Terms of Reference (TOR)

Management of Storage and Transport of ARF Biosamples

RFP Reference No.: 66-2082/83

Project Name: Preventing Rheumatic Injury Biomarker Alliance (PRIMA): Identification of Accurate Molecular Biomarkers for Acute Rheumatic Fever

Issued by: Kathmandu Institute of Child Health (KIOCH)

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Submission Deadline: 11 Feb 2026, Office Hours

1. Background

Preventing Rheumatic Injury Biomarker Alliance (PRIMA) is a multi-country collaborative research initiative aimed at identifying accurate molecular biomarkers for the early diagnosis of Acute Rheumatic Fever (ARF) and supporting the development of point-of-care diagnostic tools.

In Nepal, the PRIMA project is being implemented across 11 hospitals, including PEN-Plus clinics involving the collection of plasma and serum samples from children and adolescents aged 5–18 years. As per the approved PRIMA project protocol, biological samples are processed at collection site on the same day of collection and require immediate ultra-low temperature storage at the site prior to periodic transportation to KIOCH office in Kathmandu. To preserve molecular and immunological integrity, biosamples must be maintained at a temperature of at least −80°C or lower throughout storage and transportation.

Samples are transported from study sites to the central laboratory at KIOCH, Kathmandu, at intervals of one to two months. The interval of transport should ensure the required minimum temperature is maintained at the site.

Later, the samples are shipped to accredited laboratories in the United States of America (USA) for advanced biomarker and molecular analyses, in full compliance with applicable international biosafety, biosecurity, and transport standards (this part is out of scope of this RFP).

To ensure uninterrupted maintenance of the required ultra-low temperature conditions (< −80°C) and to safeguard biosample integrity during storage and internal transport, KIOCH intends to procure Service and Materials including liquid nitrogen (LN_2) containers, accessories, consumables, and associated support services through this Request for Proposal.

2. Objectives

The objectives of this TOR are to:

i. Procure high-quality liquid nitrogen (LN_2) containers and compatible accessories for the secure short-term storage (up to two months) of plasma and serum biosamples across 10 designated study sites or hospital.

ii. Ensure the safety, integrity, and continuous maintenance of required ultra-low temperature conditions for biosamples during on-site storage and transportation throughout the project duration of three years, with adequate technical support.

iii. Facilitate safe, compliant, and uninterrupted storage (top-up of nitrogen) and transportation of biosamples from 10 study sites to the central laboratory at KIOCH, Kathmandu.

iv.

3. Scope of Work and Supply

The selected bidder shall be responsible for supply, delivery, refilling, and technical support of LN_2 storage systems and related services, including but not limited to the following:

3.1 Supply of Equipment

i. Liquid nitrogen containers suitable for biosample storage

ii. Compatible accessories, including:

   a. Canisters and racks
   b. Neck plugs/ lids
   c. Sample retrieval tools

3.2 Consumables and Safety Items

i. Supply of cryogenic consumables and safety-related items, including:

   a. Cryogenic markers, tags, and labels
   b. Cryovials (as required)
   c. Cryogenic gloves and appropriate personal protective equipment (PPE)

3.3 Services

- Safe delivery and handling of LN_2 in all 10 sites.
- Ensuring nitrogen levels in the storage containers at the sites.
- Replacement of containers or components in case of damage or malfunction
- Provision of warranty coverage and after-sales technical support
- Submission of technical documentation, user manuals, and safety guidelines

- Provision of a dedicated Technical Support Specialist responsible for handling liquid nitrogen containers, storing samples, ensuring timely refilling, providing training on nitrogen-based sample collection across all 10 study sites, and also support in biosample transportation.

3.4 Biosample Integrity

- Assurance of biosample safety and maintenance of required temperature conditions throughout storage, handling, and transport.

3.5 Quantities

- Following is the estimate of quantities. The proposer should use this quantity for financial proposal.

SN	Particular	Unit	Quantity
A	**Containers**		
1	13 Liter Sample & Sample Transport Container with canister(s)	Pcs	14
2	30 Liter Liquid Nitrogen Transport Container (Refill)	Pcs	5
3	Cryo Cane to store Vial	Set	300
B	**Liquid Nitrogen**		
1	Liquid Nitrogen Purchase, yearly	Liter	150
C	**Safety Gears and Consumables**		
1	Gloves, Eye Glass, Measuring Stick, Pouring Funnel, Record Register	Set	14
D	**Human Resource**		
1	One Technical HR to Handle the Sample, Re-filling the nitrogen and transportation	Month	12

4. Intended Use of Equipment

4.1 Biosample Storage

- Plasma samples: 5 mL EDTA aliquots stored in cryovials
- Serum samples: 15 mL biochemical aliquots stored in cryovials

4.2 Temperature Requirements (liquid nitrogen)

- −196°C in liquid phase, or
- ≤ −150°C in vapor phase

5. Technical Specifications (Minimum Requirements)

Bidders must clearly demonstrate compliance with the following minimum specifications:

5.1 Container Specifications

i. Type/ Capacity:

a. 13-liter LN_2 cryogenic container for sample storage
b. 30-liter LN_2 container for nitrogen storage and refilling sample storage container.

- Storage Mode: Liquid or vapor phase
- Static Holding Time: Minimum 30 days
- Evaporation Rate: Manufacturer's specifications must be provided
- The bidder shall be responsible for equipment failure and negligence in the agreed refilling schedule.

5.2 Sample Compatibility

- Compatible with screw-cap cryovials (5 mL and 15 mL)
- Suitable for use with cryoboxes and racks

5.3 Safety and Quality

- Pressure relief mechanism
- High-grade insulation
- Suitable for frequent opening under field conditions
- Compliance with applicable international safety standards

5.4 Certification

- ISO & CE certification

6. Human Resources and Sample Handling Responsibilities

The bidder shall assign qualified personnel responsible for liquid nitrogen handling, refilling, and, support for biosample transport.

Designated personnel shall be assigned to the project to:

- Conduct site visits according to a structured, rotational schedule, visiting one site and then proceeding to the nearest site for refilling and sample transportation from liquid nitrogen container
- Support LN_2 refilling and equipment checks
- Provide on-site training to laboratory personnel at all 10 sites on safe liquid nitrogen handling and storage practices, including proper procedures for sample handling and routine monitoring of liquid nitrogen levels.

6.1 Sample Collection and Handling

Sample collection will be performed by trained clinical and laboratory personnel assigned by KIOCH at designated hospitals in accordance with PRIMA protocols.

- The bidder shall provide training on safe LN_2 handling and container operation at each site to these laboratory personnel.
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7. Storage Duration and Refilling Schedule

- LN_2 containers shall be suitable for short-term biosample storage for a maximum period of two months.
- Refilling and replenishment of liquid nitrogen may be conducted earlier, based on regular monitoring of nitrogen levels, to ensure uninterrupted maintenance of ultra-low temperature conditions.
- The supplier shall ensure LN_2 levels are monitored regularly and refilled before reaching critical thresholds to preserve biosample integrity at all times.
- Immediate refilling of the sample storage container when the volume falls below 60%.

8. Transportation and Cost Estimation

8.1 Transportation

Vehicle hire for biosample transportation will be arranged and managed by KIOCH, while the bidder shall provide Cryogenic technical support for nitrogen handling and biosample safety during transport.

Technician involved in sample handling and transport must be:

a) Trained in cryogenic safety
b) Familiar with biosafety standards and chain-of-custody procedures
c)

8.2 Proposal

The proposal should include Technical Proposal and Financial Proposal

A. Technical Proposal should include
   - Methodology
   - Plan/ Schedule including refilling time, transportation schedule, etc.

B. Financial Proposal
   - Material costs
   - Consumable cost
   - HR cost
   - Any other required cost

1. Cost of each item should be expressed clearly
2. Evaluation of the finical bid will be done in lot (complete package) basis

3. If quantity of any item is reduced or added the payment will be done in pro-rata basis.

9. Study sites and Locations

9.1 Locations

1. Damak Municipality Hospital, Damak
2. Ram Kumar Sarada Uma Prasad Murarka Provincial Hospital, Lahan
3. Lumbini Provincial Hospital, Butwal
4. Gulmi District Hospital, Tamghas
5. Bheri Provincial Hospital, Nepalgunj
6. Surkhet Provincial Hospital, Surkhet
7. Dailekh District Hospital, Dailekh
8. Seti Provincial Hospital, Dhangadhi
9. Bardiya District Hospital, Gulariya
10. District Hospital Bajhang, Bajhang

9.2 Timeline

- Delivery within 60 days of issuance of the Purchase Order
- Containers shall be supplied ready for immediate use after the delivery

11. Eligibility Criteria

Bidders must:

- Be legally registered entity
- Authorized supplier or manufacturer for the equipment being quoted
- Have proven experience in supplying cryogenic or laboratory equipment using NL2 in Nepal. Provide at least one reference for similar work
- Have a proof of availability of HR as described above

14. Payment Terms

Payment terms will be finalized upon contract signing and may include:

- Payment after delivery and inspection
- Other mutually agreed terms

15. Right to Accept or Reject

KIOCH reserves the right to accept or reject proposal wholly or partially, without assigning any reason.