Fecal microbiota profile at diagnosis in the French IMODI cohort of localized breast cancer

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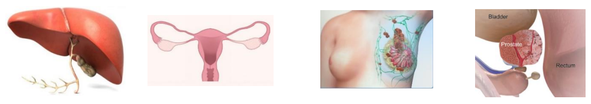
Introduction

IMODI (Innovative MODels Initiative):

- French national consortium
- 18 partners (private & academic)
- 4 observational clinical studies [1]



Actors of the study:

Georges François Leclerc Center (Dijon), Léon Bérard Center (Lyon)	Biofortis Mérieux NutriSciences (Saint Herblain)
- Recruiting - Follow-up	- Clinical monitoring - Data management - Microbiota analysis

Goals of the study

- **Primary objective** = To characterize the fecal microbiota taxonomic profiles at diagnosis (V1) in a French breast cancer cohort.
- **Secondary objective** = To explore some correlations with other patients' clinical parameters.

Methods

Selected clinical data (primodiagnostic of a localized breast cancer)

Patients' parameters at visit 1 (N=54)	
Median age (years [Min-Max])	53,5 [27-78]
BMI (kg/m²) (n=54)	
- Underweight (BMI<18.5kg/m²)	1,9%
- Normal (18.5≤BMI<24.9)	51,9%
- Overweight (25≤BMI<29.9)	22,2%
- Obese (BMI≥30)	24,1%
Menopausal status (n=51)	
- Pre-menopausal	58,8%
- Menopaused	41,2%
Physical activity (n=49)	
- No physical activity	12,2%
- Minimum level	34,7%
- Moderate level	40,8%
- Important level	12,2%

Disease parameters at visit 1 (N=54)		
Clinical stage (n=29)		
- Stage 0		3,4%
- Stage I	early	10,3%
- Stage II	early	
▪ II A	early	48,3%
▪ II B	early	20,7%
- Stage III		
▪ III A	advanced	13,8%
▪ III B	advanced	0%
▪ III C	advanced	3,4%
Hormonal receptors (n=31)		41,9%
- Luminal A		16,1%
- Luminal B/HER2-		6,5%
- Luminal B/HER2+		16,1%
- Basal-like		19,4%
- Triple negative		

Fecal microbiota analysis

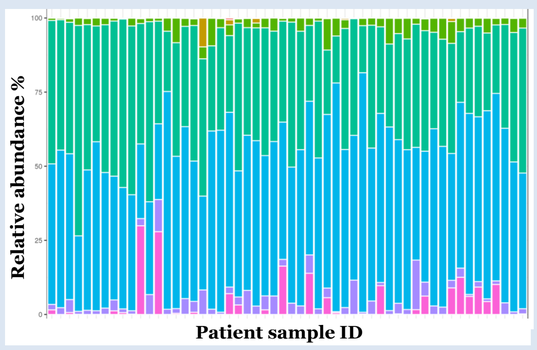
Stool collection → Metasequencing → Bioinformatics → Data analysis

Phylum -> Family

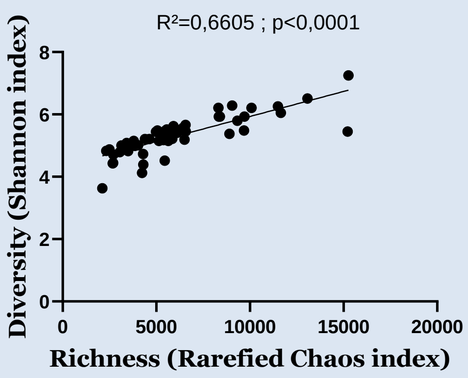
- **Relative abundance** (%)
- **Diversity index** (Shannon // relative abundance + evenness)
- **Richness index** (Chaos // # represented species)

Results

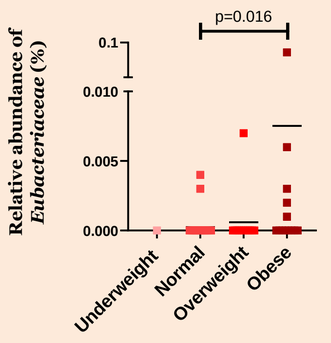
Microbiota – General results

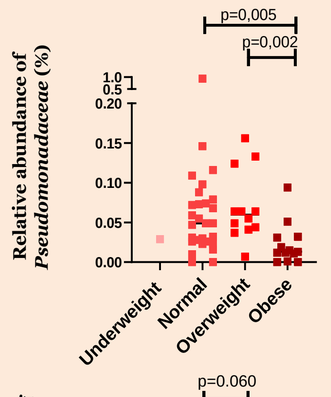


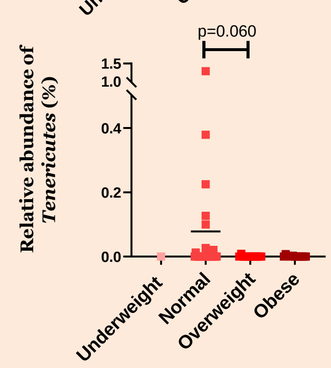
Phyla: unclassified, Others, Actinobacteria, Bacteroidetes, Firmicutes, Proteobacteria, Verrucomicrobia



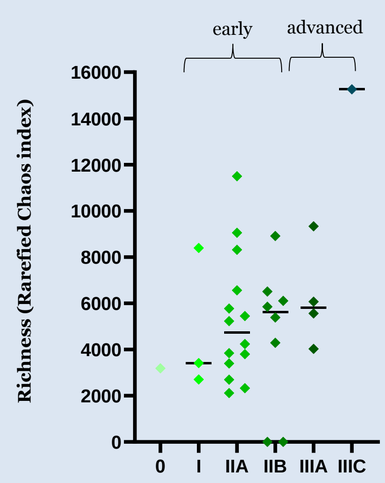
Microbiota & BMI



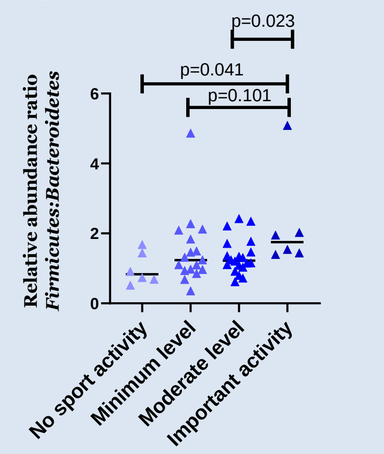




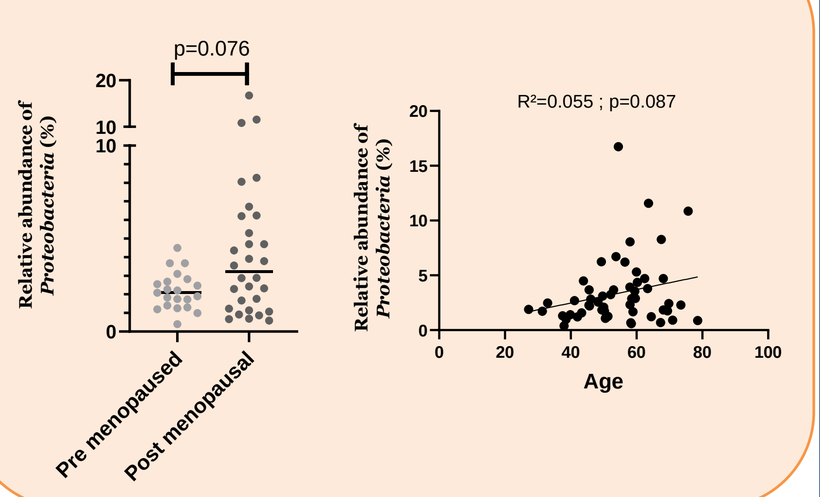
Microbiota & clinical stage



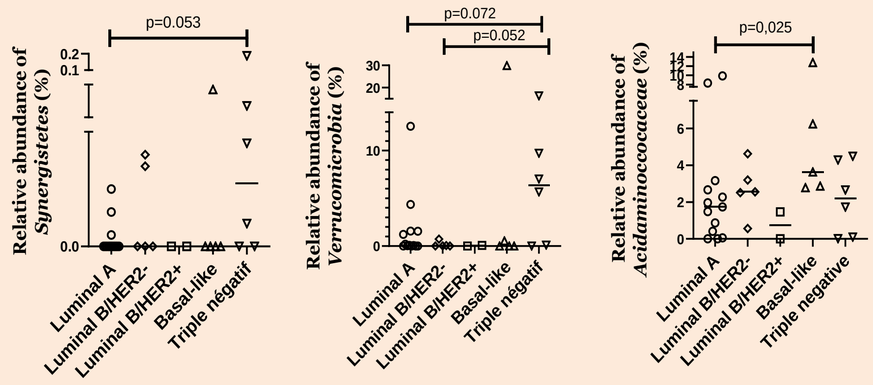
Microbiota & physical activity



Microbiota & menopause



Microbiota & hormonal receptors



Discussion [2-3]

Conclusion

- Work is ongoing to evaluate the correlations between fecal microbiota and diet at diagnosis in these patients with a primodiagnosis of localized BC.
- Further work on larger cohorts will be needed to improve our knowledge on microbiotic parameters in BC.
- Yet this modest study provides some clues to better design future studies.

References

[1] https://imodi-cancer.org/
[2] Baker JM et al, Maturitas, 2013 + Kwa M et al, J Natl Cancer Inst, 2016
[3] Sun YS et al, Int J Biol Sci, 2017

Acknowlegdements

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