

EPIGENOMICS SERVICES

Sample Preparation Guide for ATAC-Seq

SCOPE Fresh Frozen Animal Cells · Cryopreserved Animal Tissues · Cryopreserved Plant Samples · Fungal Samples

These are general sample preparation recommendations. Final requirements are subject to the project confirmation.

01 Fresh Frozen Animal Cells

Adherent Cells: Inspect cells under a microscope to ensure they are growing well. Prepare a cell suspension by digesting the adherent cells with trypsin.

Suspension Cells: Confirm that the cell growth status is good under a microscope.

■ Cell Collection

1. Dispense the cells at a concentration of 2×10^5 cells per tube, and centrifuge the dispensed cells at $500 \times g$ for 5 minutes at 4 °C.
2. Carefully aspirate all supernatant and add 500 μ L of pre-chilled 1 $\times$ PBS for washing, then centrifuge at $500 \times g$ for 5 minutes at 4 °C.
3. Resuspend the cell pellet in complete culture medium, dispense at a concentration of 2×10^5 cells per tube, transfer to cryovials, and add DMSO to a final concentration of 10%.

NOTE

The starting cell input for the ATAC-seq experiment is 5×10^3 to 5×10^4 cells. Since thawing and recovery can affect the viability of some cells, we recommend sending a sample of 2×10^5 cells, with a higher-risk submission amount of 5×10^4 to 1×10^5 cells.

■ Programmable Cooling

After transferring the cells to cryovials, place them in a programmable cooling box and then store the cooling box in a -80 °C freezer. The temperature inside the box will decrease linearly, maximizing cell viability.

■ Dry Ice Transportation

Place the labeled samples in a well-sealed bag for transportation on dry ice as soon as possible.

■ Mycoplasma Testing

During cell culture, mycoplasma can be present in various areas, including the experimental environment, the operator's nasal and oral cavities, and laboratory equipment. As a result, the frequency of mycoplasma contamination in cells is very high. Cells contaminated with mycoplasma will continue to be affected, leading to inaccurate experimental data. We recommend that clients conduct mycoplasma testing before collecting cells and avoid sending samples that are known to be contaminated.

02 Cryopreserved Animal Tissues

1. Excise fresh tissue and immediately remove impurities such as connective tissue and adipose (fat) tissue. Rinse the tissue surface with pre-chilled 1× PBS to remove residual blood. For larger tissue pieces, cut into small pieces or thin slices on ice.
2. Transfer the processed tissue into 2 mL (or larger) screw-cap cryovials. Recommended >100 mg per sample. Snap-freeze immediately in liquid nitrogen, then transfer to a –80 °C freezer for storage.
3. Place samples in a well-sealed bag and ship on dry ice as soon as possible.

03 Cryopreserved Plant Samples

Rinse fresh plant tissue thoroughly with sterile water (if rinsing is required). Place the collected material into a 2 mL microcentrifuge tube and immediately snap-freeze in liquid nitrogen for 5 minutes. Store at –80 °C.

We recommend providing 500–1000 mg per sample. Please ship the samples on dry ice as soon as possible.

04 Fungal Samples

We recommend providing at least 5×10^7 cells per sample. Note: For fungi with larger genomes (e.g., filamentous fungi), please increase the input amount accordingly.

1. **Liquid culture:** Collect fungal biomass by centrifugation (log-phase culture is recommended).
Solid culture: Scrape and collect mycelia and/or spores.
2. Snap-freeze in liquid nitrogen for 5 minutes, store at –80 °C, and ship on dry ice as soon as possible.
3. Additional notes:
 - (a) If you have a cell wall-removal protocol, please inform us in advance (e.g., enzyme type, incubation time, and other key conditions).
 - (b) Avoid using metabolic inhibitors that may affect chromatin structure.
 - (c) Fungal secondary metabolites (e.g., pigments, polysaccharides) may interfere with downstream experiments. If such metabolites are known or expected, please notify us in advance.
 - (d) We do not accept fungal samples that are pathogenic to humans.