



tRNA Modification Sequencing

m⁷G TRAC-seq | tRF & tiRNA Sequencing

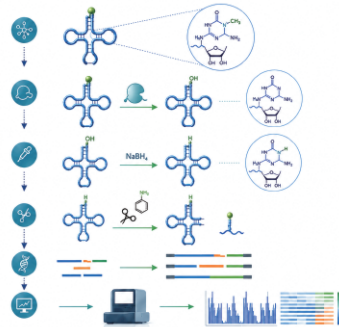
Turn complex tRNA modification and tRNA-derived small RNA signals into interpretable regulatory insights with integrated sequencing and bioinformatics support.

Service Overview

m⁷G TRAC-seq

Nucleotide-resolution profiling of m⁷G modifications in tRNA

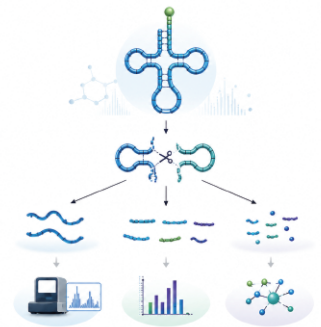
- Selective profiling of m⁷G-modified nucleotides in tRNA molecules
- AlkB demethylase treatment to reduce interference from other methyl groups
- NaBH₄ reduction and aniline cleavage generate m⁷G-specific signals
- Site calling, and differential m⁷G analysis



tRF & tiRNA Sequencing

Specialized profiling of tRNA-derived regulatory small RNAs

- Detection of tRFs and tiRNAs derived from mature tRNAs
- AlkB demethylation reduces RT-blocking effects from RNA modifications
- Optimized workflow for structured mature tRNAs and 14–50 nt fragments
- Annotation, quantification, target prediction, and regulatory network analysis



Applications

- tRNA m⁷G modification profiling
- tRF and tiRNA expression analysis
- RNA-mediated epigenetic regulation studies
- Stress response and environmental exposure research
- Germline RNA and inheritance-related studies
- Target gene and regulatory network prediction

Data Analysis & Deliverables

- Raw data QC and clean reads summary
- m⁷G site identification
- tRF / tiRNA annotation and expression profiling
- Differential modification or expression analysis
- Target prediction and regulatory network analysis
- Summary report with figures and interpretable results



Why Choose Our Service



End-to-end workflow from RNA preparation to data interpretation



Optimized strategies for modified and highly structured tRNAs



Integrated analysis of tRNA modifications, tRFs, and tiRNAs



Study design and bioinformatics support for inheritance-related research