

Human and food microbiome: impact on the health

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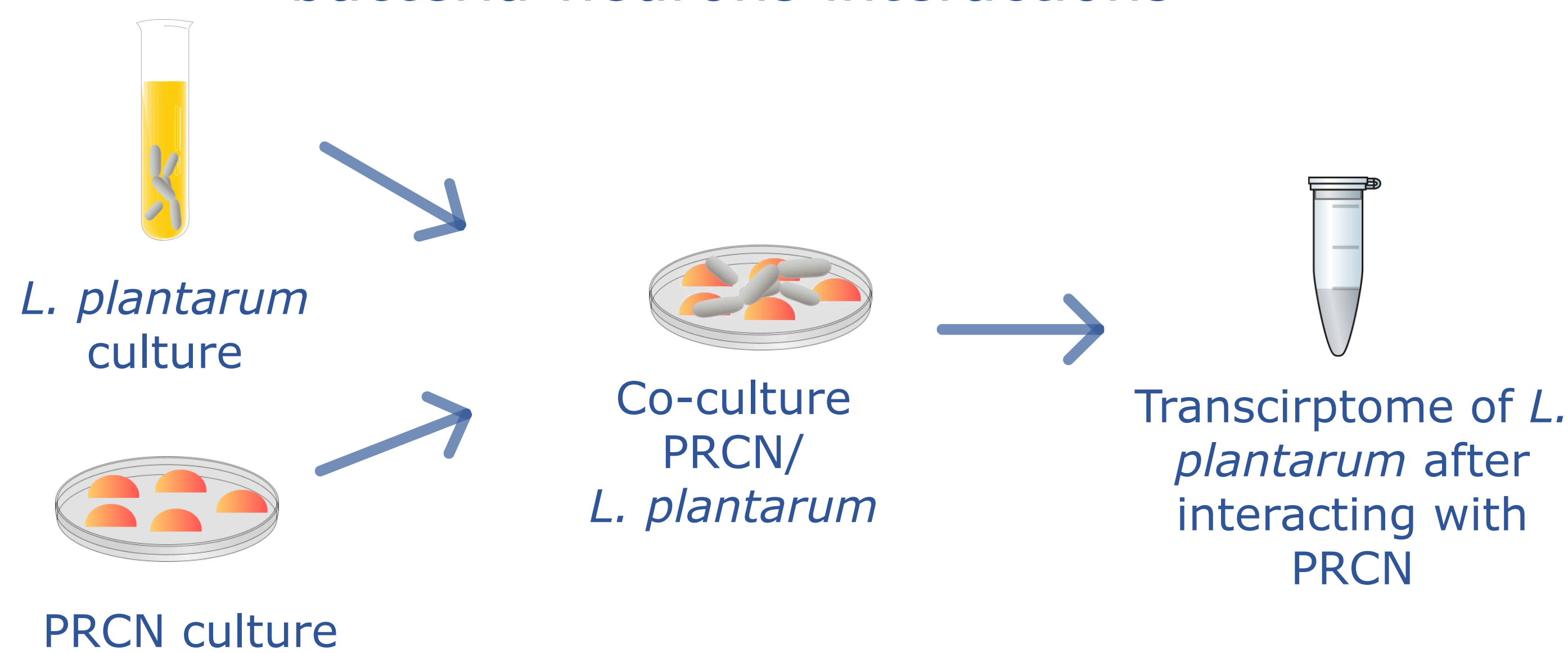
State of art

The microbiota-gut-brain-axis is a bi-directional pathway in which gut microorganisms, intestinal epithelial architectures, ENS (enteric nervous system), PNS (peripheric nervous system) and CNS (central nervous system) are interconnected. It is today well documented that intestinal microbiota is significantly influenced by dietary patterns. In addition, evidence that the microbiota is able to modulate brain health, functions and pathologies, is accumulating. However, microbiota-host interactions and communication mechanisms are not completely understood.

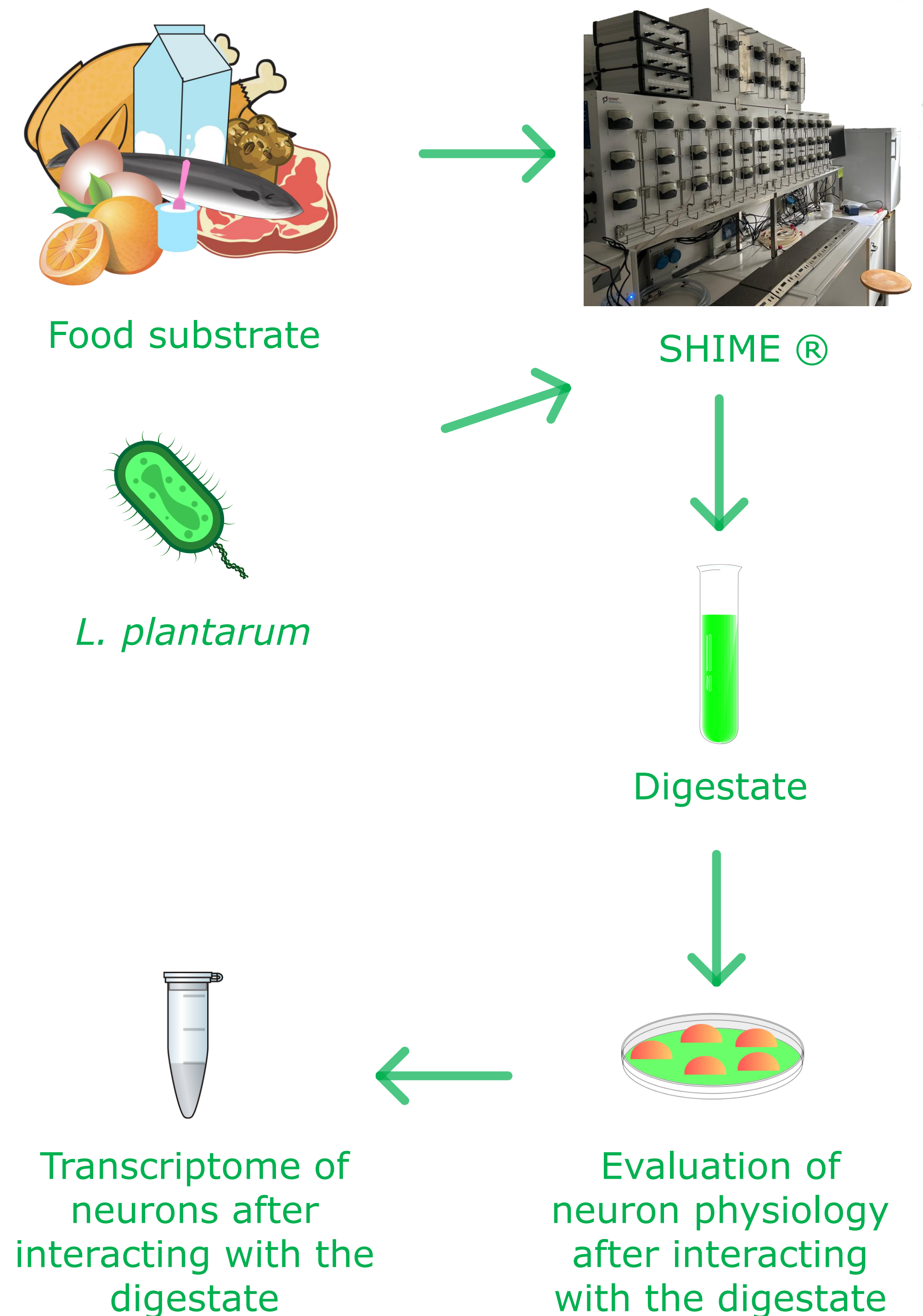
Objectives

The goal of this PhD thesis research project is to understand how different food substrates and the human microbiota composition influence and interact with the enteric nervous system health, in order to provide useful information to improve human health, increasing the education quality and offering new economic perspectives. Moreover, the present project can provide a basis to investigate the interaction between diet, bacteria and neurons in a more comprehensive frame.

Experimental design: bacteria-neurons interactions



Experimental design: intestinal microbiota - neurons interaction



Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Transcriptome of <i>L. plantarum</i>																				
1. Eucaryotic cell cultures preparation																				
2. Cell lines inoculation																				
3. Transcriptome analysis																				
SHIME® experiment																				
1. Define food substrates and strains																				
2. SHIME ® activation																				
3. Digestate production																				
4. Digestate on eukaryotic cells																				
5. Transcriptome analysis																				

Selected references

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