Characterization of Core Microbiota and Methane-Related Functional Genes associated with Methane Emissions and Growth Performance in Cattle

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Curriculum Vitae

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- 2015~2021 고려대학교 생명공학과 석박사통합과정
- 2008~2015 고려대학교 생명공학부 이학사

Characterization of Core Microbiota and Methane-Related Functional Genes Associated with Methane Emissions and Growth Performance in Cattle

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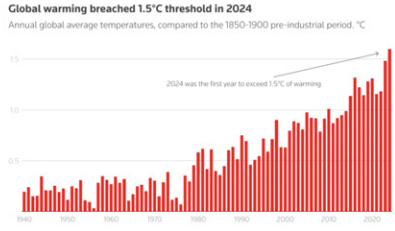
Introduction

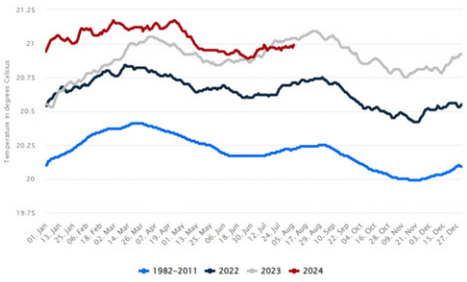
Global warming

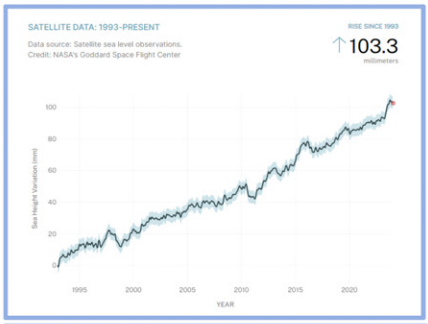
❑ Fire disaster

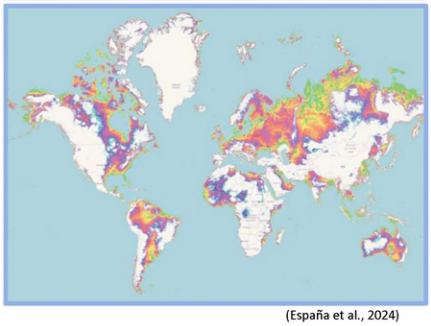


Global warming

❑ Flood disaster



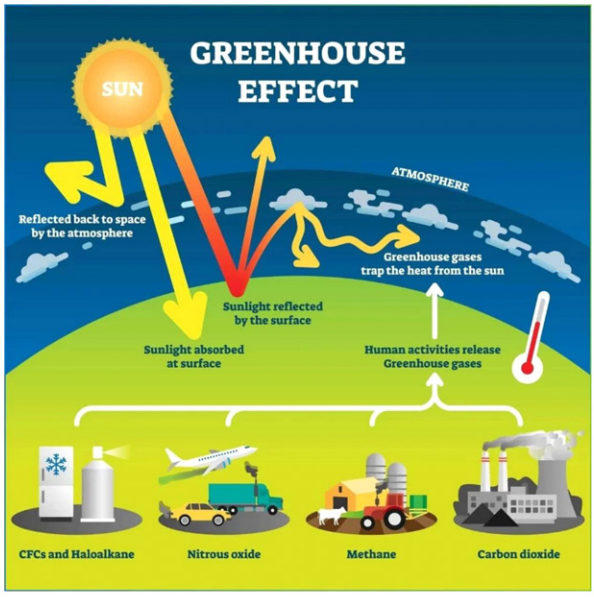


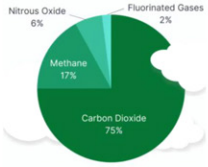


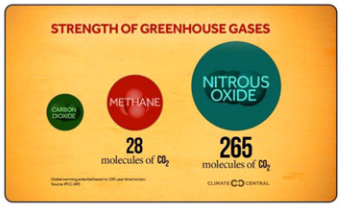
(España et al., 2024)

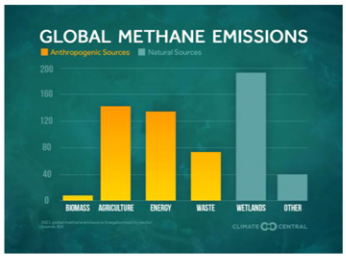
Greenhouse gases

- **Greenhouse gases**: gases in the earth's atmosphere that trap heat



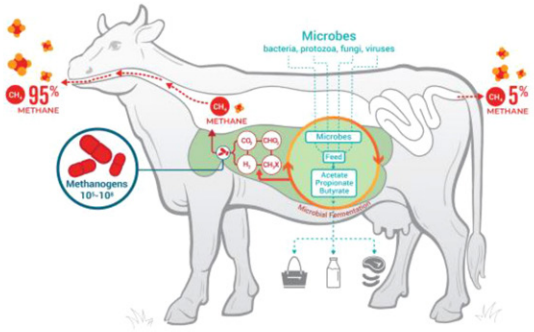


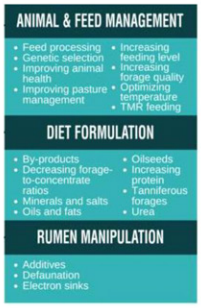




Global Methane Pledge in livestock

- Reduce **methane emissions by 30%** below 2020 levels **until 2030**
- If successful, warming is projected to **d ecrease by 0.2°C by 2050**
- **160 countries** signed up to GMP





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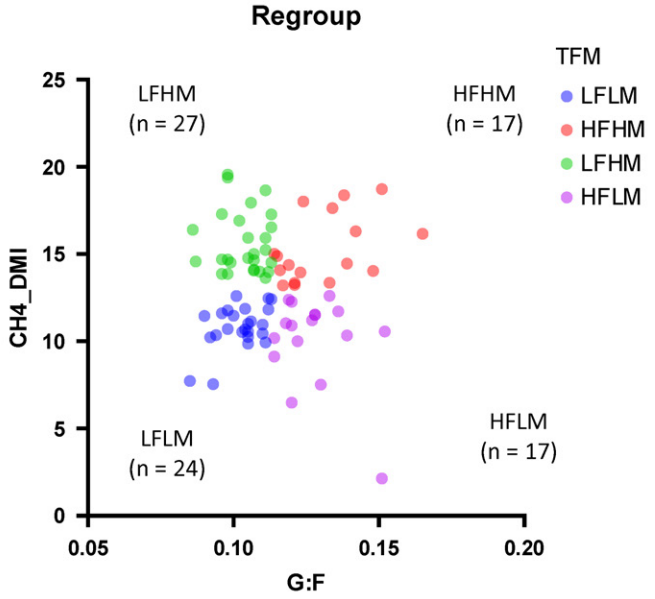
Results

Results

- Characterization of experimental treatments based on FE and Methane yields



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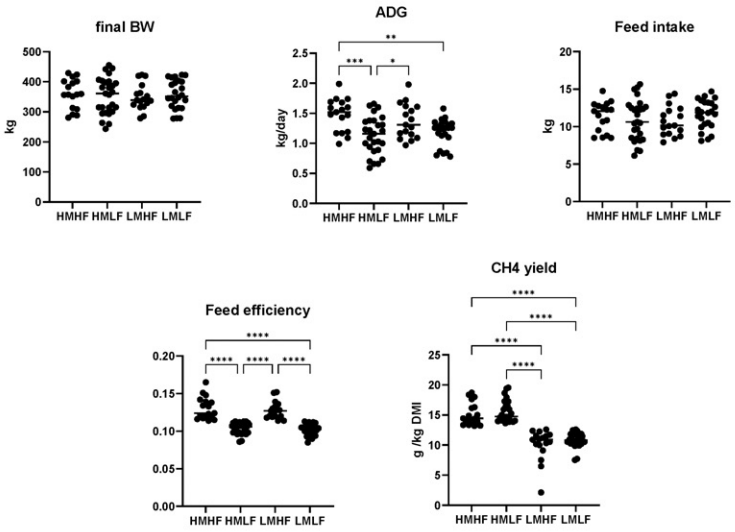
Results

- Physiological results of cattle



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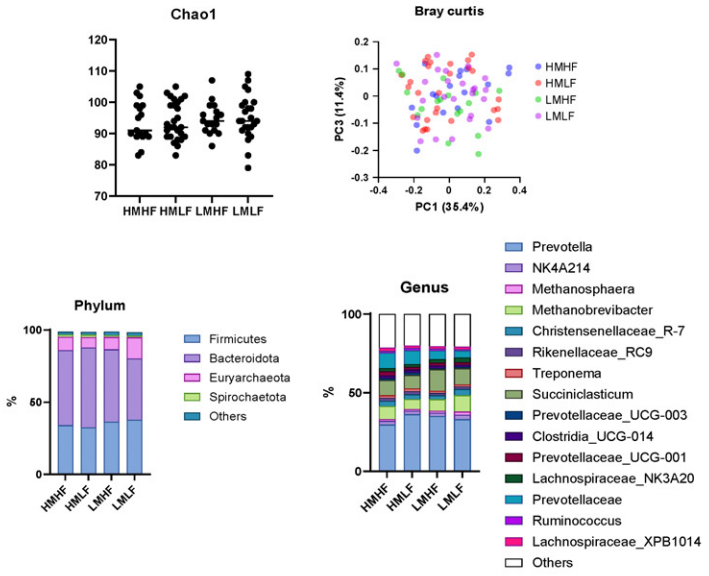
Results

- Rumen microbiome analysis



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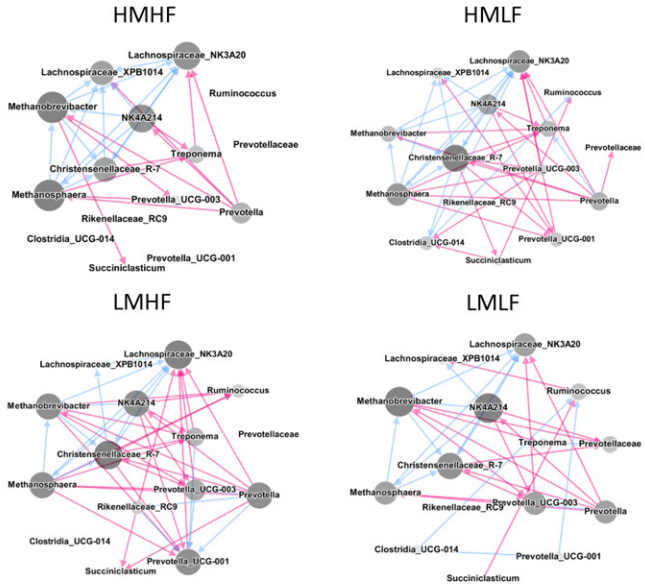
Results

- Co-occurrence network of rumen microbiome



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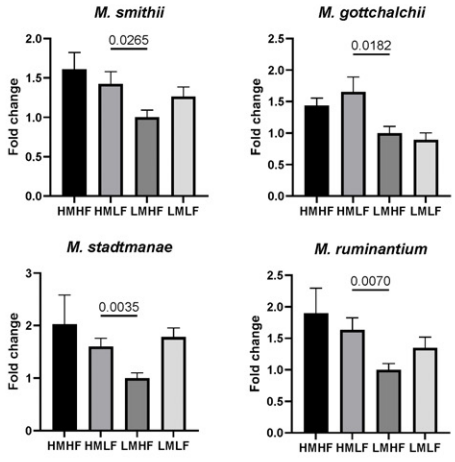
Results

- qPCR analysis related to methanogen



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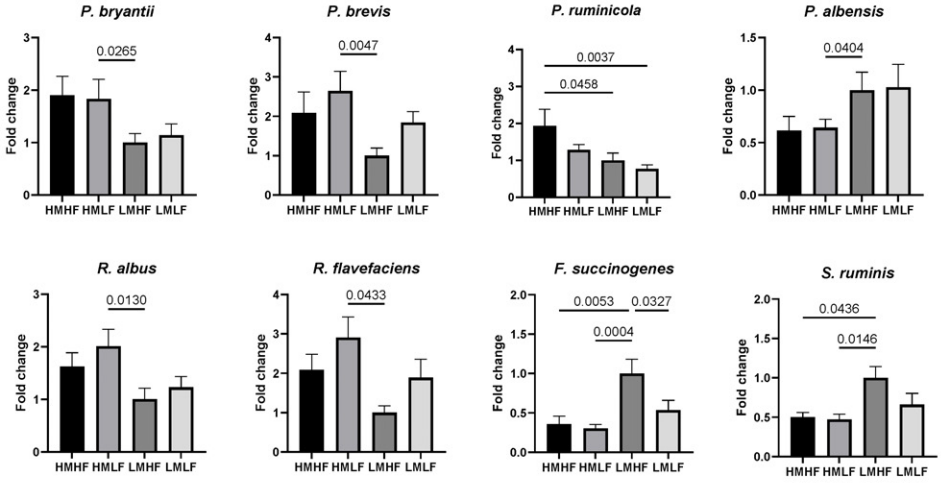
Results

- qPCR analysis related to methane-producing bacteria



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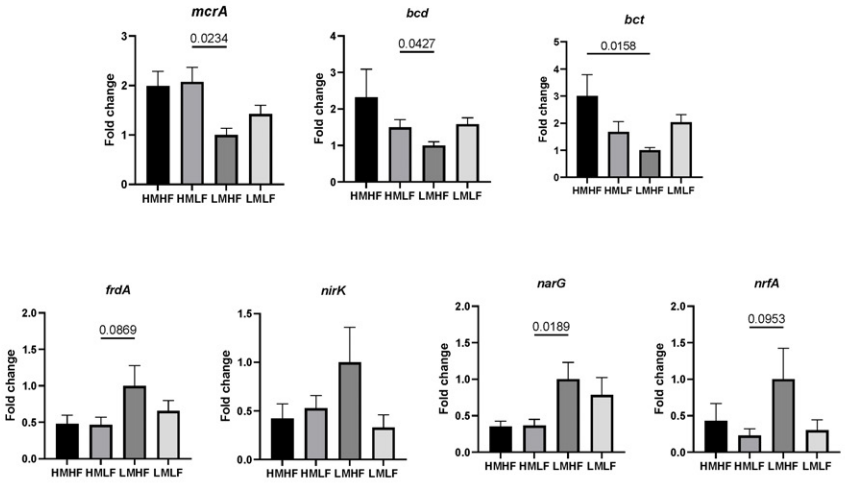
Results

- qPCR analysis related to methane-producing genes



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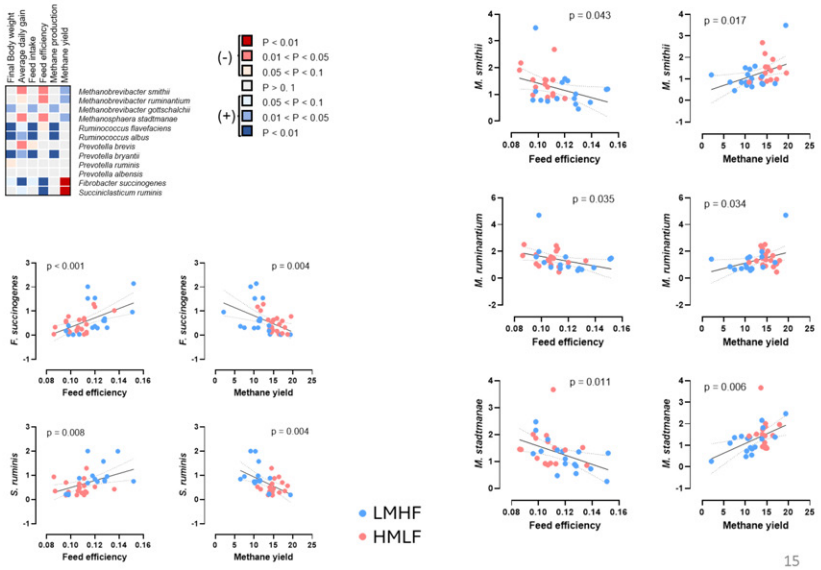
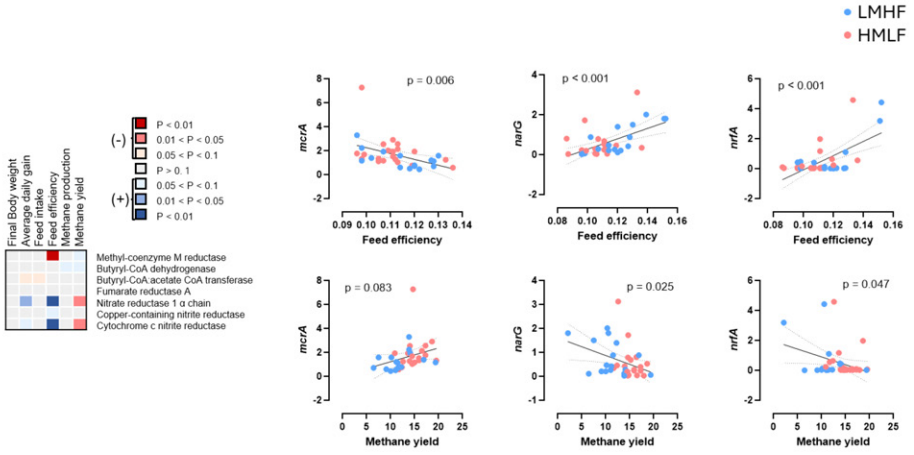
Results

- Correlation analysis of physiology results and rumen methanogen



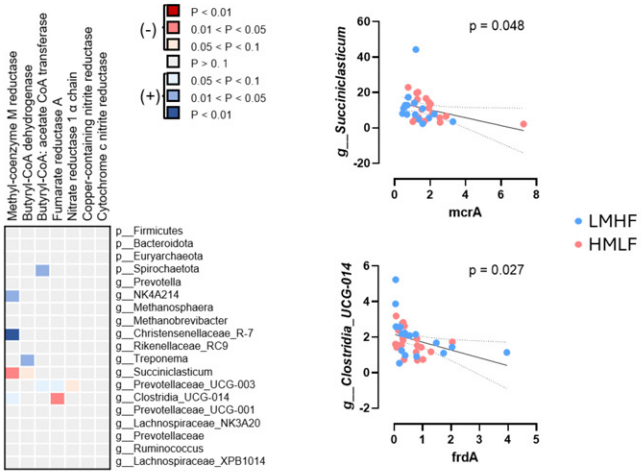
Results

- Correlation analysis of physiology results and methane-related genes



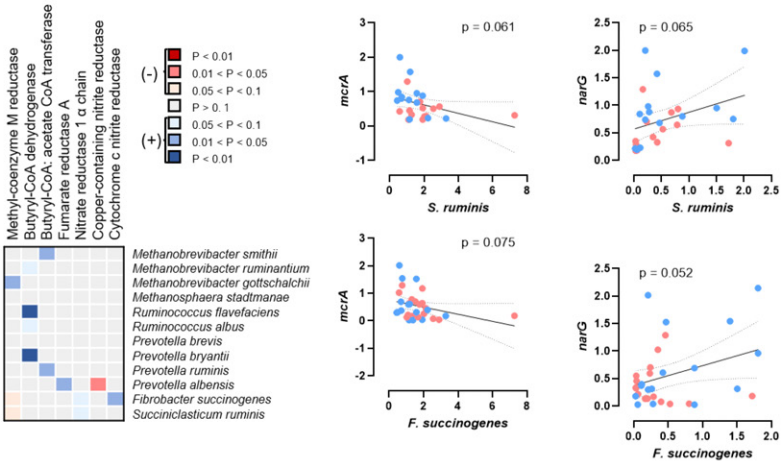
Results

- Correlation analysis of methane-related genes and rumen microbiome



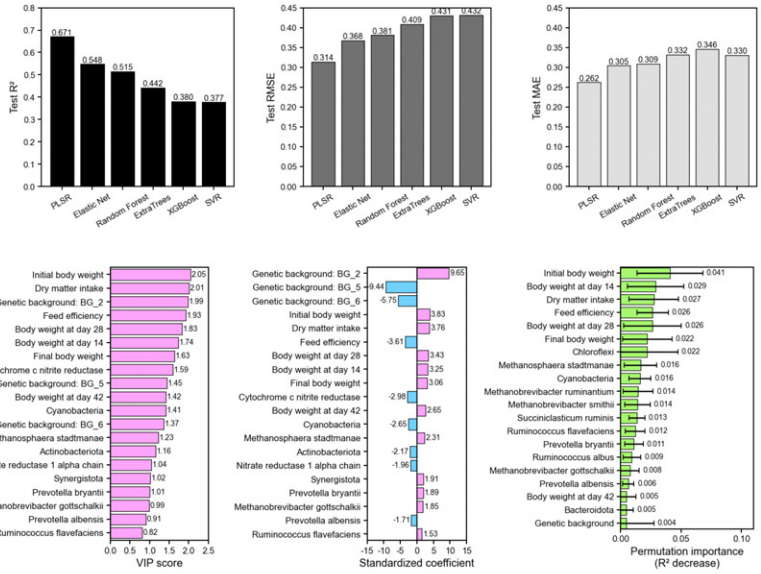
Results

- Correlation analysis of methane-related genes and rumen methanogen



Results

- Machine learning analysis to predict methane yield



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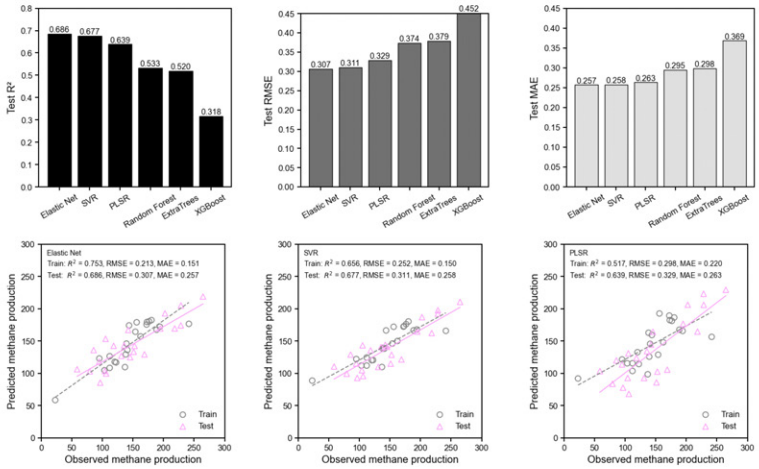
Results

- Machine learning analysis to predict methane yield



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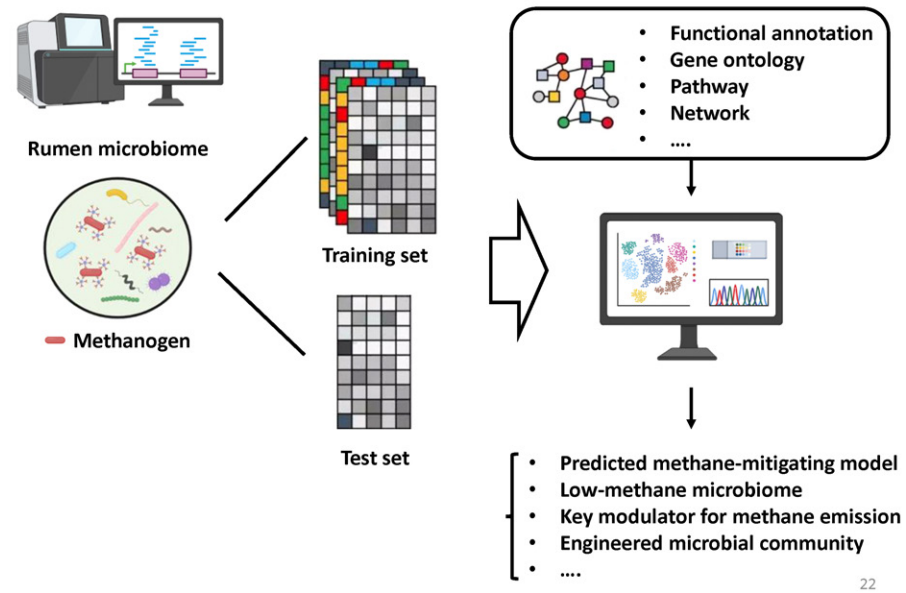
Conclusion & Perspectives

ML-based mitigating methane emission



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THANK YOU

FOR YOUR ATTENTION!!!

ANY QUESTION ?