Lactic acid bacteria : a potential solution to treat a swine disease

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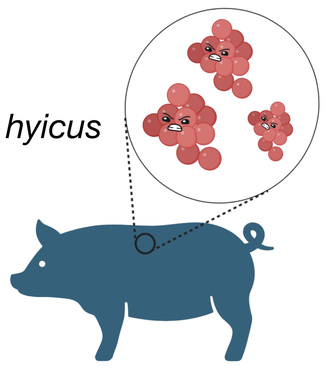
Problem

Exsudative epidermitis[1] [2]
- Disease caused by the bacteria *Staphylococcus hyicus*
- Brown skin lesions on piglets
- Presence in Quebec swine farms



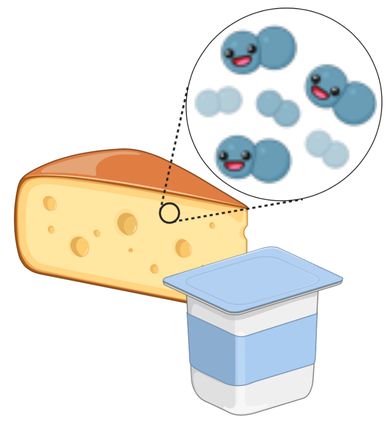
Treatment : antibiotics [3]
- Frequent resistance problems
- Absence of commercial vaccine

Other treatment options?

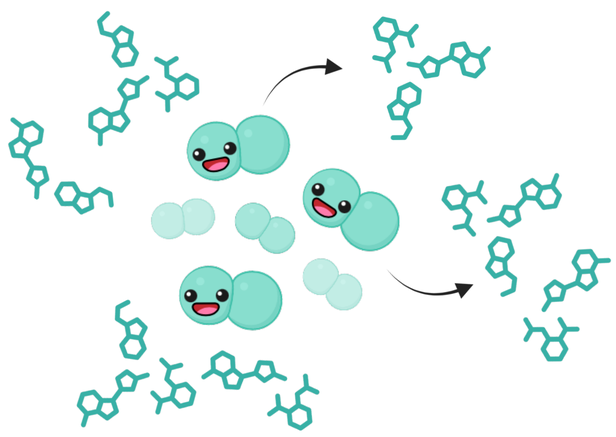
Potential solution

Lactic acid bacteria [4] [5] [6]
- Food fermentation
- Production of antimicrobial substances
- Inhibition of pathogenic bacteria

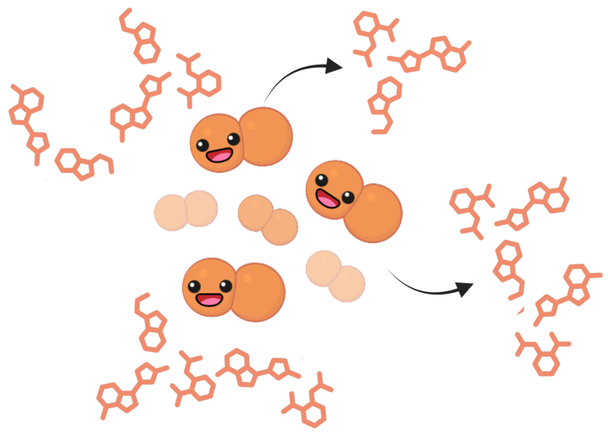
Objective : identify substances that can be used to treat exsudative epidermitis



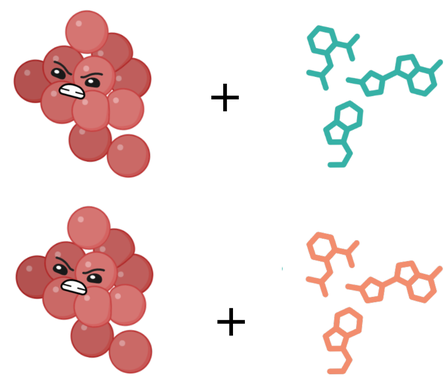
How to find these substances?



Substance X secreted by lactic acid bacteria X



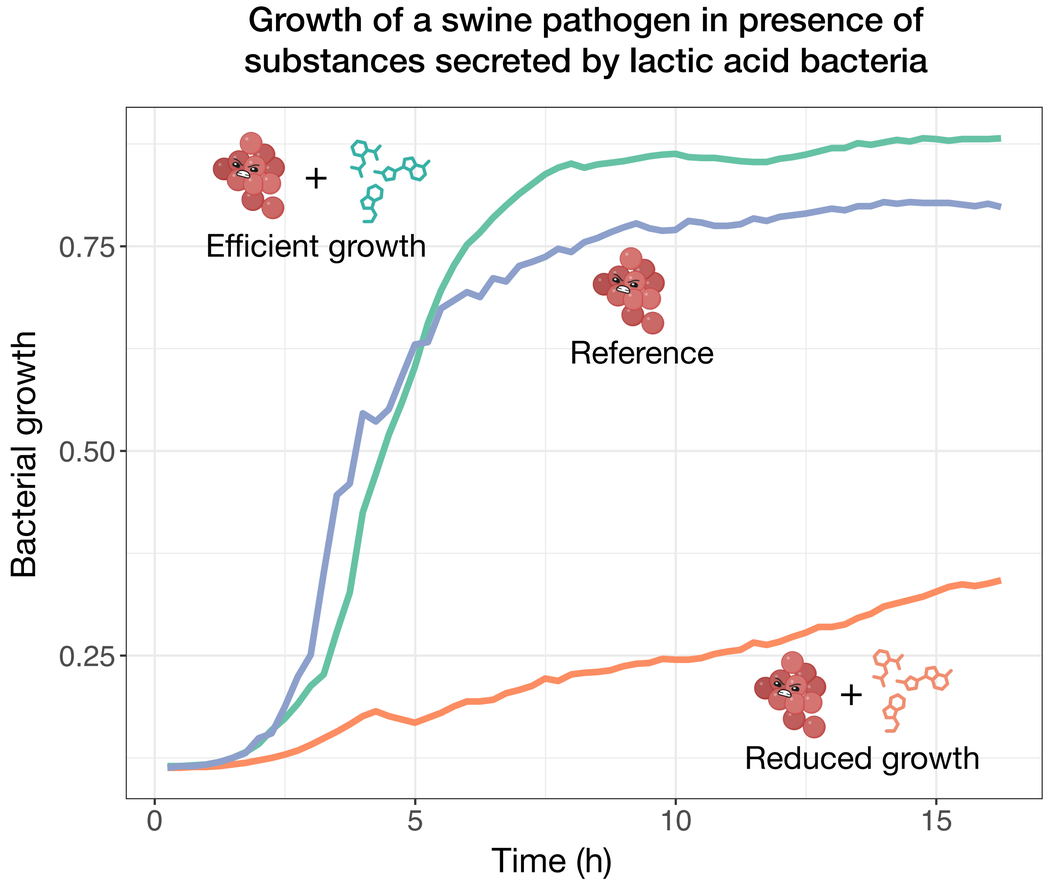
Substance Y secreted by lactic acid bacteria Y



Effect on the growth of the swine pathogen?

What is the expected effect on the growth of the swine pathogen?

Growth of a swine pathogen in presence of substances secreted by lactic acid bacteria

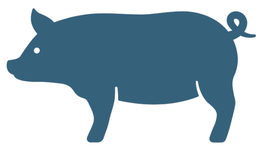


Mains steps

Identification of a substance

Reduced growth of the swine pathogen in presence of the substance

Analysis of the substance
- Optimization of its production by lactic acid bacteria
- Identification of its nature
- Validation of its efficiency after purification



Long term goal : elaboration of a treatment

Complementing antibiotics to treat exsudative epidermitis

References

1. **Foster (2012)** *Veterinary Dermatology* 23: 342-363.
2. **Gagné-Thivierge et al. (2023)** *Microbiol Resour Announc* 12:e00062623.
3. **Moreno et al. (2022)** *Antibiotics (Basel)* 11: 205.
4. **De Vuyst & Leroy (2007)** *J Mol Microbiol Biotechnol* 13: 194-199.
5. **Yaacob et al. (2022)** *Future Microbiol* 17: 683-699.
6. **Sanca et al. (2023)** *Animals* 13: 2442.

Images : BioRender.com

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