Sex-specific parental transfer of microbiota

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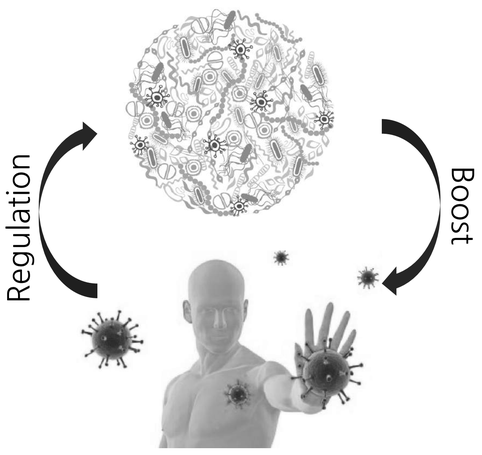
Boosting the immune response

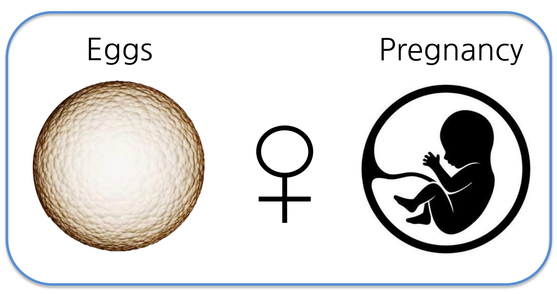


- The microbiota is significant for the development, digestion and immunity of the host
- Originally obtained from the environment, the microbiota is then vertically transmitted from parents to offspring
- Initial microbial translocation boosts the offspring's immune response
- Translocation of microbiota mainly occurs through processes that are unique to the maternal body

When fathers are pregnant

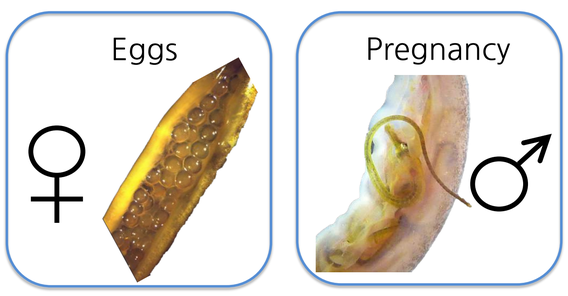
Female pregnancy systems

Sex and pregnancy united



Pipefish *Syngnathus typhle*

Sex and pregnancy separated



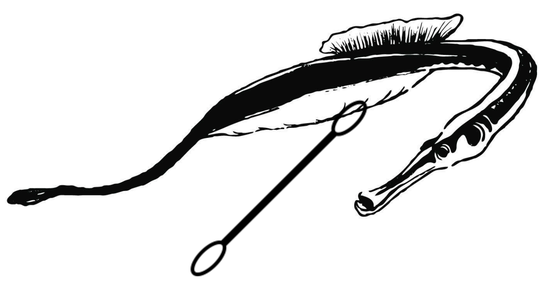
State of the art: microbiota composition of the sex-role reversed pipefish *Syngnathus typhle* differs between female gonads and male brood pouch (Beemelmanns et al., 2019).

Research aims:

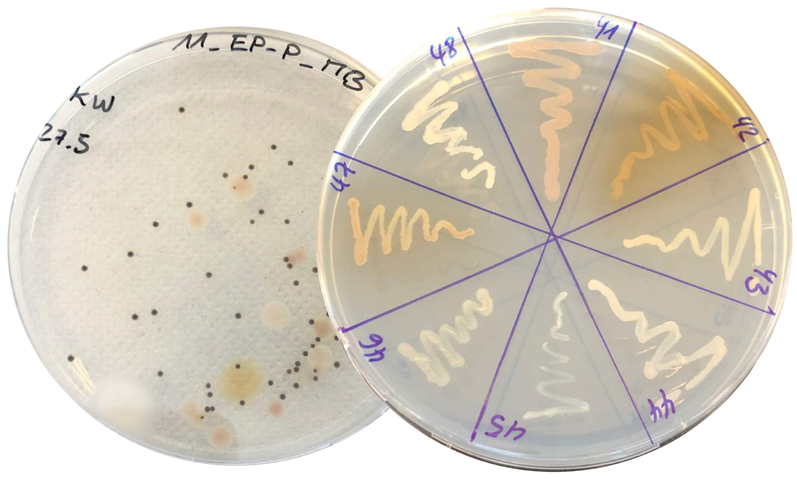
1. Assess the initial microbial colonization of *S. typhle* juveniles
2. Determine the role of sex-specific microbiota in immune transfer
3. Evaluate the maternal and paternal contribution to immune transfer

Experimental Design

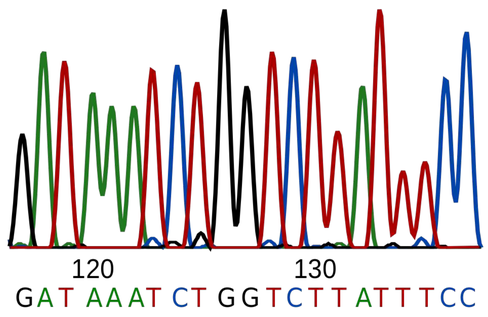
1. Isolation of sex-specific microbiota



2. Cultivation and purification of bacterial colonies



3. 16S rRNA Genotyping

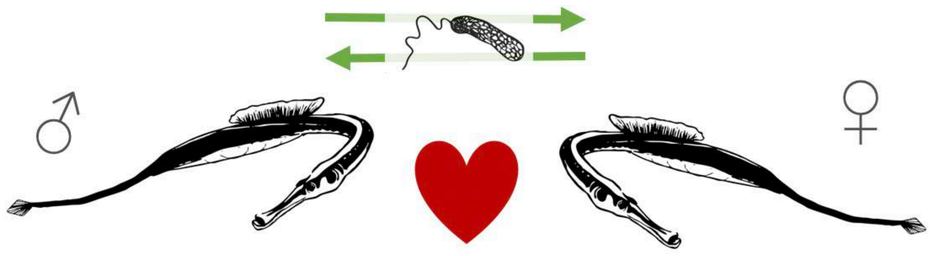


4. Antibiotic Resistance Testing

Phase I - Current research: *In vitro*

Phase II - Outlook: *In vivo*

7. Assessment of F1 microbiota composition and immune response



6. Sex-specific microbiota exchange and GFP labeling to track vertical transmission

5. Application of antibiotics to deplete natural microbiota

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pipefish group

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More information about our work: