Standard Operating Procedure (SOP)

Sample Storage Conditions and Organization

This SOP details the **sample storage conditions and organization** to ensure the integrity, traceability, and optimal preservation of samples. It covers appropriate temperature and humidity controls, labeling conventions, storage duration guidelines, and systematic arrangement to facilitate easy retrieval and prevent cross-contamination. The purpose is to maintain sample quality and support accurate and reliable testing or analysis processes.

1. Scope

This SOP applies to all laboratory personnel involved in the handling, storage, and retrieval of samples within the facility.

2. Responsibilities

- Laboratory Staff: Properly store and label all samples as per this SOP.
- Lab Manager: Ensure maintenance, monitoring, and troubleshooting of storage units.
- Quality Assurance Team: Conduct audits and verify storage compliance.

3. Storage Conditions

Sample Type	Temperature Range	Humidity	Storage Unit
Reagents/Chemical Samples	2°C - 8°C	Below 60% RH	Refrigerator
Biological Samples	-20°C / -80°C	N/A	Freezer/Ultra-low Freezer
Paraffin-embedded Tissue	15°C - 25°C	Below 60% RH	Dry Storage Cabinet
DNA, RNA	-20°C / -80°C	N/A	Freezer/Ultra-low Freezer
Microbial Cultures	-80°C	N/A	Ultra-low Freezer
Serum/Plasma	-20°C / -80°C	N/A	Freezer/Ultra-low Freezer

4. Labeling Conventions

- All samples must be labeled with:
    1. Unique Sample ID
    2. Sample Description
    3. Date of Collection/Receipt
    4. Storage Location (if applicable)
    5. Operator Initials

- Use waterproof labels and permanent ink for freezer storage.
- For electronic tracking, ensure the database matches the physical label.

5. Storage Organization

1. Assign specific locations or racks for different sample types.
2. Arrange samples in a logical order (e.g., by ID or collection date) to facilitate easy retrieval.
3. Separate incompatible or hazardous materials to prevent cross-contamination.
4. Maintain an up-to-date sample inventory log (manual or electronic).
5. Restrict access to storage units to authorized personnel only.

6. Storage Duration Guidelines

- Follow regulatory or research-specific guidelines for sample retention times (e.g., biological samples: 1-5 years; chemicals: up to expiration date).
- Regularly review and safely dispose of expired or unnecessary samples as per hazardous waste SOPs.

7. Monitoring and Maintenance

- Check and record storage unit temperatures and humidity at least daily.
- Immediately report and address any deviation from set parameters.
- Ensure regular servicing of storage equipment.

8. References

- Good Laboratory Practice (GLP) Guidelines
- Internal Laboratory Policies
- Relevant Regulatory Requirements

9. Revision History

Version	Date	Description of Changes	Approved by
1.0	2024-06-16	Initial version	Lab Manager