Clinical Application of Probiotics as *H. pylori* Treatment

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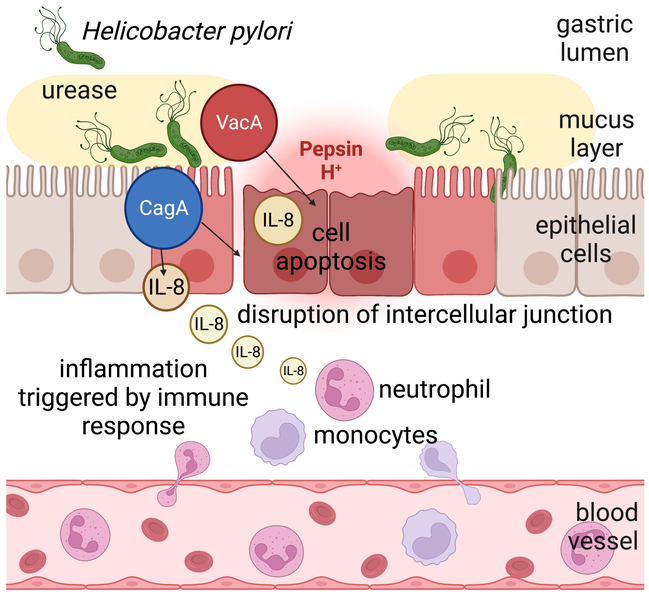
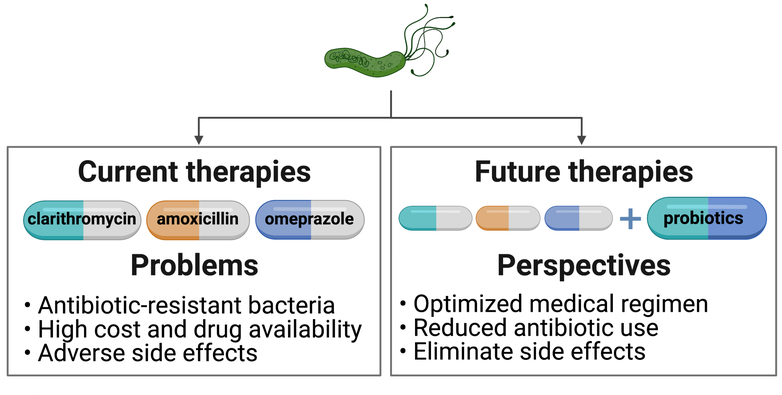
Background

H. pylori infection affects half of the global population and *H. pylori*-associated gastric cancer accounts for 5.5% of the total global cancer.



- *H. pylori* infections induce superficial gastritis > chronic inflammation > atrophic gastritis > intestinal metaplasia > dysplasia > **carcinoma**

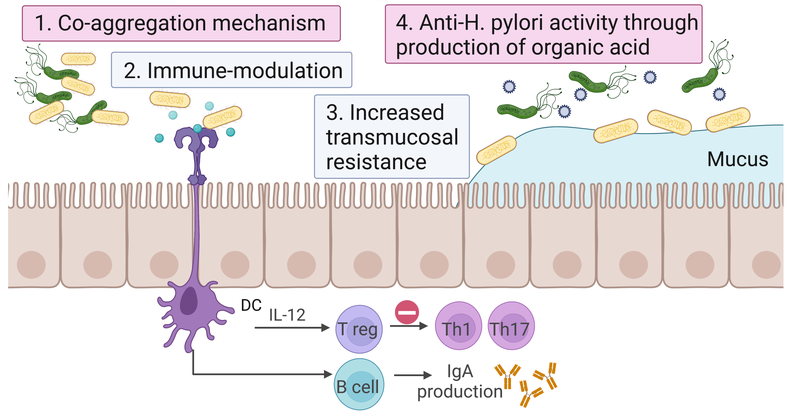
Probiotics supplemental therapies are emerging due to changing epidemiological profile of *H. pylori.*



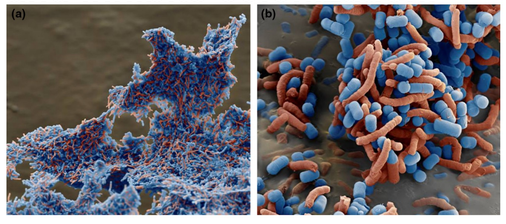
- Probiotics are microorganisms that support a healthy gut microbiome by reducing the invasiveness of pathogens and promoting immunity

Direct Impact on *H. pylori*

Probiotics have several anti-*H. pylori* mechanisms including..



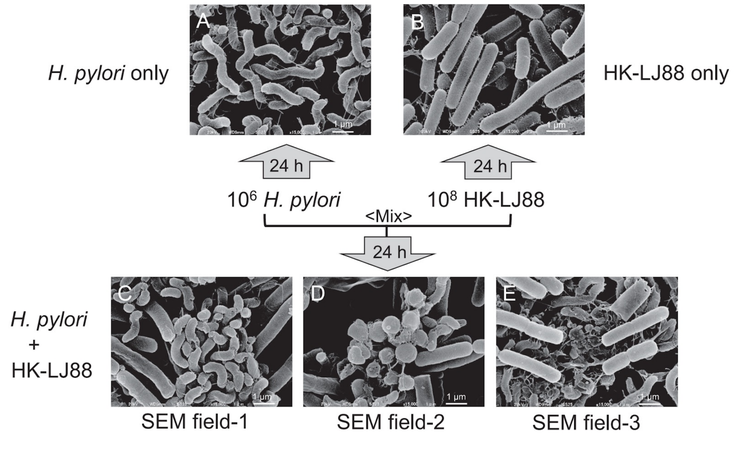
Lactobacillus reuteri co-aggregates with *H. pylori* and inhibits colonization.



- The SEM of co aggregates *of L. reuteri* DSM17648 (blue, bacillary shape) and *H. pylori (*red, spiral shape).

The SEM images adopted from [2]

Heat-killed *Lactobacillus johnsonii* causes morphological degradation of *H. pylori.*

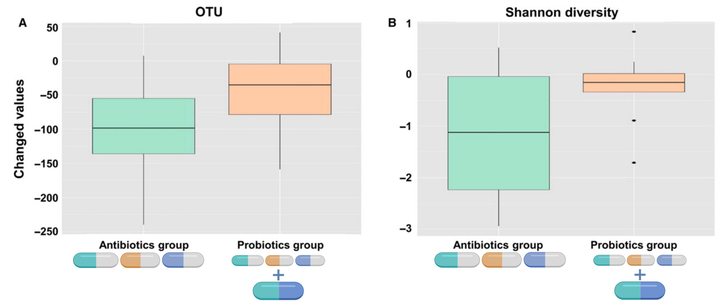


- Cellular deformation after being in incubation for 24 h with HK-LJ88 in vitro.

The SEM images adopted from [1]

Community Scale Impact on Gut Microbiome

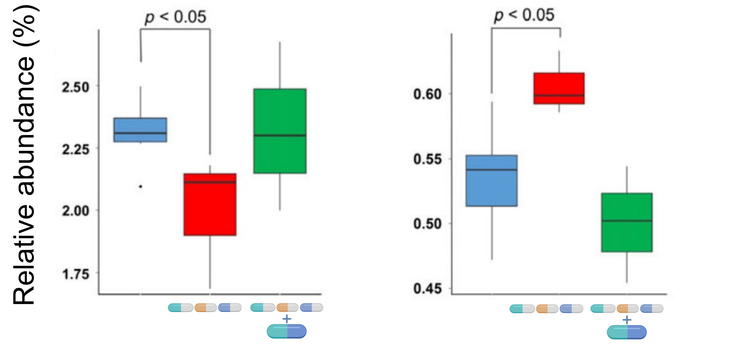
OTUs and diversity indices decreased more in the antibiotics group compared to the probiotics group.



- The change in the number of OTUs and diversity indices antibiotics group > probiotics group

The box plots adopted from [3]

Effect of probiotics on the functional potential of gut microbiome.



Amino sugar and nucleotide sugar metabolism

Selenocompound metabolism

The box plots adopted from [4]

Conclusion

- Although there are limitation due to the lack of homogeneity in the research designs, it can be concluded that probiotics improve the current medical regimen and maintain the gut microbiome homeostasis.

[1] Aiba, Y., Ishikawa, H., Tokunaga, M & Komatsu, Y. (2017).
[2] Holz, C. et al. (2015)
[3] Oh et al. (2016).
[4] Oh, B., Kim, J.W. & Kim, B.S (2016)

Acknowledgements

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