



Microbiome and genomics: Advancing our understanding of respiratory infections in children

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Why study the oropharyngeal microbiome?



□ Respiratory tract infections (LMICs)

- ✓ Studies: Identifying pathogens, developing vaccines, and improving treatments.
- ✓ Oropharyngeal microbiome.
- ✓ A community of microorganisms living in our upper respiratory tract.



Microbiome balance and risk of respiratory infections



- ❑ Invisible community: maintaining respiratory health.
- ❑ A balanced state: protection against infectious agents.
- ❑ Disruption may increase the risk of infection.
- ❑ Our study: cohort of schoolchildren in Côte d'Ivoire carrying respiratory tract infections.



✓ Metagenomics

✓ Investigated relationship with respiratory pathogens.



Microbiome alterations and immune responses



□ Children carrying SARS-CoV-2:

✓ Distinct microbial profile VS non-carriers

□ ***Actinobacillus*** and ***Porphyromonas***: microbial markers associated with viral carriage

□ Microbial changes: associated with differences in immune responses



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- **Microbiome research, uminity research and genomic surveillance**
- Identifying microbial signatures: promote the development of microbiome-based interventions,
- Including **probiotics** that could complement existing preventive strategies.



Thank you

