



# INTERLABS - IBIS



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## Global Gene and Genome Catalog Reveals the Hidden Potential of Leafhopper Microbiomes

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**Jeudi 25 septembre 2025 à 12 h 30**

**Pavillon Charles-Eugène-Marchand, salle Hydro-Québec (1210)**

### Résumé:

Leafhoppers (Hemiptera: Cicadellidae) are globally important agricultural pests that transmit plant pathogens and damage crops, yet their microbiomes remain poorly characterized. We present the Global Catalog of Leafhopper-Associated Microbiomes (GCLAM), the first large-scale genomic resource for symbiotic microbes in this insect family. Integrating metagenomic data from 177 species across 12 countries, GCLAM documents 357 prokaryotic species from 105 genera, with dominant partners including *Candidatus Sulcia*, *Ca. Nasuia*, *Wolbachia*, *Arsenophonus*, and *Pantoea*. Metagenome-assembled genomes reveal a specialized microbial consortium essential for host biology, enriched in genes for nutrient metabolism, stress responses, and xenobiotic degradation. Comparative analyses highlight geographic variation across key pest species (*Macrostelus quadrilineatus*, *Dalbulus maidis*) and novel associations in Arctic leafhoppers. GCLAM establishes a foundational framework for exploring the diversity, evolution, and functional potential of leafhopper microbiomes, paving the way for microbiome-informed pest management strategies.