**MOUSE SAMPLE ANNOTATIONMEGA PROMPT**

The prompts for both Human and Mouse samples are largely similar; therefore, we are only adding two fields specific to Mouse samples here. Kindly refer to the Human prompt for details on other field annotations.

Strain: Provide the specific strain or background information associated with the sample. Use the expanded and fully interpreted strain names in the final annotation, based on information from either the GSE or GSM record. The expanded information itself should not be included in the final annotation.

* Use the exact strain name provided in the record, fully expanded where necessary (e.g., C57BL/6J, BALB/c). Do not include any genetic variation or genotype details in this field; those belong in the genotype annotation.
* Mixed Populations: Annotate mixed populations like 'Heterogeneous stock-collaborative cross', 'Diversity outbred' as 'Mixed' if the exact strains involved are unclear.
* Crossed Strains: If the strain is a cross, specify it in the format using the capital 'X': 'Mixed: Strain1 X Strain2' using the expanded strain names.
* Handling Abbreviations: Expand abbreviations to their full strain names for the final annotation. Example: Given 'B6J.129S6-Actl6b<tm1Grc>', expand to 'B6J stands for C57BL/6J, 129S6 stands for 129S6/SvEvTac,' and annotate as 'Mixed: C57BL/6J X 129S6.
* Strain with Embedded Genotype Information: Annotate the strain fully expanded without including genotype details. So 'B6J.129S6-Actl6b<tm1Grc>' should be annotated as 'Mixed: C57BL/6J X 129S6.' excluding genotype related information '-Actl6b<tm1Grc>'
* Annotate as 'NA' when no strain details are provided"

                Example

                Given: B6J.129S6-Actl6b<tm1Grc>

                Final Annotation: Mixed: C57BL/6J X 129S6

Model\_Type: Specifies the type of experimental model used in the study. The selection of Model\_Type depends on the Experimental Setting and specific details provided in the GSM record. Choose the appropriate model type based on the guidelines below. If the model type does not fit in any of the categories in the guidelines below, please provide any new categories we may have missed. If no new category can be fit, provide NA.

1. If Experimental Setting is In Vivo, select the Model\_Type from the following options.
2. Transgenic Model: Use this option when the experiment involves an animal model, typically a mouse, in which foreign DNA has been introduced into the genome. This model is commonly used to overexpress a particular gene to study its function or to model human diseases.
3. PDX (Patient-Derived Xenograft): Choose this model type when tumor tissue obtained directly from a cancer patient is implanted into immunodeficient mice. PDX models are used to study tumor biology and test personalized cancer treatments.
4. CDX (Cell Line-Derived Xenograft): Select this option when cancer cells derived from a cell line are implanted into immunodeficient mice. CDX models are used to study tumor biology and evaluate potential therapies.
5. Xenograft: Use this category when the experiment involves the transplantation of cells, tissues, or organs from one species to another that does not specifically involve human tumor cells implanted into mice or other model organism. This includes any cross-species transplantation outside of the PDX and CDX models.
6. Knockout: Use this model type when the experiment involves an organism, often a mouse, in which a specific gene has been intentionally deactivated or knocked out to study the effects of the gene's absence on biological processes.
7. Conditional Knockout: Choose this option for knockout models where a gene is only deactivated in specific tissues or at specific developmental stages. This allows researchers to study the gene's function in a more controlled manner.
8. Knockdown: Select this model type when the experiment involves reducing the expression of a gene (but not completely knocking it out) to study gene function or biological processes. This is commonly done using techniques such as RNA interference (RNAi) or CRISPR interference (CRISPRi).
9. Chemical Induced Disease Model: Select this option when diseases are induced using chemical agents, such as toxins, drugs, or other chemicals. Include the specific chemical used to induce the disease in the annotation (e.g., Chemical Induced Disease Model: DEN induced Hepatocellular Carcinoma or Chemical Induced Disease Model: Bleomycin induced Pulmonary Fibrosis). Make sure that the particular chemical and disease induced by that chemical is always present while annotating. Do not use terms like 'elicited' or 'treated’ as synonyms to ‘induced’. Do not use a hyphen between the chemical name and 'induced'. Use this model type for only those GSM samples that have been treated with the chemical to induce the disease. For control samples not treated with the chemical, use 'Tissue' or another appropriate model type.
10. Tissue: Use this model type when In Vivo experiment involves tissue studies, and none of the specific in vivo model types (e.g., PDX, CDX, Knockout, Transgenic Model, Xenograft, Conditional Knockout, Knockdown, Chemical Induced Disease Model) apply. Also, use this model type for wild-type or control samples that did not undergo any genetic manipulation or chemical treatment to induce specific phenotype or disease and are used as normal or baseline tissue controls.
11. If Experimental Setting is Ex Vivo, select the Model\_Type from the following options.
12. Organoid: Use this option when the experiment involves 3D structures grown from stem cells that replicate much of the complexity of an organ.
13. Tissue: Select this model type when the experiment is performed on isolated tissues that have been extracted or removed from the organism and studied outside of the body.
14. Primary Cells : Select this model type when the experiment involves cells that have been freshly isolated from tissues or organs and are studied outside of the organism without significant in vitro culture or expansion. These cells retain much of their in vivo characteristics and are used directly in experiments. This category is appropriate for studies where cells are immediately analyzed or subjected to short-term assays ex vivo.
15. If Experimental Setting is In Vitro, select the Model\_Type from the following options.
16. Cell Line: Select this option when the experiment involves immortalized cells capable of indefinite growth in culture. Cell lines are derived from various tissues and are commonly used for in vitro studies due to their ease of culture and genetic stability.
17. Induced Pluripotent Stem Cells (iPSCs): Use this model type for experiments involving somatic cells reprogrammed to a pluripotent state resembling embryonic stem cells. iPSCs can differentiate into various cell types and are valuable for disease modeling, drug discovery, and regenerative medicine.
18. Primary Cells: Select this option when the experiment involves cells that have been directly isolated from tissues and cultured in vitro. Primary cells are not immortalized and have a limited lifespan in culture.