

SYMBNET INTERNATIONAL CONFERENCE ON

Host-Microbe Symbiosis



GULBENKIAN
CIÊNCIA



10—13 Jun 2024

Olhão, Algarve
Portugal

ABOUT

Hosts and microbes form long-term symbiotic interactions that shape their biology at multiple levels, from physiology to ecology and evolution. This is a growing field of research which impacts many other areas, from environmental sciences to human health.

The "SymbNET International Conference on Host-Microbe Symbiosis" brings together researchers working on a diverse range of questions, approaches, and model systems. Our meeting, with 6 plenary sessions, will cover different host systems such as plants, animals and humans and different molecular mechanisms, functional understanding and ecological models of the interactions. The purpose is to highlight the most recent advances in the field, common principles between systems, and future directions to explore.

This meeting has 164 participants from 26 countries and it is organized in the context of the EU twinning grant [SymbNET](#), with specific sessions organized by [NCCR Microbiomes](#) and [CRC Metaorganisms](#).

P51- Study of gut microbiota associated with gestational diabetes mellitus

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Worldwide, changes have been found in the composition of the gut microbiota of pregnant women with gestational diabetes compared to normoglycemic pregnant women. Our objective was to determine the relationship of gut microbiota with clinical, anthropometric, metabolic, and dietary parameters in Mexican pregnant women diagnosed with GD. Stool samples from 54 pregnant women divided into 4 groups were studied: 30 healthy pregnant women (control group), 11 pregnant women diagnosed with GD, 8 women diagnosed with preeclampsia, 5 women with gestational prediabetes. Taxonomic characterization of the gut microbiota was performed. In relation to what was found in the gut microbiota, differences were observed in the relative abundances at the level of phylum and genus between the 4 study groups. Differences in beta diversity were found between the gestational diabetes and control groups. There are differential taxa in each study group evaluated by DESeq2. There are differences in metabolic pathways that are associated with each study group. In our study we observed a greater abundance of genera such as *Blautia*, *Colinsella*, *Bosea*, which have already been associated with gestational diabetes, however, we also found other genera such as *Rothia* and *Enterobacter* that could be interesting to explore their role in the pathophysiology of the disease. When the mycobiota was evaluated, a higher abundance of *Saccharomyces* was found in the case groups and a higher abundance of *Fusarium* in the control group. Work supported by CONACyT 163235 INFR-2011-01 and CONACyT FORDECYT-PRONACES/6669/2020_Programa Presupuestario F003-Ciencia de Frontera 2019.

P52- Mechanism of metabolic regulation in grain pest beetle-endosymbiont interaction

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Symbiotic associations between insects and microorganisms are crucial for insect evolutionary success. Intracellular symbiotic bacteria, known as endosymbionts, provide essential metabolic components to the insects that are absent in the diet. Tyrosine is necessary for synthesizing the hard, melanized cuticular exoskeleton – a primary defense in beetles. Since beetles cannot synthesize tyrosine themselves, endosymbionts in specialized organs called bacteriomes supplement tyrosine precursors to the host, particularly in nutritionally unbalanced environments. However, maintaining optimal symbiont growth imposes metabolic costs on the host, necessitating a balance between costs and benefits aligned with physiological demands. However, the molecular mechanisms regulating this interaction remain elusive. *Oryzaephilus surinamensis*, a grain pest beetle, houses highly specialized bacterial endosymbionts *Shikimatogenerans silvanidophilus*, that provide tyrosine and L-DOPA precursors crucial for cuticle melanization and sclerotization to the host. However, exposure to



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Certificate of Attendance

This certificate presented to:

Tizziani Benítez Guerrero

for attendance and poster presentation at the SymbNET International Conference on Host-Microbe Symbiosis, held in Olhão, Portugal, during June 10th-13th, 2024.



Luís Teixeira

(Project Coordinator)