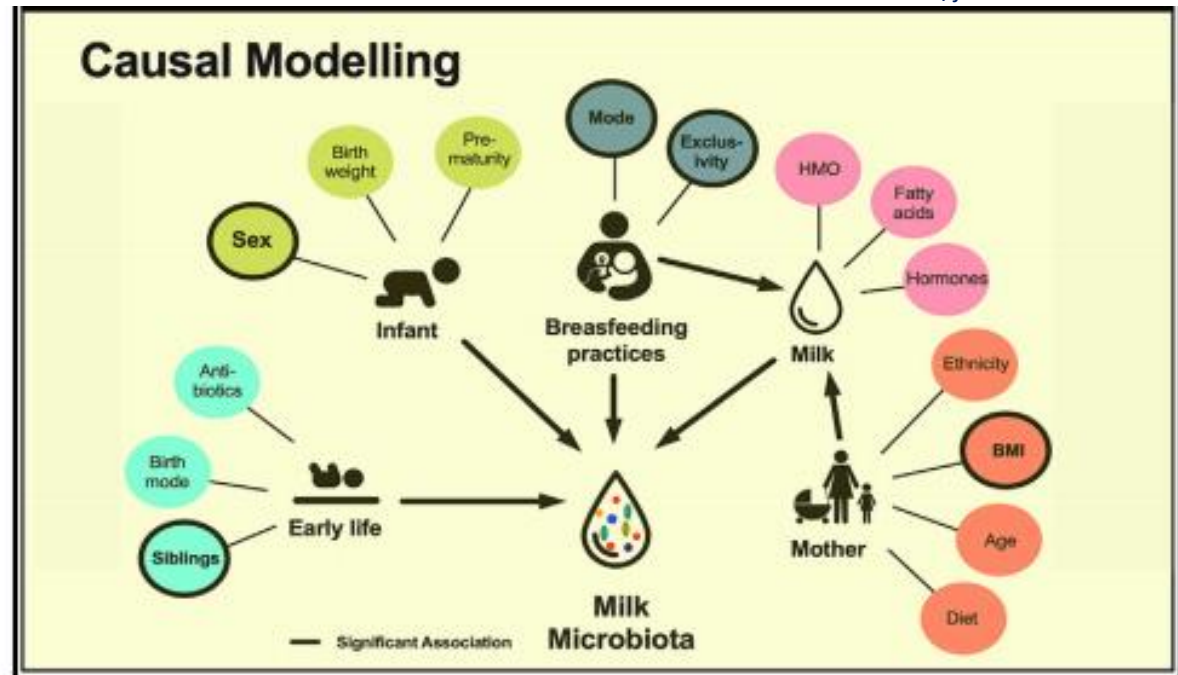
Dickson et al. (2014) *Lancet Respir Med.* 2(3):238-246;
Dickson and Huffnagle (2015) *PLoS Pathog.* 11(7): e1004923

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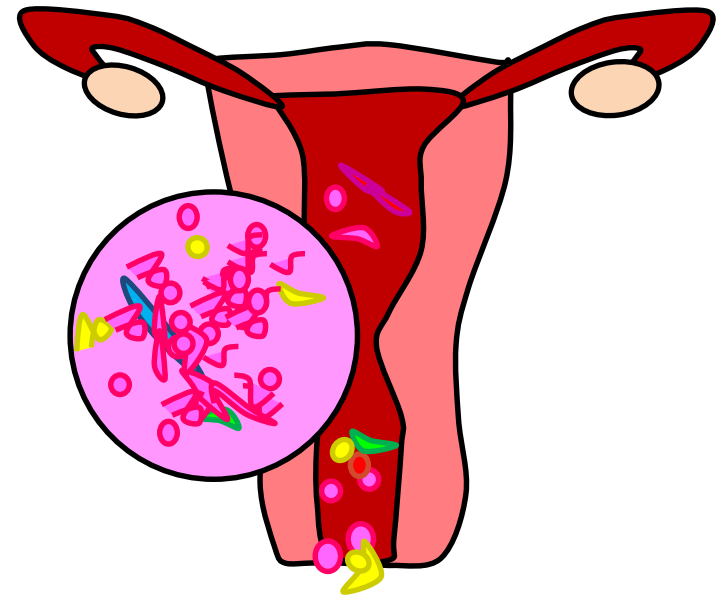
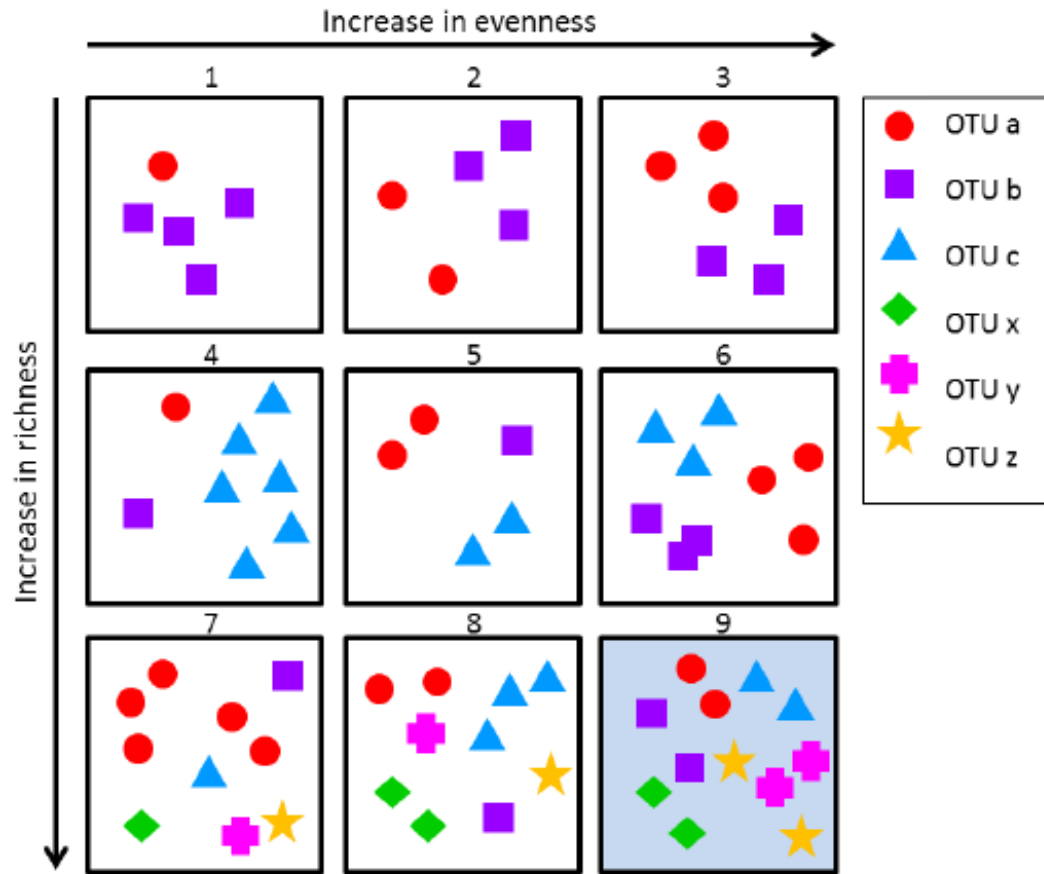
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Moossavi et al. 2019. Cell Host Microbe. Feb 13;25(2):324-335.e4.
doi: 10.1016/j.chom.2019.01.011

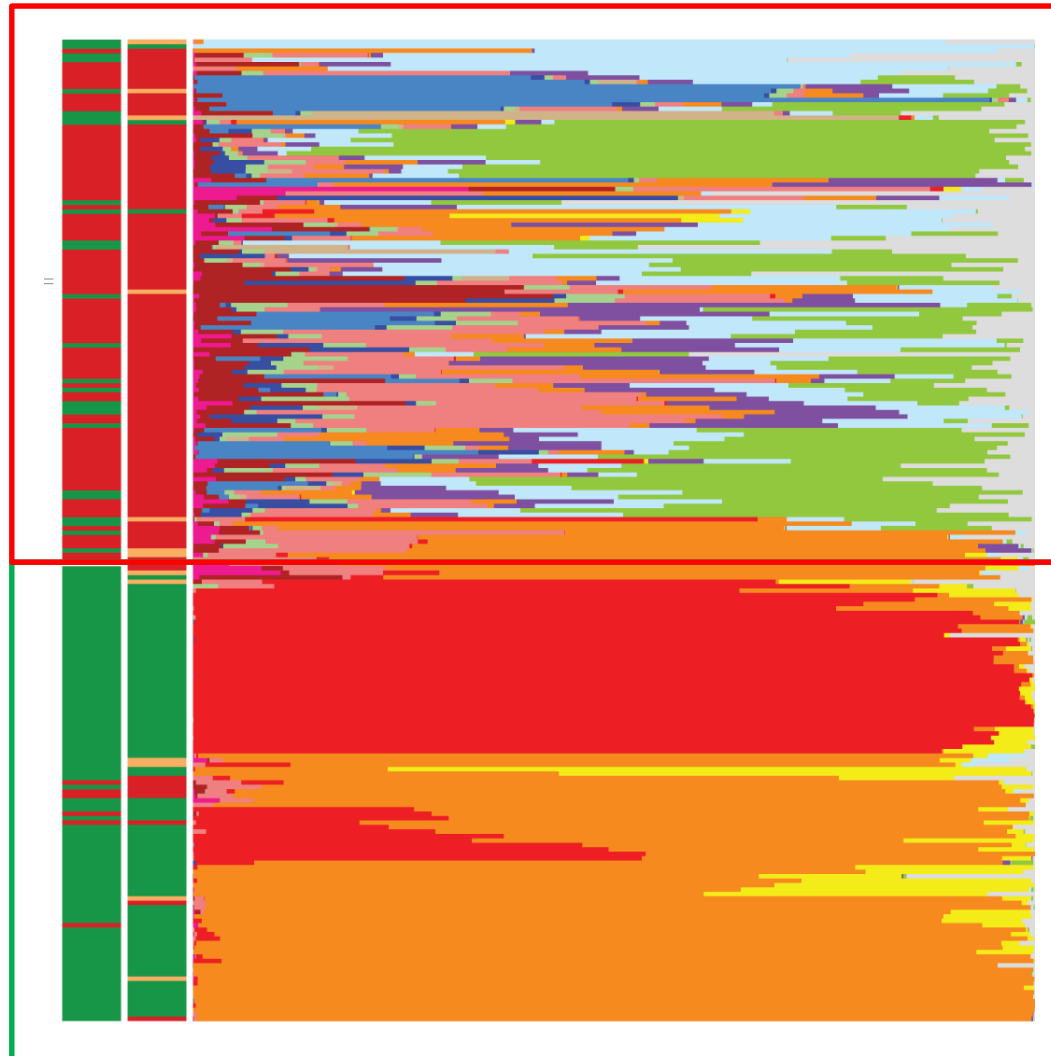


The human microbiome: more than just the GIT



The human microbiome: more than just the GIT

Bacterial
vaginosis +



Diverse
microbial
profiles

Bacterial
vaginosis -

Dominated by 2
Lactobacillus
species:
L. crispatus or *L.*
iners

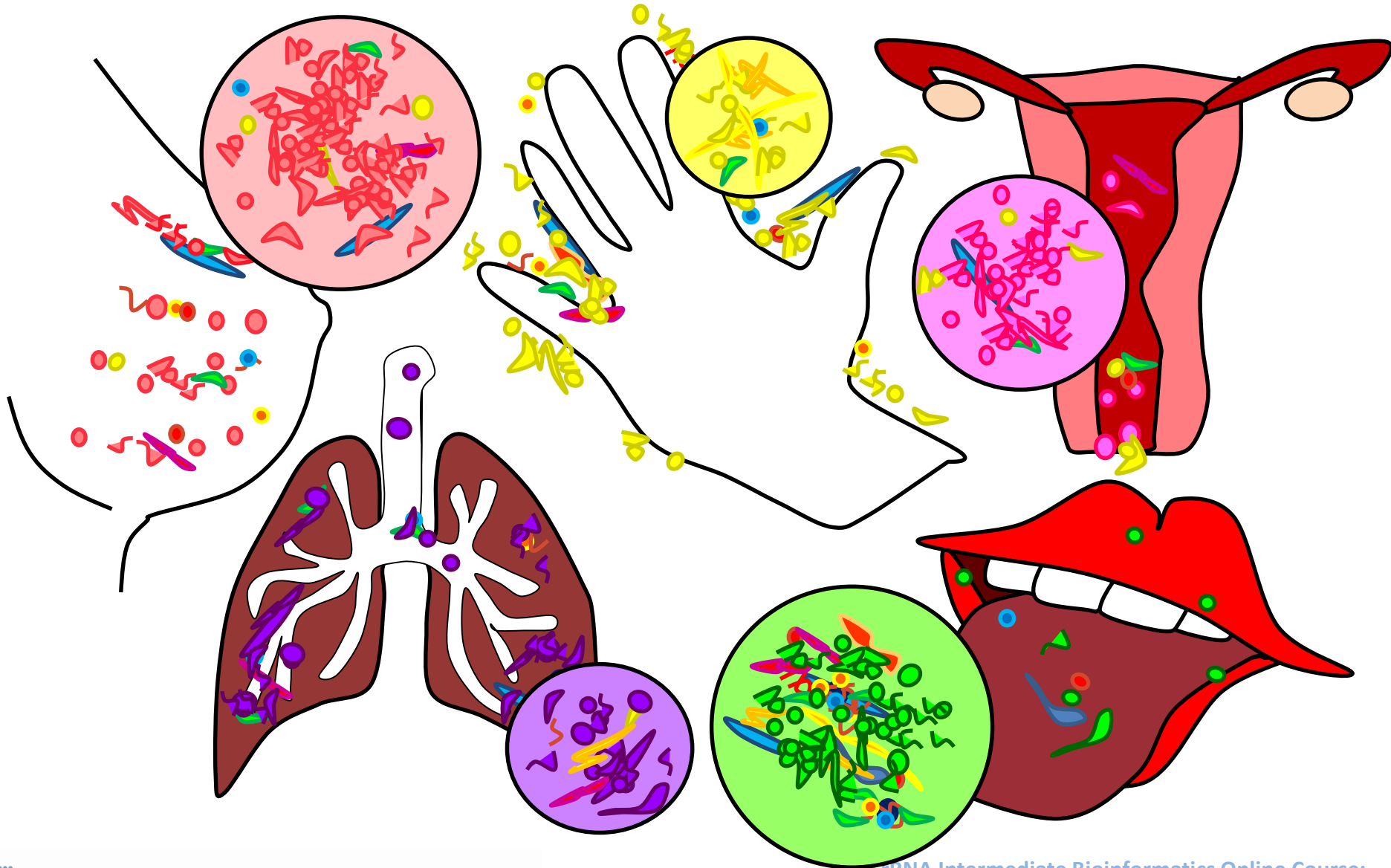
Srinivasan et al 2012. Plos One. <https://doi.org/10.1371/journal.pone.0037818>

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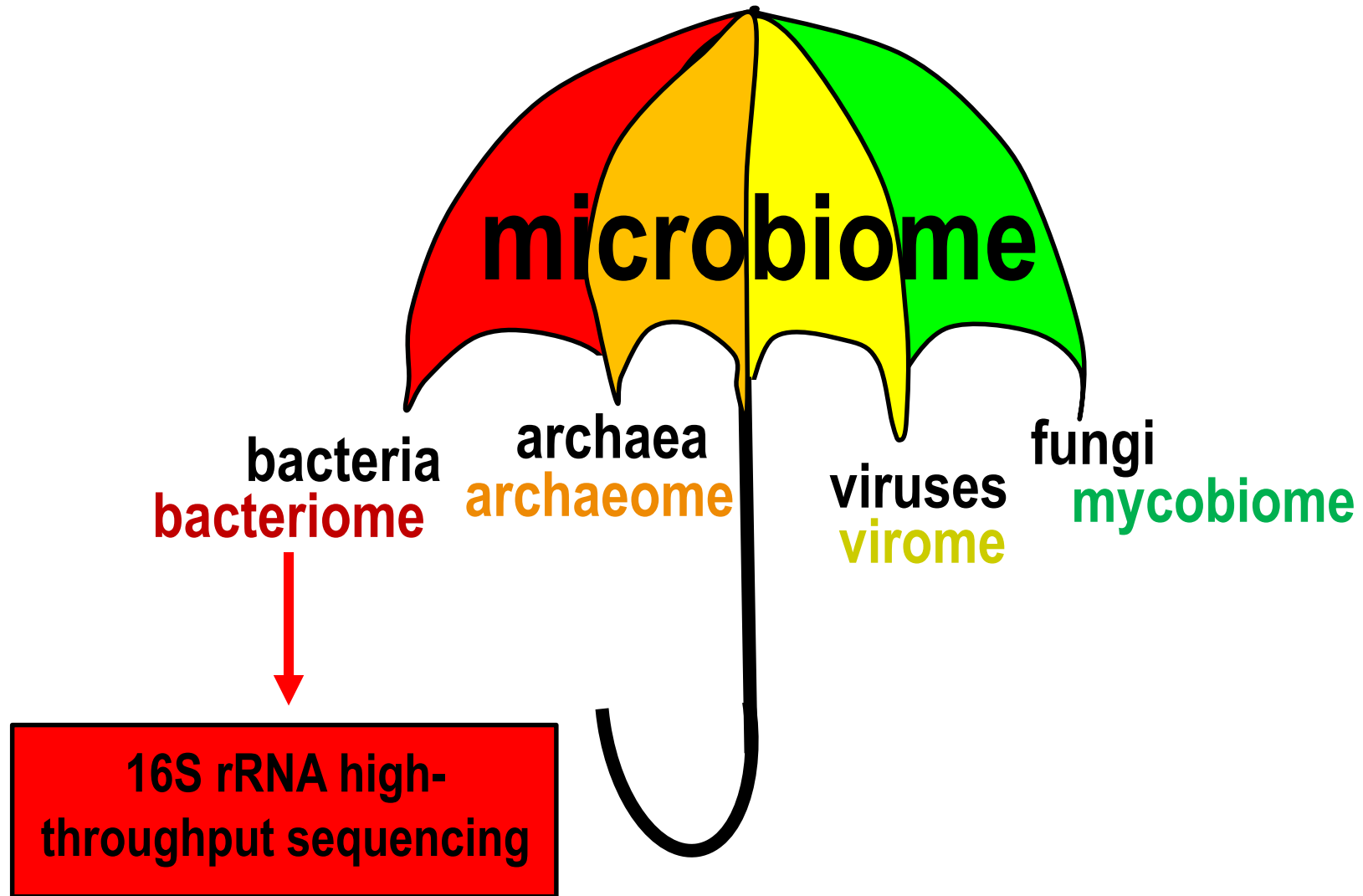
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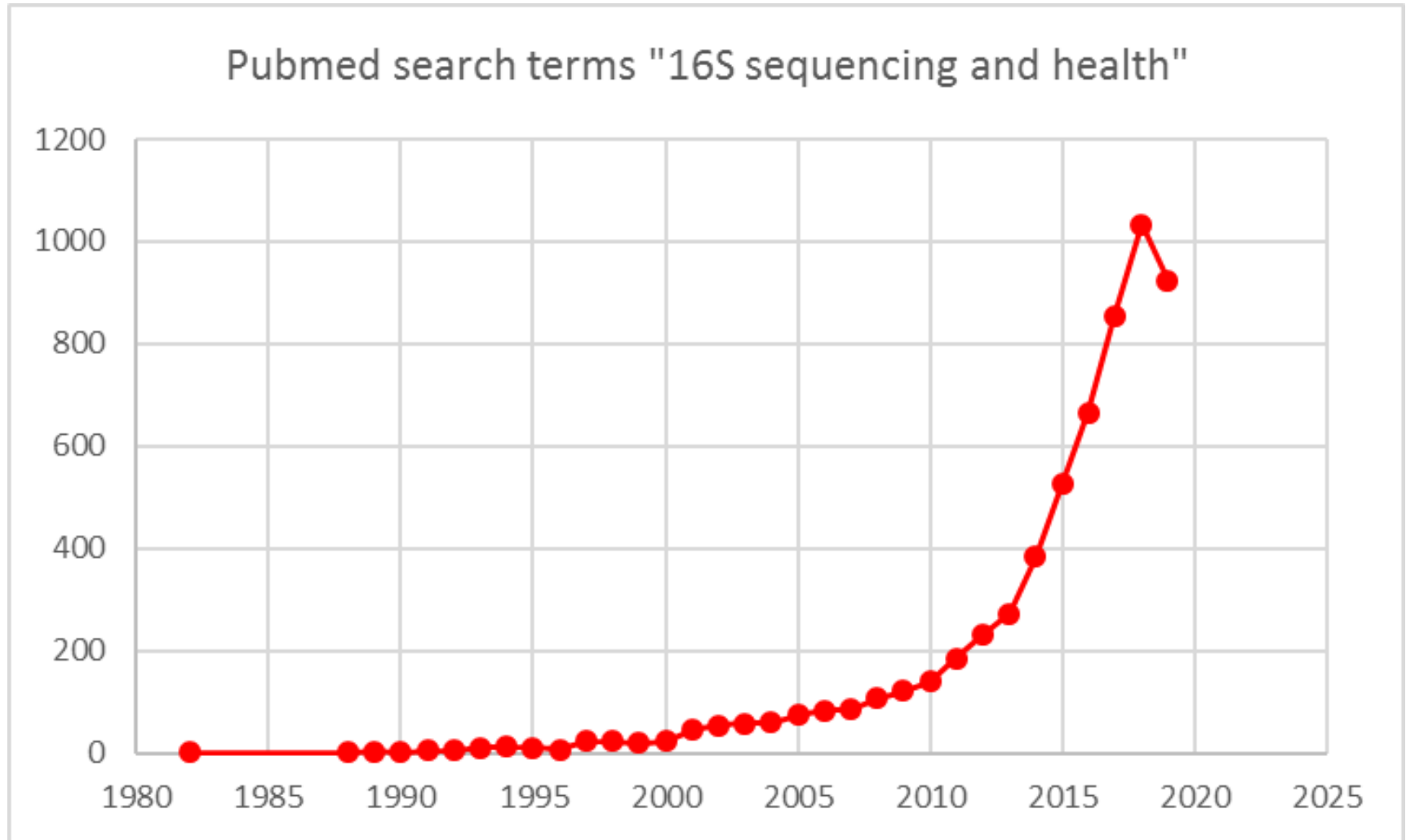
The human microbiome: more than just the GIT



The human microbiome: more than just the GIT



The human microbiome: more than just the GIT



In summary:

- Microbial communities exist outside the human GIT.
- A number of studies have shown that microbial communities detected at different body sites are associated with health and disease states.
- Microbial communities are different for different body sites and we even find different communities within different topographies of the same body site.
- The term “microbial diversity” is defined as the number of different organisms and how evenly they are distributed within an environment.
- The term “microbiome” is an umbrella term for a number of microscopic organisms (which includes bacteria) detected in any given environment.
- 16S rRNA high-throughput sequencing is used to study the bacteriome / bacterial profiles within any given environment.

Module 2:

Introduction to the microbiome – why 16S?

