

# Unified Framework for Sparse Count Data

## Common Challenges

*High Sparsity (70-95%) | Zero-Inflation | Overdispersion*

*Library Size Variation | Compositional Effects*

Micropiome  
(16S/ITS)

Virome  
(Metagenome)

scRNA-seq  
(UMI counts)

## Composable DAA Toolkit

ZINB | Hurdle | LinDA | Permutation | Spike-in Validation