

Discipline	Sciences de la Vie et de la Terre	Niveau	Seconde
Thème	Corps humain et santé		

**Compétences :**

Écouter, visionner et comprendre des contenus disciplinaires dans le contexte linguistique et culturel de la section	x
Lire et comprendre des contenus disciplinaires dans le contexte linguistique et culturel de la section	x
Parler et interagir à l'oral en mobilisant des contenus disciplinaires dans le contexte linguistique et culturel de la section	
Écrire et interagir à l'écrit en mobilisant des contenus disciplinaires dans le contexte linguistique et culturel de la section	
Rechercher et exploiter des informations pour faciliter la coopération internationale dans le contexte linguistique et culturel de la section	

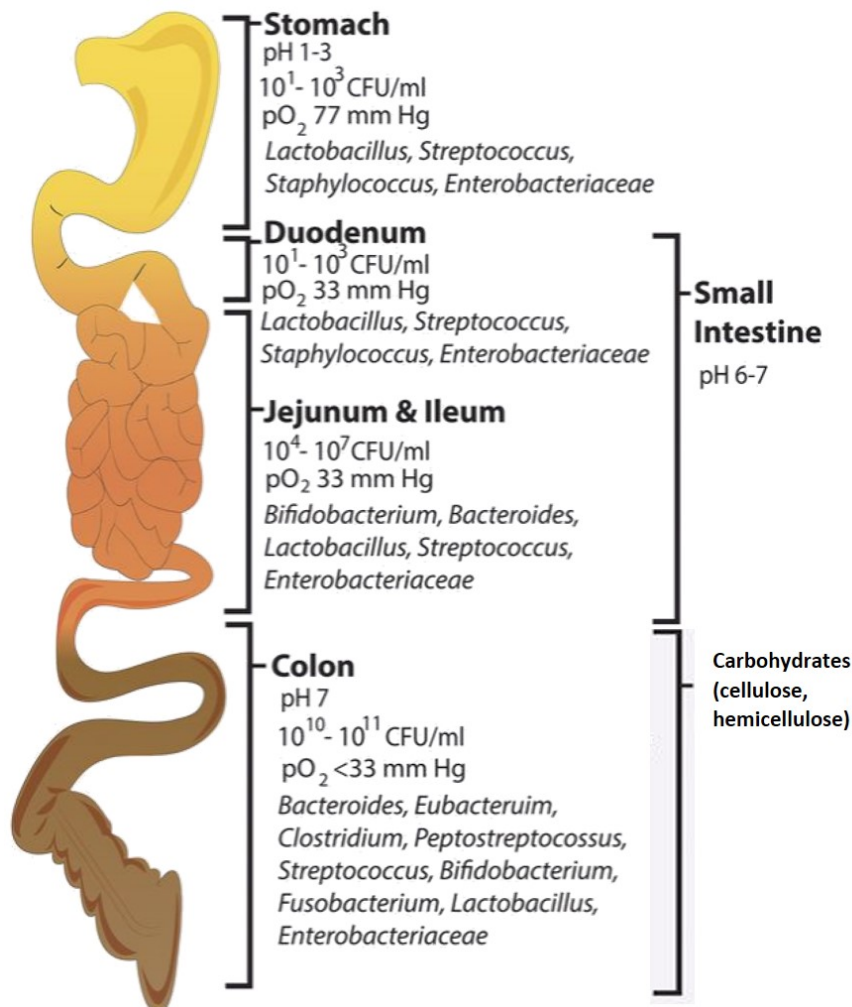
### Activity 1 : HOST-MICROBIOTA INTERACTIONS

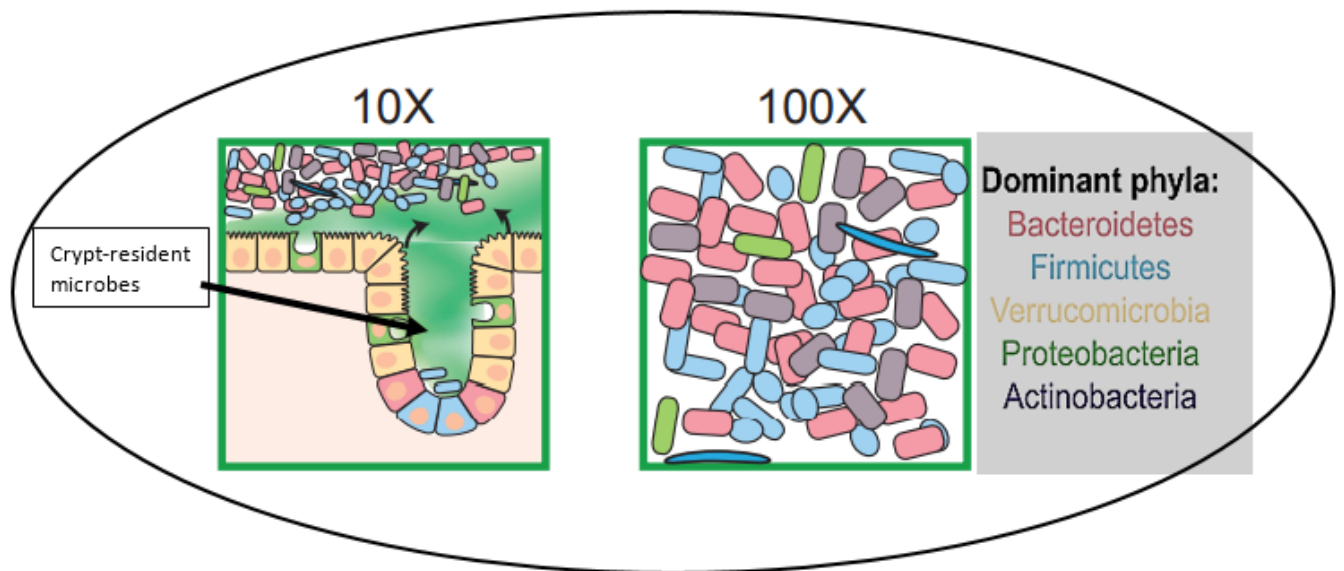
**Learning objective: Establishing a relationship between gut and microbiota**

The microbiota represents between 10,000 and 100,000 billion microorganisms that interact with the cells of our body.

**Task: Argue that the host-microbiota interaction can be described as symbiosis. Conclude (in one or two sentences) on the benefits of this relationship for our health.**

**Figure 1: The gut microbiota (from <http://pharmrev.aspetjournals.org/content/71/2/198>)**





Adapted from: *the Gut Microbiome: Connecting Spatial Organization to Function* Carolina Tropini,<sup>1,3</sup> Kristen A. Earle,<sup>1,3</sup> Kerwyn Casey Huang,<sup>1,2</sup> \* and Justin L. Sonnenburg)  
<https://doi.org/10.1016/j.chom.2017.03.010>

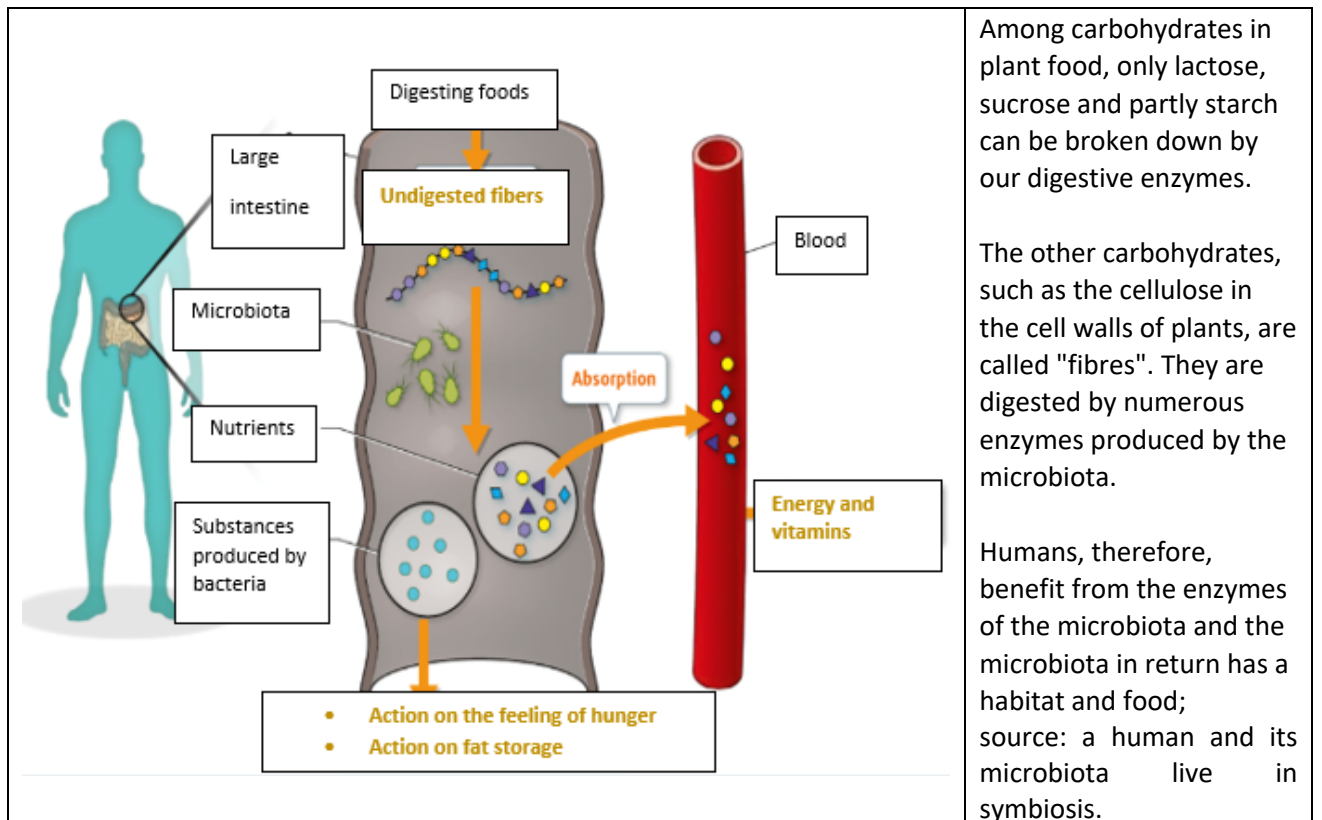
**Table 1: living conditions of Bacteroidetes and Firmicutes**

Phyla	Bacteroidetes	Firmicutes
Conditions		
pH	7	5<pH<7
Substrate	Carbohydrates, proteins	Carbohydrates, proteins and sometimes lipids
Live with oxygen	No	It depends on the bacterium
Pathogen	Sometimes	Sometimes

**Figure 3: Role of dietary fibers**

Degradation of dietary fibres by the human colonic microbiota. The colon or large intestine is the distal segment of our digestive tract that is essentially dedicated to water absorption but that also supports the degradation of the food compounds that are not digested and absorbed upstream in the stomach and the small intestine. This digestive compartment is rich in microorganisms, and it is them (and not our own enzymes) that metabolize dietary residues. Indeed, one main function of this colonic microbial community, recently renamed colonic microbiota, is to degrade and ferment dietary fibres. Dietary fibres correspond to more or less complex carbohydrates (cellulose, hemicelluloses, pectins, resistant starch...) that are found in fruits, vegetables and cereals that we consume. The addition of fibres in our diet has several beneficial health effects, and these effects are for a major part due to the activity of the microorganisms that we harbor in our digestive tract.

extracted from: [https://www.researchgate.net/publication/282243166\\_Fiber\\_degradation\\_and\\_polyphenol\\_metabolism\\_by\\_human\\_gut\\_microbiota](https://www.researchgate.net/publication/282243166_Fiber_degradation_and_polyphenol_metabolism_by_human_gut_microbiota)



*Adapted from: Belin SVT seconde*

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