

Sample Submission Guidelines for Standard/ PCR-Grade Nucleic Acid Extraction: MBS-6000 series

Sample Type	Standard/ PCR-Grade DNA extraction	Standard/ PCR-Grade RNA extraction
Tissue/ Cell Pellets from Animals, Insects, Bacteria, Fungi, Yeast and Microalgae	- Amount: 50–100 mg - No. of replicates: 3 - Shipping condition: Dry ice	- Amount: 50–100 mg - No. of replicates: 3 - Shipping condition: Dry ice
Plant/ Macroalgae (Seaweed)	- Amount: 150–500 mg of wet tissue or tissue ground into a powder using liquid nitrogen. - Snap-freeze the fresh plant sample in liquid nitrogen - No. of replicates: 3 - Shipping condition: Dry ice	- Amount: 150–500 mg of wet tissue or tissue ground into a powder using liquid nitrogen. - Snap-freeze the fresh plant sample in liquid nitrogen - No. of replicates: 3 - Shipping condition: Dry ice
Blood	Option 1: Whole Blood, *for customers in Malaysia only - Collect up to 3 mL of fresh blood in an EDTA tube - Submit blood samples immediately after collection. - Results will not be guaranteed for blood samples that are more than 3 days old - No. of replicates: 3 - Shipping condition: i) 4 °C or blue ice (arrival at Apical Scientific within 3 days) ii) Dry ice (arrival at Apical Scientific after 3 days) Option 2: Buffy Coat - Collect up to 3 mL of blood in an EDTA tube. Centrifuge the blood at 2,500 × g for 10 minutes using a swinging-bucket centrifuge - Remove the plasma using a 1 mL syringe fitted with a 20G needle - Collect the buffy coat in a 1.5 or 2 mL tube - No. of replicates: 3 - Store the buffy coat in a –80 °C freezer - Shipping condition: Dry ice Option 3: White Blood Cell pellet - Collect up to 3 mL of fresh blood in an EDTA tube - Pretreat the whole blood sample with RBC lysis buffer (1st BASE, K.BUF-9101-220ml). Refer to "Appendix Protocol I" below for the pretreatment procedure. - No. of replicates: 3 - Store the treated dry WBC pellet in a –80 °C freezer. Alternatively, the WBC pellet can be stored in RNAlater solution. - Shipping condition: Dry ice Appendix Protocol I: Pretreatment of whole blood samples with RBC lysis buffer (1st BASE, K.BUF-9101-220ml) - Transfer 1 mL of whole blood into a new 2 mL microcentrifuge tube. - Add 1 mL of RBC Lysis Buffer (not provided). Invert the tube 10 times. Centrifuge at 700 x g for 5 minutes at room temperature. - Remove 1 mL of supernatant (top layer) by pipetting. Note: Do not remove the middle and bottom layers, which contain white blood cells and red blood cells, respectively. - Add 1 mL of RBC Lysis Buffer (not provided). Resuspend the pellet by pipetting 4–5 times. Centrifuge at 700 x g for 5 minutes. - Carefully remove 1 mL of supernatant by pipetting from the top. Leave the remaining supernatant and cell pellet in the tube. - Repeat Step 4. Remove the supernatant completely. [For preservation] Resuspend the cell pellet in 1 mL of RNAlater solution (not provided).	White Blood Cell pellet - Collect up to 3 mL of blood in an EDTA tube - Preprocess the blood sample on the day of collection. - Pretreat the whole blood sample with RBC lysis buffer (1st BASE, K.BUF-9101-220ml). Refer to "Appendix Protocol II" below for the pretreatment procedure. - No. of replicates: 3 - Store the treated dry WBC pellet in a –80 °C freezer. Alternatively, the WBC pellet can be stored in RNAlater solution. - Shipping condition: Dry ice Appendix Protocol II: Pretreatment of whole blood samples with RBC lysis buffer (1st BASE, K.BUF-9101-220ml) - Transfer 3 mL of whole blood into a new 15 mL centrifuge tube. - Add 3 mL of RBC Lysis Buffer (not provided). Invert the tube 10 times. Centrifuge at 700 x g for 5 minutes at room temperature. - Remove 2 mL of supernatant (top layer) by pipetting. Note: Do not remove the middle and bottom layers, which contain white blood cells and red blood cells, respectively. - Add 3 mL of RBC Lysis Buffer (not provided). Resuspend the pellet by pipetting 4–5 times. Centrifuge at 700 x g for 5 minutes. - Carefully remove 3 mL of supernatant by pipetting from the top. Leave the remaining supernatant and cell pellet in the tube. - Repeat Step 4. Remove the supernatant completely. [For preservation] Resuspend the cell pellet in 1 mL of RNAlater solution (not provided).
Buccal swab sample	Option 1: - Collect the sample using a commercial swab sample collection kit - Follow the collection kit guidelines to preserve the swab sample - No. of replicates: 2 - Storage/ Shipping condition: Follow the guidelines from the commercial kit Option 2: - Collect the sample using a sterile swab (Optional) Store the swab in 1X PBS - No. of replicates: 3 - Storage condition: -80 °C freezer - Shipping condition: Dry ice	- Collect the sample using a commercial swab sample collection kit (for RNA applications) - Follow the collection kit guidelines to preserve the swab sample - No. of replicates: 2 - Storage/ Shipping condition: Follow the guidelines from the commercial kit
Saliva	Option 1: - We recommend following the guidelines provided with a commercially available saliva collection kit for sample collection, preservation, storage and shipping. For example, DNA Genotek, OMNigene•SALIVA DNA and RNA device. - No. of replicates: 2 - Storage/ Shipping condition: Follow the kit manufacturer's recommendations Option 2: - Collect 2 mL of saliva in a new 50 mL centrifuge tube - No. of replicates: 2 - Add 10 mL of 1X PBS. - Shake vigorously to mix for at least 20 seconds. - Immediately centrifuge at 2,000 x g for 5 minutes at room temperature to pellet cells. - Decant the supernatant without delay. - Store the dry pellet in a –80 °C freezer - Shipping condition: Dry ice	Option 1: - We recommend following the guidelines provided with a commercially available saliva collection kit for sample collection, preservation, storage and shipping. For example, DNA Genotek, OMNigene•SALIVA DNA and RNA device. - No. of replicates: 2 - Storage/ Shipping condition: Follow the kit manufacturer's recommendations Option 2: - Collect 2 mL of fresh saliva in a 50 mL centrifuge tube - No. of replicates: 2 - Add 2 mL of RNAlater solution. - Vortex vigorously to mix thoroughly. - Incubate the sample overnight in a refrigerator at 4 °C. - Store the sample in a –80 °C freezer the next day. - Shipping condition: Dry ice

Soil/ Sludge/ Manure/ Biofilm mat	• Weight: 0.5–1 g of sample in a screw-cap container/ tube • Label the sample with a printed label • No. of replicates: 3 • Store the sample in a –80 °C freezer • Shipping condition: Dry ice	Not applicable.
Water	Filtered material on 0.22 µm membrane filter • Prefilter the water sample using a cell strainer with a larger pore size (e.g., 100 µm) to remove large debris. • Continue filtering the water sample (200–500 mL*) using vacuum filtration with a 0.22 µm pore size membrane filter (25 or 47 mm). *If the sample has low turbidity (i.e. little material is retained on the membrane), continue filtration until a total volume of up to 1.5 L has been filtered. • Use a sterile scalpel blade to remove the membrane filter from the filtration unit. • Insert the membrane filter into a new sterile tube by rolling the membrane using sterile forceps, ensuring that the sample-retaining side of the membrane is facing inward. • No. of replicates: 3 • Store the membrane filter in a –80 °C freezer • Shipping condition: Dry ice	Not applicable.
Stool	Option 1: • Weight: 200–500 mg of sample in a screw-cap container/ tube • Label the sample with a printed label • No. of replicates: 3 • Store the sample in a –80 °C freezer • Shipping condition: Dry ice Option 2: • We recommend following the guidelines provided with a commercially available stool collection kit for sample collection, preservation, storage and shipping. For example, DNA Genotek, OMNigene•GUT DNA and RNA. • No. of replicates: 2 • Storage/ Shipping condition: Dry ice	
Others	Please enquire.	