

RiboTag Mouse Model

Biomaterial – Mouse

Biomaterial Description

The RiboTag mouse model is a genetically engineered tool that enables cell-type-specific isolation of actively translating mRNA from complex tissues. This model utilizes a Cre-dependent allele encoding an HA-tagged ribosomal protein (Rpl22), allowing for immunoprecipitation of ribosome-bound mRNA from genetically defined cell populations. This approach bypasses the need for physical cell sorting, preserving the native transcriptional state and enabling high-resolution transcriptomic profiling in vivo.

Applications

Applications

- Cell-type-specific transcriptome analysis in complex tissues such as brain, liver, and heart
- Investigation of translational regulation in development, disease, and response to stimuli
- Functional genomics studies in neuroscience, immunology, and cancer biology
- Complementary use with Cre/CreER driver lines for spatial and temporal control of gene expression
- Profiling of rare or difficult-to-isolate cell populations without dissociation artifacts

Advantages

- Cell-type specificity: Enables precise targeting using cell-type-specific Cre/CreER lines
- Preservation of native state: Avoids artifacts from tissue dissociation or cell sorting
- High sensitivity: Enriches for actively translated mRNA, enhancing signal-to-noise ratio
- Versatility: Applicable across a wide range of tissues and experimental conditions
- Compatibility: Integrates with existing Cre-driver mouse lines for flexible experimental design

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