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Version 1

B-3 BLOOD STORAGE V.1

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Remote Emerging Disea...



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Protocol status: Working

We use this protocol and it's working

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Disclaimer

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Abstract

This protocol describes blood storage.



Guidelines


OBJECTIVE

To outline steps for properly storing blood samples and nucleic acid samples purified from these samples.

SUMMARY/SCOPE

The overarching aim of the REDI-NET is to develop a collaborative laboratory network between domestic and international partnering institutions to address disease surveillance needs in order to effectively detect, predict and contain potentially emergent zoonosis. This SOP provides guidance on storage of blood samples and their purified nucleic acid to preserve their integrity for downstream nucleic acid extraction and/or sequencing library preparation

MAINTENANCE OF EQUIPMENT

Decontaminate a PCR workstation by keeping the UV light on for  00:15:00 .

Materials

EQUIPMENT AND MATERIALS

Note

NOTE: If product number is listed, please ensure use of this or equivalent product.

A	B	C
Equipment / Material	Description	Mfg / Product #
-80°C freezer	For sample storage	Locally sourced
Forceps	Clean, stainless	Locally sourced
Ice	To maintain cold chain during sample handling	Locally sourced
96-Well Microfuge tube racks with cover	To hold microplates	Locally sourced
KingFisher™ 96 KF microplate	To store the sample	ThermoFisher, 97002540
PCR Workstation	PCR cabinet with UV light	Locally sourced
Clear Adhesive Film	To seal the KingFisher™ 96 KF microplate	ThermoFisher, 4306311
Adjustable micropipettes	To handle the samples	Locally sourced
Multi-channel micropipettes	8- or 12- channel; to handle the sample	Locally sourced
Nuclease-free filter tips low-retention	To ensure appropriate sample handling	Locally sourced
Nuclease free microfuge tubes	1.5 mL	Locally sourced
Saran wrap	Plastic wrap; to seal rack holding sample	Locally sourced
Permanent markers	To label tubes and microplates	Locally sourced
Data sheet	REDI-NET DCS T-3 Tick Storage	REDI-NET Data Portal

Troubleshooting

Safety warnings

RISKS AND PERSONAL PROTECTION:





Gloves should be worn all the time when handling samples.


STORAGE PROCEDURE FOR UNTREATED SAMPLE


1

Note

NOTES:

- Blood samples need to be kept on cold chain all the time to prevent RNA degradation. The following procedure will apply only where  -80 °C storage is feasible.
- If  -80 °C storage is not possible, temporarily store the blood samples in a  -20 °C freezer and follow blood sample processing SOP (REDI-NET SOP B-2 Blood Processing) as soon as possible for total nucleic acid extraction. Subsequently, use a portion of the total nucleic acid and reverse-transcribe RNA into cDNA for  -20 °C storage. To do this, follow the initial steps of the blood sample testing SOP (REDI-NET SOP B-4 Blood Testing) cDNA synthesis until finishing step 40.

Precool 96-well microfuge tube racks (for liquid forms including whole blood, plasma, serum, buffy coat) or sample box (for FTA cards only)  On ice .


- 2 Using preprinted adhesive labels or permanent markers, label 1.5 ml microfuge tubes or FTA cards with unique sample ID.
- 3 Transfer blood sample (liquid forms) into the corresponding pre-labeled 1.5 mL microfuge tubes and put it onto the microfuge tube rack (on ice) sequentially; or Transfer FTA card into a ziplock pouch with desiccant.
- 4 Once the rack is full or all blood samples have been completed, label the rack with a unique rack ID.
- 5 Close the rack lid tightly, secure with clear Saran wrap and immediately transfer to  -80 °C freezer.
- 6 Update the freezer inventory so samples can be tracked properly.

STORAGE PROCEDURE FOR TOTAL NUCLEIC ACID

7




**Note****NOTES:**

- The following procedure is to properly store total nucleic acid extracted from blood samples (including negative controls) using KingFisher nucleic acid purification system. The eluted total nucleic acid will be in either 96-well microplate (Flex model) or elution strip (Duo Prime model).
- Total nucleic acid samples need to be kept  On ice all the time to minimize RNA degradation.

In the clean PCR workstation, carefully transfer the eluted total nucleic acid to a 96-well PCR microplate, make sure to keep samples in the exact same locations corresponding to the rack where the original blood samples were stored.

Note

IMPORTANT: Mark the “A1” position of the 96-well microplate to prevent any mistakes on plate orientation.

- 8 Cover the 96-well PCR microplate with adhesive film to prevent spill over or contamination.
- 9 Label the film with a unique plate ID.
- 10 Immediately transfer the 96-well PCR microplate to  -80 °C freezer.
- 11 Update the freezer inventory so samples can be tracked properly.

Protocol references

REFERENCES

[REDI-NET Overview Summary](https://dx.doi.org/10.17504/protocols.io.6gpyr3263vmk/v1)