

Blood Shipping Instructions

The following technical note is offered to give guidance as to the preferred method for isolating, packaging and shipping **fresh** and **frozen blood** to preserve DNA quality when transporting.

Collection and Shipping Instructions for **Fresh** Blood

When fresh blood is available to be collected, shipped and received within 5 days, please follow these instructions:

- Email recipient to provide information on shipping fresh blood, with the expected arrival day (from Tuesday to Thursday). Ideally blood is drawn on Monday and shipped on the same day, to arrive Tuesday.
- Blood should be collected in EDTA tubes (e.g. BD Sciences, catalog# 366450). Streck tubes are also acceptable.
- Blood should be refrigerated after collection; seal caps with Parafilm. Ship on cold packs (4°C, not -20°C).
- Packaging materials must be leak proof and meet the general requirements of the [US Postal Service](#) and other carriers. Appropriate packaging requires the following:
 1. Place blood tube inside a sealed plastic bag (or other sealed container) labeled with "Biohazard".
 2. Place absorbent material inside the plastic bag. One paper towel is sufficient to soak up any potential leakage. Please do NOT wrap towel around the blood vial.
 3. Use cushioning wrap, such as bubble wrap sheets. Drape bubble wrap around the plastic bag loosely. Do not tape or staple to the plastic bag. Do not use household insulation.
 4. Place in a polystyrene box that is large enough to hold the sample and necessary cold packs (4°C) to last through transit. Add cushioning material as needed.
 5. Place polystyrene box in cardboard shipping box with enough cushioning to prevent movement of the contents (if not a snug fit).
 6. Ship the package by overnight delivery service.
- Fresh blood must arrive at recipient site within 5 days of blood collection. If this is not possible, freeze the blood immediately after collection (see Frozen Blood instructions below for preparing frozen blood for shipment).
- Do not freeze the blood, and do not use cold packs colder than 4°C.
- Avoid using blood that has signs of hemolysis or clotting.

Collection Instructions for Frozen Blood

Please follow these instructions when isolating blood for frozen storage and shipping:

- Freeze whole blood in 650 μ L - 1 mL aliquots (for non-nucleated RBCs). Although only one aliquot is required for ultra-high molecular weight DNA extraction, it is recommended to freeze a second aliquot as a backup.
 - Note: Whole blood containing nucleated RBCs may be frozen in aliquots of 100 μ L, and PBMC pellets containing at least 1 million cells are also acceptable; however, it is recommended to use the Bionano Blood & Cell Culture DNA Isolation Kit (PN 80004) for these two sample types.
- Draw blood into EDTA tubes.
- Freeze blood as soon as possible after draw, and not more than 4 days after draw.
- Freeze blood, by placing aliquot into -80°C freezer.
- If blood has already been frozen, do not thaw to remove aliquot. Please send the entire sample, and arrange for the possibility of returning unused portion.

Packaging and Shipping Frozen Blood

Packaging materials must be leak-proof and meet the general requirements of the [US Postal Service](#) and other carriers, and customs authorities where applicable. Appropriate packaging requires:

- All tubes should be sealed with Parafilm to prevent leakage.
- Sample placed inside a sealed plastic bag (or other sealed container) labeled "Biohazard".
- Cushioning wrap - bubble wrap sheets are best - wrap around the bag loosely. Please DO NOT tape or staple to the plastic bag. DO NOT use household insulation.
- Place in a polystyrene box that is large enough to hold the sample and an appropriate amount of dry ice to last during transit.
- Place polystyrene box in a cardboard shipping box with enough cushioning to prevent movement of the contents (if not a snug fit).
- Apply dry ice label to exterior of box (UN1845).

Ship the package through a shipping company that will replenish dry ice in transit (such as World Courier), or choose a shipping speed that will ensure that the package will arrive before the dry ice runs out. If shipping internationally, ensure that samples are admissible and that proper declarations are made with customs authorities. Accommodate for customs inspection accordingly.