This page describes work in the T. Kartzinel lab current as of: January 20, 2026 (ACJ)

Sampling and Sample Storage for Genomics

Sample handling for genomics work must be matched to the tissue type collected and storage options. In the field, you may not have access to immediate and/or adequate storage options - cold and dry typically being ideal conditions for these. Here we present our top-choices to ensure samples are well-preserved for sequencing in a variety of common situations.

In all cases:

- Label all envelopes/tubes with identifying information *BEFORE* collecting a sample
- Avoid excessive freeze/thaw cycles that can occur when we transport and sort samples–it can damage DNA and can crack storage tubes, undermining data quality

Tissues from deceased animal:

When the opportunity to take a sample from a recently deceased or frozen animal arises, consider the following:

- Request a sample from the spleen, liver, or cardiac/hepatic/arterial blood from the veterinarian or authority in charge of the necropsy. These tissues typically yield the highest quality and quantity of DNA.

  →Solid Tissues (spleen/liver/skin/other organ)

  - Collect 3 x ~6 mm cubes of solid tissue
  - Submerge tissues in EDTA-DMSO tissue buffer
  - Transport material in a cooler with ice
  - Store in 4°C refrigerator up to 10 days
  - Store at -20°C long-term

  →Whole Blood

  - 1-2 mL of whole blood
  - Dispense whole blood into EDTA-treated vacutainers and invert 8-10x
  - Keep vacutainers upright and do not shake
  - Transport material in a cooler with ice
  - Store vacutainer at 4°C for up to 10 days
  - For longer term storage (>10 days)
  - Store at -20°C long-term

Tissues from live animals:

Blood draws conducted by qualified veterinarians or wildlife professionals will be the default method for sampling live animals. The blood storage strategy will depend on whether you have access to immediate refrigeration and/or a freezer.

→Refrigeration NOT available immediately:

- Use a Whatman card to dry a few spots of blood
- Hold the card in the air while dispensing the blood to keep the blood from reaching the back of the card
- Apply up to 100 µL (0.1 mL) of blood to each circle on a card, spiraling out from the center of the circle to ensuring no gaps in the blot spot
- Dry the card for at least 6 hours and protect it from heat/moisture
- Do not to stack cards or rubberband them together until they have fully dried
- Store fully dry cards in manila envelopes in an air conditioned space
- Keep manila envelopes of samples inside in a well-ventilated and dry area

→Refrigeration available immediately:

- Dispense whole blood into EDTA-treated vacutainers and invert 8-10x
- Keep vacutainers upright and do not shake
- Transport material in a cooler with ice
- Store vacutainer at 4°C for up to 10 days
- For longer term storage (>10 days)
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See next page for quick guide

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Quick Guide

Sample Type	Collection/Size	Immediate Handling	Storage Conditions	Do/Don't (Key Points)
EDTA Blood Vacutainer	Fill EDTA tube with **~1-2 mL** blood; gently invert 8-10x to mix	Place in **~4**℃ cooler ASAP	**~4**℃ fridge for up to **10 days**; for molecular work, if not processed within **10 days**, place in long-term storage at **-20**℃	**Do:** clearly label all tubes; keep cold, upright, out of sun; process within **10 days** when possible. **Don't:** shake or repeatedly freeze-thaw (ice expansion can crack tubes).
Whatman Card (dried blood spot)	Apply **~0.1 mL** fresh blood per circle	Suspend card while dispensing blood so it does not reach back of card	Dry card suspended for **6 hours** at room temperature, then store in a manila envelope in an air-conditioned space	**Do:** clearly label cards before adding blood; ensure fully dry (**6 hours**) before storage. **Don't:** stack cards while wet, expose to moisture/heat, or store in an airtight container before fully dry.
Tissue in EDTA-DMSO Buffer	Tissue piece **~6 mm** (thumbnail-sized)	Submerge fully in pre-labeled buffer tube	Keep cool (**~4**℃) in field / fridge; transfer to **-20**℃**/-80**℃ for long term	**Do:** clearly label all tubes; use excess buffer (**≥5-10x** tissue volume); keep cool. **Don't:** keep tissue warm or unsubmerged

Note: **Never** use a "frost-free" freezer for long-term storage; many home freezers are designed to remove frost, and this process can harm DNA.