EoI No. ICMR/EoI/05-MDMS/HEV IgM rapid Test/2023

Invitation for Expression of Interest (EoI)

For

Transfer of Technology

of

A Method for Developing a Rapid Immunochromatographic Assay for Identifying Hepatitis E Infection (ICMR-NIV HEV IgM Rapid Test)
(Diagnostic Assay/Kit)

By ICMR-Hqrs

Indian Council of Medical Research
(Department of Health Research, GoI)
V. Ramalingaswami Bhawan,
P.O. Box No. 4911, Ansari Nagar,
New Delhi - 110029, India

CONTENTS

Letter of Invitation

1. Invitation for Expression of Interest

Indian Council of Medical Research ((ICMR), New Delhi invites Expression of Interest (EoI) from the eligible organizations, companies, manufacturers for undertaking **'Transfer of Technology'** for commercialization of **"A Method for Developing a Rapid Immunochromatographic Assay (ICMR-NIV HEV IgM Rapid Test)"** useful in **Identifying Hepatitis E Infection.**

The EoI document containing the details of qualification criteria, submission details, brief objective & scope of work and evaluation criteria etc. can be downloaded from the ICMR website (https://www.icmr.gov.in).

Schedule for the Proponents is as under:

EoI Document Number	ICMR/EoI/05-MDMS/HEV IgM rapid Test/2023
Date of Publication	Date: 24./11/ 2023
Last date of submission	Date: 24./12/ 2023

Note:
Interested applicants may please send their proposals in a sealed envelope to the following address:

MDMS Unit (New Building 2nd Floor)
Indian Council of Medical Research,
V. Ramalingaswami Bhawan,
P.O. Box No. 4911,
Ansari Nagar, New Delhi - 110029, India.

The EoI Document No. **"ICMR/EoI/05-MDMS/HEV IgM rapid Test/2023**" along with the title of the EOI as "**EoI for Technology Transfer/ Joint Development**" in **Bold** and complete address as above must be clearly mentioned on the sealed envelope.

Only shortlisted firm(s)/organization(s) will be invited to participate in the Request for Proposal (RFP).

ICMR reserves the right to cancel this EoI and/ or invite afresh with or without amendments, without liability or any obligation for such EoI and without assigning any reason. Information provided at this stage is indicative and ICMR reserves the right to amend/add any further details in the EoI, as may be desired by the Competent Authority ICMR and duly notified on its website.

2. Background

The Indian Council of Medical Research (ICMR), New Delhi, the apex body in India for the formulation, coordination and promotion of biomedical research, is one of the oldest medical research bodies in the world. The ICMR has always attempted to address the growing demands of scientific advances in biomedical research on the one hand and the need of finding practical solutions to the health problems of the country, on the other.
ICMR-National Institute of Virology, Pune, one of the constituent Institutes of the Indian Council of Medical Research (ICMR), New Delhi conducts R & D on viral diseases of public health importance and has developed a technology entitled "**A Method for Developing a Rapid Immunochromatographic Assay for Identifying Hepatitis E Infection (ICMR-NIV HEV IgM Rapid Test)**" (hereinafter) referred to as **"Technology".**

ICMR is lawfully entitled to enter into any form of **non-exclusive agreements** with eligible manufacturing companies hereinafter referred to as the **"Company"** through a defined agreement for Licensing/Commercialization of **"A Method for Developing a Rapid Immunochromatographic Assay for Identifying Hepatitis E Infection (ICMR-NIV HEV IgM Rapid Test)"**, hereinafter referred to as the **'Product',** which shall be governed by ICMR IP Policy, as revised and approved by the Competent Authority.

3. Objective

To license the 'Technology' of "**A Method for Developing a Rapid Immunochromatographic Assay (ICMR-NIV HEV IgM Rapid Test)"** effective/useful in **Identifying Hepatitis E Infection** for commercialization and marketing activities.

4. Scope of Work

i. ICMR is willing to collaborate with eligible organizations, companies, and manufacturers for undertaking Transfer of technology.

ii. The Company would be granted rights to undertake further development, manufacture, sell, and commercialize the Technology/Product, "**A Method for Developing a Rapid Immunochromatographic Assay for Identifying Hepatitis E Infection (ICMR-NIV HEV IgM Rapid Test)"** or undertake further R&D and commercialize the end product(s) /technology.

iii. An Agreement (licensing) following EoI and RFP is proposed to be executed on a "Non-Exclusive" basis with single/multiple companies to enable wider outreach of **"A Method for Developing a Rapid Immunochromatographic Assay for Identifying Hepatitis E Infection (ICMR-NIV HEV IgM Rapid Test)"** for societal benefit and public health use. All the related issues shall be governed by ICMR IP Policy, as revised and approved by the Competent Authority.

iv. ICMR-National Institute of Virology, Pune has expertise in various techniques, methods and information relating to aforesaid technology which could be used for the production of "**A Method for Developing a Rapid Immunochromatographic Assay for Identifying Hepatitis E Infection (ICMR-NIV HEV IgM Rapid Test).**"

Role of ICMR:

i. ICMR-National Institute of Virology, Pune will provide expert guidance & technical support for the production of **"A Method for Developing a Rapid Immunochromatographic Assay for Identifying Hepatitis E Infection (ICMR-NIV HEV IgM Rapid Test)"**, in all phases. Such technical oversight by ICMR-National Institute of Virology, Pune would accelerate the development of the Product and its commercialization.
ii. ICMR would provide technical support through its team of experienced scientists in study planning, product development, development of study protocol, results/data analysis, outcome assessment, safety & efficacy assessment, product improvement, etc., if deemed fit upon the mutual understanding between ICMR and collaborative company.
iii. ICMR through its Institutes would provide support and facilitation to conduct the R&D/clinical study of new technology/product in India through its Affiliates/Institutes, in collaboration with the company/institutions in a professional and mutually agreed-upon manner and timelines, which will be decided later under the Agreement.
iv. ICMR would provide technical support in development of technology/product and will also facilitate the validation, if required, as per the terms & conditions of the Agreement.
v. ICMR shall have no financial implications unless otherwise specified.

Role of Company

i. The Company shall have valid provisions to provide all necessary infrastructure/material/manpower required for product development/ validation/scale-up either directly or otherwise.
ii. The Company shall have provisions to undertake the scale-up as required, manufacturing and commercialization of the **"Method for Developing a Rapid Immunochromatographic Assay for Identifying Hepatitis E Infection (ICMR-NIV HEV IgM Rapid Test)"**, in a set milestone.
iii. The Company agrees to share the technical data with ICMR and participate in all discussions in a professional and mutually agreed-upon manner.
iv. The Company agrees to allow authorized personnel/scientist/team of ICMR to visit the designated lab/production facility as and when required, as envisaged under this EoI and subsequent Agreement.
v. The Company shall be responsible for obtaining all the regulatory approvals required for commercialization or starting from R&D for product development to its commercialization.

5. Intellectual Property Rights

It is submitted that in case of transfer of Technology, ICMR is the sole owner of the said Technology, including any underlying Intellectual Property(ies) and commercialization rights.

Intellectual Property (IP) shall mean patents, rights to inventions, copyright and related rights, moral rights, rights in designs, rights in trademarks, rights to preserve the confidentiality of information (including know-how and trade secrets) and any other intellectual property rights, in each case whether registered or unregistered and including all applications (or rights to apply for and be granted), divisional, continuations, continuations-in-part, reissues, renewals or extensions of, and rights to claim priority from, such rights and all similar or equivalent rights or forms of protection which subsist or will subsist now or in the future in any part of the world regarding subject matter disclosed in Licensed patents.

ICMR legally possess the rights and authority to retain full or part of the 'Technology' by itself or to assign at its discretion full or part of the Technology including any patent(s) or intellectual property rights(s) or the invention(s), and/or ICMR is lawfully entitled to enter into any form of non-exclusive License Agreements with selected companies including transfer of the Technology through suitable Agreement(s).

In case of collaboration between ICMR and the Company for the Joint development of the Technology/Product, Background Intellectual Property ("BGIP") shall always remain the sole and exclusive property of the Party generating the BGIP. Any IP, if generated during the course of collaboration, including any improvement thereof, shall be jointly owned by ICMR and the Company. All such provisions related to intellectual property rights shall be governed by ICMR IP Policy, as revised and approved by the Competent Authority.

6. Process involved in Technology Transfer

Interested companies/manufacturers are invited to join hands with ICMR for co-development & commercialization of the Technology/ Product(s). Under this EoI, the manufacturers/companies who are responsive and fulfilling all the technical need will be shortlisted based on their R&D plan, facilities and capabilities. On shortlisting of technically suitable companies, one Request for Proposal (RFP) will be shared with the shortlisted candidates. At the RFP stages, technically suitable candidates will be required to provide complete technical details along with their financial proposal w.r.t. upfront payment and royalty component, in line with the applicable ICMR Guidelines for Technology Transfer and Revenue Sharing, as amended from time to time. Selection of candidates will be decided on the basis of their offers at the RFP stage. Qualified companies/manufacturers will only be contacted for execution of MoA/MoU/Agreement for partnership/collaboration/technology transfer, etc. Subsequent to the execution of the Agreement such companies/manufacturers shall be responsible to pay the Royalty, subject to approval as provided under ICMR Guidelines for Technology Transfer and Revenue Sharing.

7. Publication

i. In case of Co-development, the Parties shall have equal rights on the manuscripts/scientific publications (joint publication/acknowledgment/other credits as applicable) and in accordance with guidelines of International Committee of Medical Journal Editors (ICMJE.org).
ii. Support of ICMR must be duly acknowledged in all publications by the Company.
iii. ICMR Scientists can be given due to advantage of authorships in the publications arising out of Licensing/co-development.

8. Data Rights

i. Data rights shall be jointly owned by ICMR and Licensee/Co-developer
ii. Data rights in cases where Artificial Intelligence is involved shall be dealt separately.
iii. Licensee/Company to ensure that data is anonymized, kept confidential and strictly abides by the provisions of Information Technology Act, 2000 while dealing with such data.

9. Details of documents to be furnished

Proponents are requested to go through all pre-qualification requirements, scope of work for execution & requirements with respect to technical capabilities for submission of interest, subject for verification by ICMR.

Documents to be furnished are as follows:

i. Declaration – Expression of Interest (Format – 1)
ii. Authorization Letter (Format – 2)
iii. Undertaking with regard to Blacklisting (Format – 3)
iv. Undertaking with regard to Non-Litigation (Format – 4)
v. EoI document with each page duly stamped and signed by the Authorized signatory.
vi. Undertaking with regard to laboratory facility (Format – 5)
vii. Production Capacity Undertaking (Format – 6)
viii. Supporting documents, as mentioned in Format – 1
ix. MSME Certificate (if applicable)
x. Concept note on business plan- A brief concept note on R&D, clinical studies, planning & execution, production, marketing etc. with timeline (not more than 5 pages)
xi. Any other information which proponent may wish to provide to support the EoI.

ICMR reserves the right to call for any clarifications confined in the broad scope, wherever such a clarification become necessary for proper judgement in evaluation.

10. Rejection Criteria

The application is liable to be rejected if:

i. The proposal is not submitted as per the requirements indicated in the EoI.

ii. Not in the prescribed format.
iii. Not properly stamped and signed.
iv. Received after the expiry of due date and time.
v. All relevant supporting documents are not furnished with the Pre-Qualification Criteria (PQC).
vi. The proposal shall be substantially responsive without any material deviation, failing which the proposal shall be summarily rejected.
vii. Applications not fulfilling the terms of the document will be summarily rejected.
viii. Any other non-compliance.

11. Evaluation Methodology

Screening of EoIs shall be carried out as per Pre-Qualification criteria mentioned in the EoI document and based on verification of documents submitted. Only shortlisted proponents shall be provided with RFP.

12. Pre-Qualification Criteria (PQC)

The following will be the minimum Pre-Qualification Criteria (PQC). Responses not meeting the minimum PQC will be summarily rejected and will not be evaluated further:

Sl. No.	**Pre-Qualification Criteria (General)**	**Supporting copy of documents required** (All documents must be self-attested by the authorized person of the proponent)
General Criteria		
1	The proponent shall be a legal entity, registered as Institution/Company/LLP/Society/partnership firm/proprietorship firm under respective acts in India.	Registration of firm/organization/Company Incorporation Certificate from Registrar of Companies (ROC)/Partnership deed etc. whichever is applicable
2	The proponent must be registered in India with taxation and other administrative authorities.	GST Registration or GST exemption certificate/PAN Card
3	The proponent should have proven prior experience of manufacturing and/or R&D with manufacturing during the last ten years, either in-house or through agreed collaboration and must have marketed same/similar products in the past with a good track record.	Research paper/Pamphlet/brochure of the product/DCGI License for existing product. Supporting documents for collaboration, if any.
4	The proponent has to be profitable and should not have incurred overall loss in	Certificate from the Chartered Accountant of the

	past three (3) years. (applicable on commercial firms/organizations only)	Organization/Audited Balance sheets for last three financial years or Income Tax return.
5	The proponent should have good track record and currently not black-listed/barred by any Central/State Government/Public Sector Undertaking, Govt. of India, (applicable on commercial firms/organizations only).	Undertaking on the Letter Head of the Proponent duly signed & Stamped by Authorized Signatory (As per format – 3).
6	The proponent should have a manufacturing unit in India.	Registration copies/factory license/DSIR certificate, if have any.
7	The proponent should not be involved in any major litigation that may have an impact of affecting or compromising the conditions required under this EoI and in the Agreement	Undertaking on Proponent's Letter Head, duly signed and stamped by the Authorized Signatory (As per format – 5)
8	GMP/quality certification (ISO or approved Indian certification) of manufacturing facility and GLP/necessary certifications for R & D	Copies of Certificates
Specific Criteria (Based on the nature of the Proposal)		
9.	The proponent should have functional laboratory to carryout R&D for the product development	Undertaking on Proponent's Letter Head, duly signed and stamped by the Authorized Signatory (As per format – 5)
10.	Capacity to produce at least …… kits (quantity) per month	Undertaking (As per format – 6)

NOTE- For MSMEs and Start-ups, Start-Up-India, Make-in-India and other relevant guidelines of Government of India shall be applicable

13. Disclaimer

i. ICMR shall not be responsible for any late receipt of applications for any reasons whatsoever.
ii. ICMR reserves the right to cancel the call for EoI without assigning any reasons thereof.
iii. ICMR may relax or waive any of the conditions stipulated in this document as deemed necessary in the best interest of the ICMR without assigning any reasons thereof.
iv. To include any other item in the Scope of work at any time after consultation with proponents or otherwise.
v. For International Clients, please note that EoI and other necessary correspondences shall be submitted in English only.

14. Arbitration

That any dispute and/ or any part of the dispute which couldn't be resolved through mutual consultation, the same shall be referred to the sole arbitrator as per the Arbitration & Conciliation Act, 1996 and any amendment thereafter. The Venue and Seat of the arbitration proceedings shall be New Delhi and the courts at New Delhi will have exclusive jurisdiction.

15. Contacts

In case of any clarification required, please contact:

For scientific issues-

Dr. Tejaswini M. Deshmukh, Scientist D, ICMR-National Institute of Virology, Pune
Email: deshtejas1972@gmail.com deshmukh.t@gov.in desh_tejas19@hotmail.com

Dr. Kavita S. Lole, Scientist G, ICMR-National Institute of Virology, Pune
Email: lolekavita37@yahoo.com; lole.k@gov.in

Format – 1

Expression of Interest

(To be submitted on Company's Letter Head)

To,

The Director General,
Indian Council of Medical Research,
Ansari Nagar, New Delhi.

Subject: Submission of Expression of Interest (EoI) for Transfer of Technology of **A Method for Developing a Rapid Immunochromatographic Assay for Identifying Hepatitis E Infection (ICMR-NIV HEV IgM Rapid Test)**.

Ref: ICMR/EoI/ /2023 dated

Sir,

The undersigned having read and examined in detail all the EoI documents pertaining to your transfer of technology, and do hereby express the interest to undertake the research & development/manufacture/sale/commercialization of the product as mentioned in the EoI document. The details of the Company and contact person are given below:

Name of the Proponent	
Address	
Name, designation & address of the person (to whom all communications shall be made)	
Telephone No. (with STD code)	
Mobile No. of the contact person	
Email ID of the contact person	

The following documents are enclosed:

Sl. No.	Documents required	Type of document attached	Page No.
1	Company Incorporation Certificate from ROC/Partnership deed etc.		
2	GST Registration or GST exemption certificate/PAN Card.		
3	DCGI/CDSCO license for the existing products		

	available in the market		
4	Certificate from the Chartered Accountant of the Organization/Audited Balance sheets for las three financial years, Income Tax return.		
5	Proof of a registered office and a manufacturing Unit in India. Including DSIR certificate		
6	GMP/GLC and ISO Certification. Registration copies of both		
7	Authorization Letter	As per format – 2	
8	Undertaking on the Letter Head of the Proponent duly signed & Stamped by Authorized Signatory	As per format – 3	
9	Undertaking on Proponent's Letter Head, duly signed and stamped by the Authorized Signatory	As per format – 4	
10	MSME Certificate (if have any)		
11	Business Plan	A brief concept note on planning & execution, production, marketing etc. (not more than 5 pages)	

I/we hereby declare that my/our EoI is made in good faith and the information contained is true and correct to the best of my/our knowledge and belief.

Thanking you,

Yours faithfully,

(Signature of the Authorized signatory)
Name:
Designation:
Seal:
Place:

Format – 2

Authorization Letter

(To be submitted on Company's Letter Head)

To,

The Director General,
Indian Council of Medical Research,
Ansari Nagar, New Delhi.

Subject: Letter for Authorized Signatory
Ref: EoI No. ICMR/EoI/ /2023 dated

Sir,

This has reference to your above-mentioned Expression of Interest (EoI) for Transfer of Technology of **A Method for Developing a Rapid Immunochromatographic Assay for Identifying Hepatitis E Infection (ICMR-NIV HEV IgM Rapid Test)**.

Mr./Ms./Mrs./Dr. is hereby authorized to submit the EoI documents and participate in the processing on behalf of M/s. (Company Name), who's signature is below.

(Specimen Signature of Representative)

Date:
Place:

Yours faithfully,

(Signature of the Authorized signatory)
Name:
Designation:
Seal:

Format – 3

Undertaking with regard to blacklisting

(To be submitted on Company's Letter Head)

To,

The Director General,
Indian Council of Medical Research,
Ansari Nagar, New Delhi.

Subject: Undertaking regarding Blacklisting/Non-Debarment.
Ref: ICMR/EoI/ /2023 dated

Sir,

It is hereby confirmed and declared that M/s. …….. (Company Name) currently has not been blacklisted/debarred by any Government Department/Public Sector Undertaking/or any other company for which works/assignments/services have been executed/undertaken.

Yours faithfully,

(Signature of the Authorized signatory)
Name:
Designation:
Seal:
Place:

Format – 4

Undertaking with regard to Non-Litigation

(To be submitted on Company's Letter Head)

To,

The Director General,
Indian Council of Medical Research,
Ansari Nagar, New Delhi.

Subject: Undertaking regarding Litigation.
Ref: ICMR/EoI/ /2023 dated

Sir,

It is hereby confirmed and declared that M/s. ……. (Company Name) and owner of the firm/board of directors, do not have any litigation/arbitration pending/under trial in court.

Yours faithfully,

(Signature of the Authorized signatory)
Name:
Designation:
Seal:
Place:

Format – 5

Undertaking with regard to laboratory facility

(To be submitted on Company's Letter Head)

To,

The Director General,
Indian Council of Medical Research,
Ansari Nagar, New Delhi.

Subject: Undertaking regarding laboratory infrastructure.
Ref: ICMR/EoI/ /2023 dated

Sir,

It is hereby confirmed and declared that M/s. …… (Company Name) do have

i. Adequate laboratory infrastructure (equipped laboratory facility). Please tick BSL-2/BSL-3/ABSL-3/GMP/GLP/ Other* (if other please specify) and

ii. Adequate no. of experienced staff/skilled manpower to undertake manufacture/research/commercialization of **"A Method for Developing a Rapid Immunochromatographic Assay for Identifying Hepatitis E Infection (ICMR-NIV HEV IgM Rapid Test)"**.

Yours faithfully,

(Signature of the Authorized signatory)
Name:
Designation:
Seal:
Place:

*The Laboratory/ facility requirement will depend on the technology/ Product

Format – 6

Undertaking with regard to production capacity

(To be submitted on Company's Letter Head)

To,

The Director General,
Indian Council of Medical Research,
Ansari Nagar, New Delhi.

Subject: Undertaking with regard to production capacity.
Ref: ICMR/EoI/ /2023 dated

Sir,

It is hereby confirmed and declared that M/s. ……. does have the capacity in all mean (including infrastructure, fund, material, staff etc.) for manufacturing of a lateral flow diagnostic assay, minimum 10,000 kits per month.

Yours faithfully,

(Signature of the Authorized signatory)
Name:
Designation:
Seal:
Place:

SCHEDULE – A

TECHNOLOGY DETAILS

i. **About the Technology/Product/Process:**

Technology/Process title- "A method for developing a rapid immunochromatographic assay for identifying hepatitis E infection (ICMR-NIV HEV IgM Rapid Test)"

Hepatitis E (HE) continues to be a significant public health problem endemic to India. Since its discovery in 1980, hepatitis E virus (HEV), cause of HE has been responsible for several water-borne epidemics of varying magnitudes. HEV is responsible for >50% of reported sporadic acute viral hepatitis (AVH) cases. HEV causes significant mortality (10-30%) in pregnant women. HEV is the major cause of acute hepatitis/liver failure in India. Given the frequency, magnitude, geographical extent of viral hepatitis outbreaks in India and differences in effective disease management based on virus specific mode of transmission (enteric vs. parenteral); rapid diagnosis appears mandatory. A simple rapid diagnosis enables effective management and prevention of viral diseases with epidemic potential more so in resource limited settings. Most AVH outbreaks are associated with HEV in India, but recent reports on non-HEV (HAV, HBV, HCV, non A to E) AVH outbreaks highlighted the importance of rapid differential diagnosis of the disease. Open reading frame 2 (ORF2) has been the major vaccine/diagnostics target. Several in house/commercial ELISA/Western blot/chromatographic immunoassays based on ORF2 (capsid, 660 a.a.) and/or 3 proteins/synthetic peptides are being used for HE diagnosis. Few commercial assays are available in rapid immunochromatographic strip format but are not easily available and cost-effective in India (Rapid tests from CTK Biotech, USA and MP Diagnostics, Singapore cost ~Rs. 2200 for 20 tests and ~Rs. 5040 for 20 tests, respectively). Earlier utility of ORF2 protein based ELISA in HE diagnosis was reported. To further simplify HE diagnosis especially under resource limited conditions, we have developed a lateral flow based point-of-care (POC) immunochromatogrphic strip test using ORF2 protein containing neutralizing epitope/s region (T1NEp, 458-607 a.a.) of genotype 1 HEV in IgM capture format. T1NEp was expressed in bacterial cells.

Rapid test to aid in diagnosis and surveillance of hepatitis E infection has been included in the WHO's 2023 Essential Diagnostics List released on October 19, 2023

ii. **Need and utility of the Technology from Public health perspective:**

ICMR-NIV HEV IgM Rapid Test is intended for the rapid qualitative detection of IgM antibodies to HEV in human serum or plasma. On many occasions, our institute is challenged with the tasks of investigating several known/unknown viral diseases including AVH outbreaks. ICMR-NIV HEV IgM Rapid Test will ease our task of outbreak investigation, particularly under resource limited conditions. The test can be effectively used for HE diagnosis in field/POC settings, primary health centers, small private clinics, bedside, small mobile clinics, under humanitarian emergencies, laboratories with least infrastructure/capacity under Viral Diagnostic Laboratory Network etc. and absorbed in national disease surveillance program like Integrated Disease Surveillance Program (IDSP).

iii. **Technology Readiness level (TRL)**

TRL-4

iv. **Validation Status and outcome:**

Validation of ICMR-NIV HEV IgM Rapid test was done in 2 external laboratories (ICMR-National AIDS Research Institute, Pune and Agharkar Research Institute, Pune) and 3 ICMR-NIV internal laboratories (Encephalitis Group, Dengue/Chikungunya Group, Polio Virus Group). All these laboratories were given 20 coded serum samples and ICMR-NIV HEV IgM Rapid Tests. An agreement of 95% and 100% were noted between the results obtained at 2 external laboratories, respectively. Agreement of 90%, 95% and 85% was noted in 3 of aforementioned internal laboratories, respectively. Preliminary stability performance of the strip test was carried out up to 14 weeks at 37°C, 25-30°C and 2-8°C temperatures.

v. **IP Filing Status/Publications:**

Patent application filed (App. No. 202011035352, PCT application no. PCT/IN2021/050758); National phase application in Uganda is in process.

Publication-

Deshmukh TM, Dudhmal MT, Thorat NC, Sarje PD, Walimbe AM, Lole KS. Application of a truncated ORF2 protein-based ELISA for diagnosis of hepatitis E in an endemic area. Appl Microbiol Biotechnol. 2022;106(24):8259-72. doi: 10.1007/s00253-022-12271-9, PMID: 36380192, Link: https://rdcu.be/cZLiv

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