Innovation & Translation Research (ITR) Unit

NITI Aayog

Medical Innovations PATENT mitra Patent and Technology Transfer Enabler

औषध विभाग Department of Pharmaceuticals

Department of Health Research
Ministry of Health and Family Welfare
Government of India

उद्योग संवर्धन और आंतरिक व्यापार विभाग
DEPARTMENT FOR PROMOTION OF INDUSTRY AND INTERNAL TRADE

ICMR Technologies available for Licensing under

Medical Innovations PATENT mitra Patent and Technology Transfer Enabler

Biolarvicide for Mosquito control

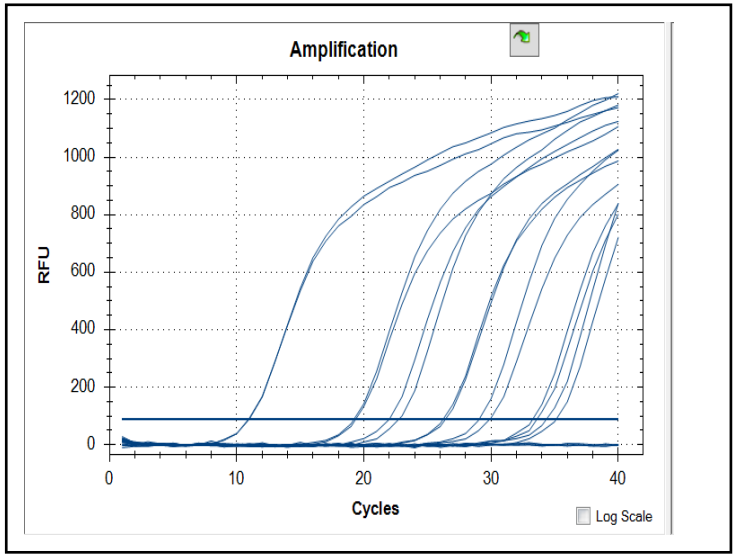
Advanced Stage Technology

Domain: Insecticide
Name of Institute: ICMR-Vector Control Research Centre (VCRC)
Name of the inventor(s): Dr. Daniel Reegan
Brief about Technology: Highly effective against larvae of Culex, Anopheles, and Aedes mosquitoes, while ensuring exceptional safety for aquatic non-target species, beneficial insects, and mammals **Intended Use:** Public Health Biolarvicide
USP: Eco-friendly cost-effective green product for use in mosquito control operations
Status: • Manufacturing License received • Approval received from Central Insecticide Board, Insecticide Registration Committee
Technology Transfer Status: Transferred to companies on Non-Exclusive basis
IP status: Indian Patent No. 222246 and 192055

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Nipah point of care assay

Advanced Stage Technology



Nipah point of care assay

Domain: Diagnostic Assay/Kit
Name of Institute: ICMR-National Institute of Virology
Name of Inventor(s): Dr. Pragya Yadav
Brief about Technology: The Nipah real-time probe-based assay is an RT-qPCR method that detects Nipah virus RNA with high sensitivity and specificity using fluorescent hydrolysis probes targeting viral N gene. It provides rapid results within a few hours, enabling early diagnosis during outbreaks. **Intended Use:** Enables rapid Nipah diagnosis, supporting timely patient care and containment of virus spread
USP: Rapid, highly sensitive and specific detection of Nipah viral RNA directly from clinical or field samples within 4 hours
Status: Manufacturing license received, Emergency use approval by CDSCO
Technology Transfer Status : Transferred to companies on Non-Exclusive basis

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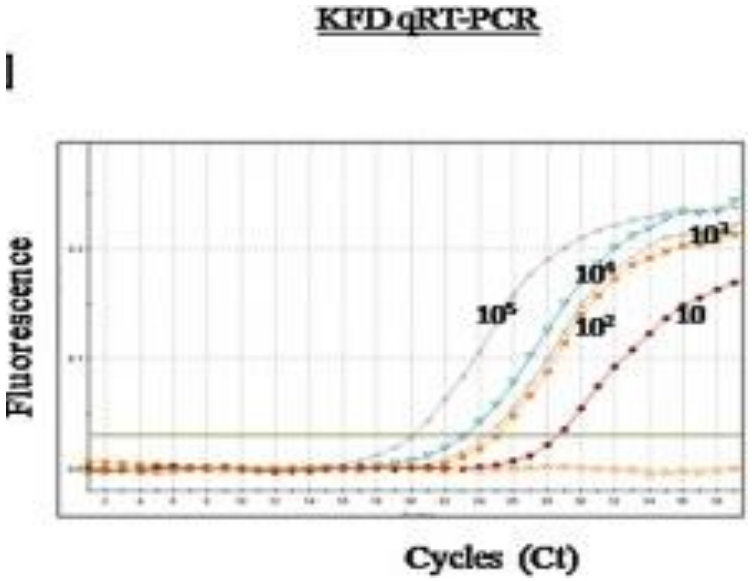
Kyasanur Forest Disease (KFD) Point of Care test

Advanced Stage Technology



Domain: Diagnostic Assay/Kit
Name of Institute: ICMR-National Institute of Virology
Name of Inventor(s): Dr. Pragya Yadav, Dr AM Shete
Brief about Technology: The Kyasanur Forest Disease (KFD) real-time RT-PCR assay is a probe-based molecular diagnostic tool used for rapid and specific detection of KFD virus RNA. It works by amplification using target-specific primers and fluorescent hydrolysis probes, directed at the NS5 gene region. **Intended Use:** Facilitate rapid KFD diagnosis, enabling timely patient care and effective containment.
USP: Rapid, highly sensitive, and specific detection of KFD virus RNA directly from clinical or field samples within 4 hours
Status: Assay validation completed
Technology Transfer Status : Transferred to companies on Non-Exclusive basis

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Single-tube multiplex RT-PCR for simultaneous detection of SARS-CoV-2, Influenza A, and B

Advanced Stage Technology

Domain: Diagnostic Assay/Kit
Name of ICMR Institute: ICMR-National Institute of Virology (NIV)
Name of the Inventor: Dr. Varsha Potdar, Mrs. Veena Vipat and Mrs Sheetal Jadhav
Brief about Technology: TaqMan based Real Time PCR, Single tube multi virus detection assay (Four plex) Intended Use: Accurate detection of SARS CoV 2 and its variants (Till date XFG), along with influenza A subtypes H1N1/pdm09 and H3N2, as well as influenza B lineages Yamagata and Victoria
USP: Extensively used nationwide under the pan-India ILI/SARI VRDL network since 2021. All 72 VRDLs are currently utilizing the kit
Current status: Manufacturing License pending, Approved by CDSCO
Technology Transfer Status : Transferred to companies on Non-Exclusive basis
IP status: Filed (Indian Patent Application Number-202211052927)

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Multiplex RT assay for simultaneous detection of Influenza A, Influenza B, RSV A/B, and SARS-CoV-2

Advanced Stage Technology

Domain: Diagnostic Assay/Kit
Name of ICMR Institute: ICMR-National Institute of Virology (NIV)
Name of the Inventor: Dr Varsha Potdar, Mrs. Veena Vipat and Mrs. Sheetal Jadhav
Brief about Technology: TaqMan based Real Time PCR , Single tube multi virus detection assay (five plex) **Intended Use:** Simultaneous detection of Influenza A,B,RSV and SARS CoV 2 in single assay
USP: Unlike commercial two-tube assays, the NIV assay offers single-tube, high-confidence detection of all five viruses—delivering accurate, cost-effective testing
Current Status: Test License received/Pilot Study/Pivotal Study
Technology Transfer Status : Transferred to companies on Non-Exclusive basis

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Japanese Encephalitis (JE) Antigen Capture ELISA

Advanced Stage Technology

Domain: Diagnostic Assay/Kit
Name of ICMR Institute: ICMR-National Institute of Virology (NIV)
Name of the Inventor: Dr. GN Sapkal, Dr. MM Gore, Dr. DT Mourya & Dr. PS Sathe
Brief about Technology: India's first indigenous JE antigen detection kit—cost-effective, sensitive, rapid, and user-friendly. Safe for BSL-2 labs and ideal for mosquito-based JEV surveillance to pinpoint high-risk regions **Intended Use:** The JE Antigen Capture ELISA is a serological assay enables qualitative detection of JE antigen in mosquitoes, supporting identification of high-risk outbreak zones
USP: No JE antigen capture ELISA kit is commercially available for the detection of the virus.
Current status: CDSO Manufacturing License received
Mode of Transfer (Exclusive/Non-exclusive) : Transferred to a company on Non-Exclusive basis

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Human Chandipura (CHPV) IgM ELISA

Advanced Stage Technology

Domain: Diagnostic Assay/Kit
Name of ICMR Institute: ICMR-National Institute of Virology (NIV)
Name of the Inventor: Dr. GN Sapkal & Dr. VP Bondre
Brief about Technology: CHPV causes high fatality in children; early detection via IgM antibodies is vital. The BSL-2 safe kit supports surveillance to identify high-risk regions. **Intended Use:** CHPV IgM Capture ELISA is intended for qualitative determination of IgM antibodies in serum / CSF of patients presenting clinical signs and symptoms consistent with CHPV encephalitis. The serological assay is designed for providing laboratory diagnosis of CHPV at sentinel hospitals and primary health centers
USP: First indigenous Human CHPV IgM ELISA kit which is cost effective, sensitive, rapid and user friendly.
Current status: Manufacturing License received
Mode of Transfer (Exclusive/Non-exclusive) : Transferred to a company on Non-Exclusive basis

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Anti-Measles IgM ELISA

Advanced Stage Technology

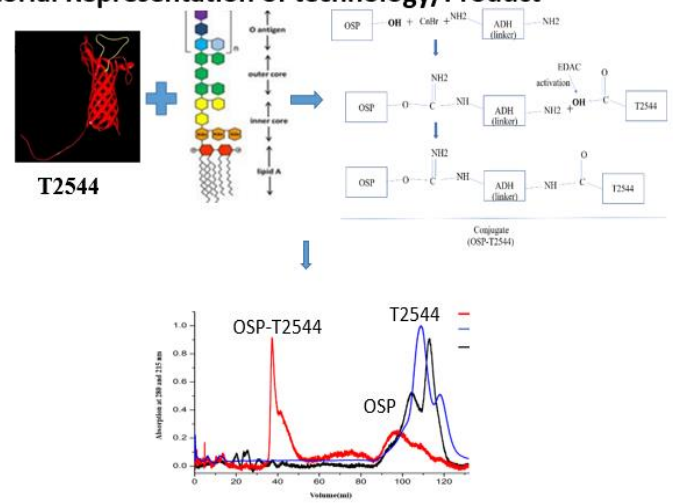
Domain: Diagnostic Assay/Kit
Name of ICMR Institute: ICMR-National Institute of Virology (NIV)
Name of the Inventor: Dr. GN Sapkal, S.R.Vaidya, D.T. Mourya
Brief about Technology: This ELISA uses the inactivated Measles antigen & will provide a qualitative determination of Measles specific IgM in human serum. Which can be used for early diagnosis of measles. **Intended Use:** The Anti-Measles IgM ELISA kit qualitatively detects Measles IgM antibodies in serum, aiding presumptive diagnosis during outbreaks and in clinical settings
USP: Indigenous kit, can be used for early diagnosis of Measles virus. The test is very user friendly ELISA kit which is cost effective, sensitive, rapid & user friendly.
Current status: Manufacturing License Received
Mode of Transfer (Exclusive/Non-exclusive) : Transferred to a company on Non-Exclusive basis

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Glycoconjugate vaccine composition against *Salmonella spp.*

Mid stage Technology

Pictorial Representation of technology/Product



Domain: Vaccine
Name of Institute: ICMR NIRBI
Name of the inventor(s): Dr. Santasabuj Das, Dr. Risha Haldar, Dr. Amlanjyoti Dhar, Dr. Suparna Chakraborty
Brief about Technology: A glycoconjugate vaccine (OSP-T2544) comprising of O-specific polysaccharide (OSP) from *Salmonella* Typhimurium and the conserved outer membrane protein (T2544) of *Salmonella* Typhi/ Paratyphi A that induces humoral and cellular immunity and protects against S. Typhi, S. Paratyphi A, S. Typhimurium and S. Enteritidis infections in mice **Intended Use:** Candidate vaccine against Typhoidal and non-Typhoidal *Salmonella*
USP: A multivalent conjugate vaccine which induces strong seroconversion, secretory intestinal IgA response, and lasting immunological memory, offering protection against key *Salmonella* strains – S. Typhi, S. Paratyphi A, S. Typhimurium and S. Enteritidis in mouse models.
Status: Proof of concept established through *in vitro* and *in vivo* experiments, functional prototype developed, technology transferred to industry
Technology Transfer Status: Transferred to a company on non-exclusive basis
IP Status: Filed (Indian Patent application number – 20231107021)

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Rapid LAMP Detection Assay for Mpox Virus

Mid stage Technology

Reaction	F3L-4	B6R-4	β-Actin	Observation	Inference
NTC				All the rubes showing -Ve results	Test is valid
Sample DNA A				F3L-4: +Ve B6R-4: +Ve β-Actin: +Ve	Positive for Orthopoxvirus and Monkeypox
Sample DNA B				F3L-4: -Ve B6R-4:+Ve β-Actin:+Ve	Positive for Orthopoxvirus and Negative for Monkeypox
Sample DNA C				F3L-4: -Ve B6R-4:-Ve β-Actin:+Ve	Negative for Orthopoxvirus and Monkeypox
Sample DNA D				F3L-4: +Ve B6R-4:-Ve β-Actin:+Ve	Inconclusive Repeat the test

Domain: Diagnostics (Assay/Kits)

Name of Institute: ICMR-National Institute of Virology

Name of the inventor(s): Shyam Sundar Nandi (PI), Sonali Sawant, Yadav Pragya, Shete-Aich Anita, Jagadish Deshpande

Brief about Technology: This assay can be used for diagnosis of Monkeypox, where quantitative detection is not necessary. The assay specifically detects two genes of Monkeypox virus (genus specific B6R gene and species specific F3L gene)
Intended Use: This assay can be used for diagnosis of Monkeypox, where quantitative detection is not necessary. The assay specifically detects two genes of Monkeypox virus (genus specific B6R gene and species specific F3L gene)

USP: Indigenous, simple and cost-effective Point of care technology can be used in the fields for detection of *Monkeypox* virus

Status: Pivotal Study and Test License received

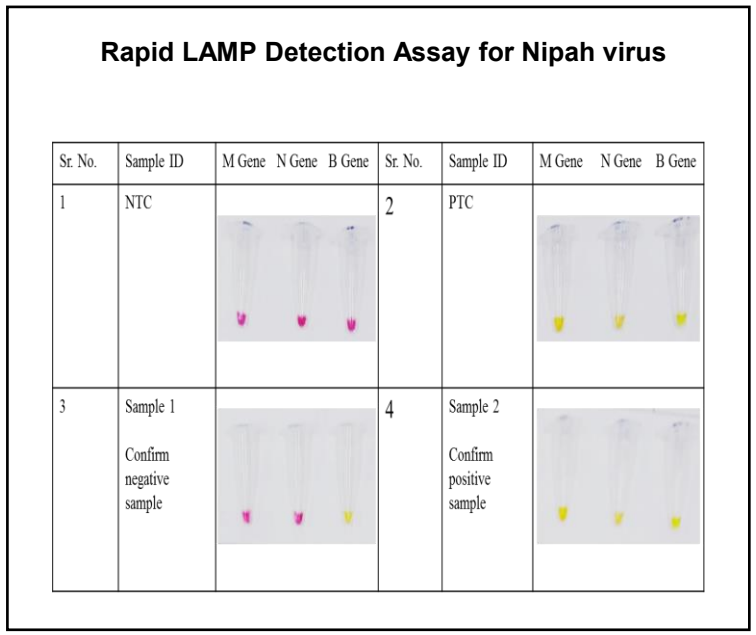
Technology Transfer Status: Transferred to companies on Non-Exclusive basis

IP Status: Filed (Indian Patent application number – 202211057074)

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Rapid LAMP Detection Assay for Nipah virus

Mid stage Technology



Domain: Diagnostics (Assay/Kits)
Name of Institute: ICMR-National Institute of Virology, Mumbai Unit
Name of the inventor(s): Shyam Sundar Nandi (PI), Sonali Sawant, Yadav Pragya, Shete-Aich Anita, Jagadish Deshpande
Brief about Technology: Indigenously developed loop mediated isothermal amplification (LAMP) assay specifically detects two genes of Nipah virus (N and M gene). The results are interpreted visually by observing the color change. Sophisticated reading instrument not needed **Intended Use:** The assay will be most preferred for diagnosis of Nipah virus infection where quantitative detection is not necessary
USP: Indigenous, simple and cost-effective Point of care technology can be used in the fields for detection of Nipah virus
Status: External validation at NIV, Pune
IP Status: Filed (Indian Patent application number – 202211066352)

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Anti-KFD Human IgM ELISA

Mid stage Technology

Domain: Diagnostic (Assay/Kit)
Name of Institute: ICMR-National Institute of Virology
Name of the inventor(s): Dr. Pragya Yadav, Dr. AM Shete & Dr. DT Mourya
Brief about Technology: The assay is based on capturing the IgM antibodies on a microtiter plate using anti-human-IgM antibody. Unbound material will be removed by washing. Formation of anti-IgM antibodies complex would be detected using KFD antigen, anti KFD biotinylated IgG and Avidin-Horseradish peroxidise (AV-HRP) system. **Intended Use:** For qualitative detection of anti KFD IgM antibodies in the serum of patients with suspected febrile illness & haemorrhages.
USP: Currently there is no diagnostic ELISA kit available for detection of anti-KFD IgM antibodies
Status: Test License received/ **Pilot** Study/Pivotal Study
Technology Transfer Status: Transferred to companies on Non-Exclusive basis

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Anti-CCHF Human IgM ELISA

Mid stage Technology

Domain: Diagnostic (Assay/Kit)
Name of Institute: ICMR-National Institute of Virology
Name of the inventor(s): Dr. Pragya Yadav, Dr. AM Shete and Dr. DT Mourya
Brief about Technology: This is the First indigenous anti-CCHF human IgM antibody detection kit which is cost effective, sensitive, rapid and user friendly. Kit uses gamma inactivated antigen, safe to handle in BSL-2 level laboratory for screening of human serum samples. **Intended Use:**The kit is intended for qualitative detection of anti CCHF IgM antibodies in human serum samples. It can be used at any level of clinical set up, public health centres
USP: The kit uses gamma inactivated antigen, safe to handle in BSL-2 level of laboratory for screening of human serum samples. The kit is cost effective, sensitive, rapid and user friendly
Status: Test License received, Batch validation for CDSCO approval
Technology Transfer Status: Transferred to companies on Non-Exclusive basis

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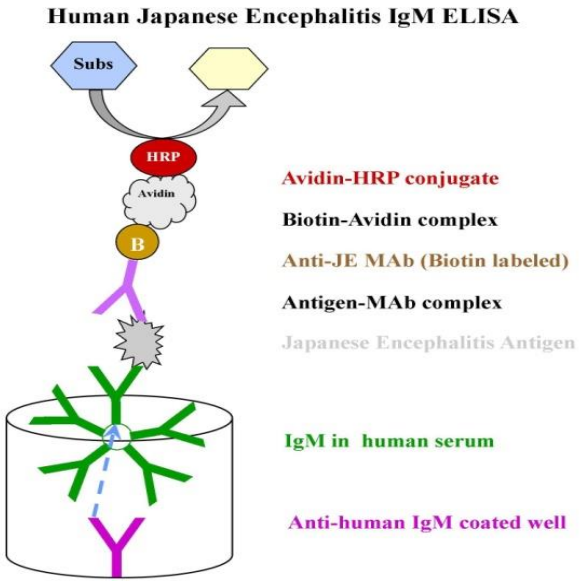
Diagnostic ELISA for detection of IgM antibodies against Japanese Encephalitis virus

Mid stage Technology



Domain: Diagnostic (Assay/Kit)
Name of Institute: ICMR-National Institute of Virology
Name of the inventor(s): Dr. Kanchankumar Patil & Dr. Deepti Parashar
Brief about Technology: IgM antibodies in the patient's serum/ CSF (if present) and IgM from Positive Control are captured by anti-human IgM (µ chain specific) coated on to the solid surface (wells). In the next step, JE antigen (inactivated JE virus) is added which binds to captured human JE specific IgM **Intended Use:** Japanese Encephalitis (JE) IgM capture ELISA developed by ICMR-NIV is intended for qualitative determination of JE virus specific IgM antibodies in serum/ CSF of patients presenting clinical signs and symptoms consistent with JE.
USP: Indigenous diagnostic test which is being currently used in National Vector Borne Disease control program and cost effective as compared to currently available commercial tests.

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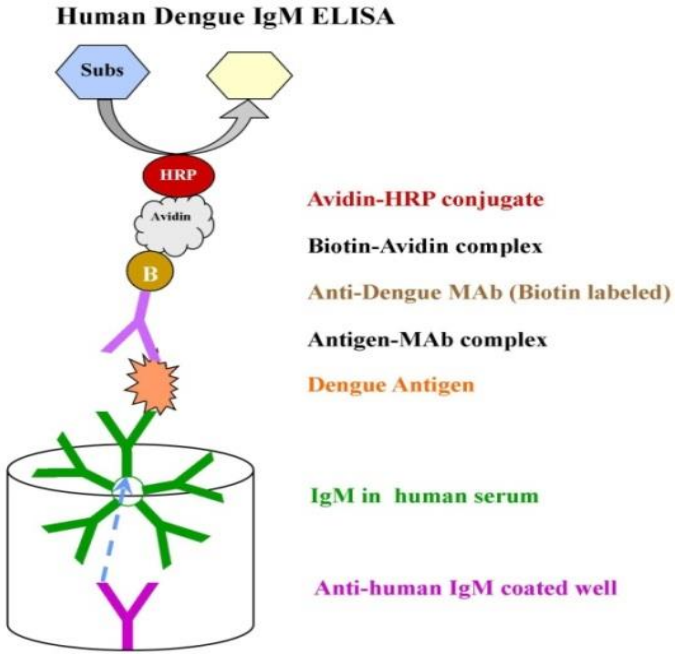
Diagnostic ELISA for detection of IgM antibodies against Dengue virus

Mid stage Technology

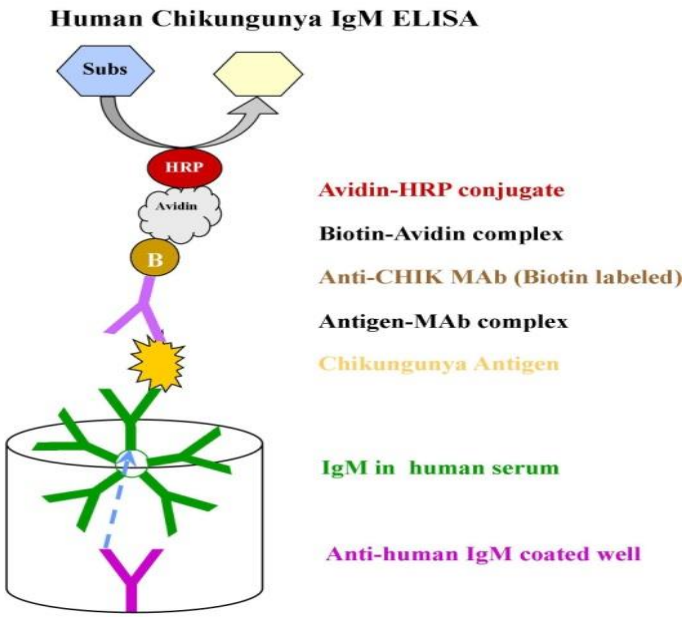


Domain: Diagnostic (Assay/Kit)
Name of Institute: ICMR-National Institute of Virology
Name of the inventor(s): Dr. Kanchankumar Patil & Dr. Deepti Parashar
Brief about Technology: IgM antibodies in the patient's serum (if present) and IgM from Positive Control are captured by anti-human IgM (μ chain specific) coated on to the solid surface (wells). In the next step, DEN antigen (inactivated dengue virus) is added which binds to captured human dengue specific IgM. **Intended Use:** Dengue IgM capture ELISA developed by ICMR-NIV is intended for qualitative determination of Dengue virus specific IgM antibodies in serum of patients presenting clinical signs and symptoms consistent with Dengue.
USP: Indigenous diagnostic test which is being currently used in National Vector Borne Disease control program and cost effective as compared to currently available commercial tests
Status: Internal validation done

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Diagnostic ELISA for detection of IgM antibodies against Chikungunya virus

Mid stage Technology

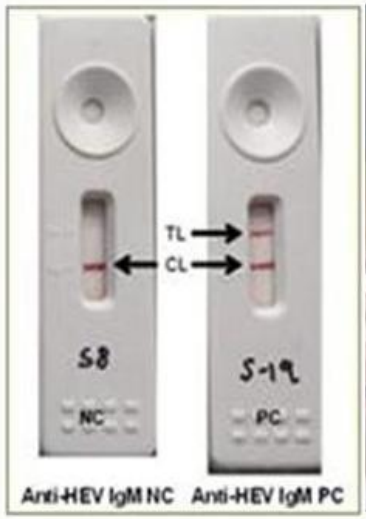


Domain: Diagnostic (Assay/Kit)
Name of Institute: ICMR-National Institute of Virology
Name of the inventor(s): Dr. Kanchankumar Patil & Dr. Deepti Parashar
Brief about Technology: IgM antibodies in the patient's serum (if present) and IgM from Positive Control are captured by anti-human IgM (µ chain specific) coated on to the solid surface (wells). In the next step, CHIK antigen (inactivated chikungunya virus) is added which binds to captured human chikungunya specific IgM **Intended Use:** CHIK IgM capture ELISA developed by ICMR-NIV is intended for qualitative determination of chikungunya virus specific IgM antibodies in serum of patients presenting clinical signs and symptoms consistent with chikungunya
USP: Indigenous diagnostic test which is currently being used in National Vector Borne Disease control program and cost-effective as compared to currently available commercial tests.
Status: Third party validation done

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

HEV IgM Rapid Test

Mid stage Technology



Domain: Diagnostic (Assay/Kit)
Name of Institute: ICMR-National Institute of Virology
Name of the inventor(s): Dr. Tejaswini Mahesh Deshmukh, Ms. Manisha Tukaram Dudhmal, Dr. Kavita Satish Lole
Brief about Technology: HEV IgM Rapid Test is an IgM capture solid-phase lateral-flow immunochromatographic assay. All IgM class Abs present in test sample will be captured by anti-human IgM Abs immobilized at Test Line (TL). Presence of HEV specific IgM Abs can be differentially detected by colloidal gold labeled anti-HEV MAbs complexed with recombinant HEV protein immobilized within the device & can be visualized as pink/purple lines after completion of the assay. **Intended Use:** The test enables effective hepatitis E diagnosis in low-resource, field, and point-of-care settings, including clinics, mobile units, and emergency or minimal-infrastructure labs.
USP: HEV IgM Rapid Test has been developed in IgM capture format & sensitively & specifically detects HEV infections. Its performance is comparable to laboratory based ELISAs (commercial & in-house). The test requires minimum 10µl serum/plasma sample & gives results within 15 min
Status: Third party validation done

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Shigella vaccine

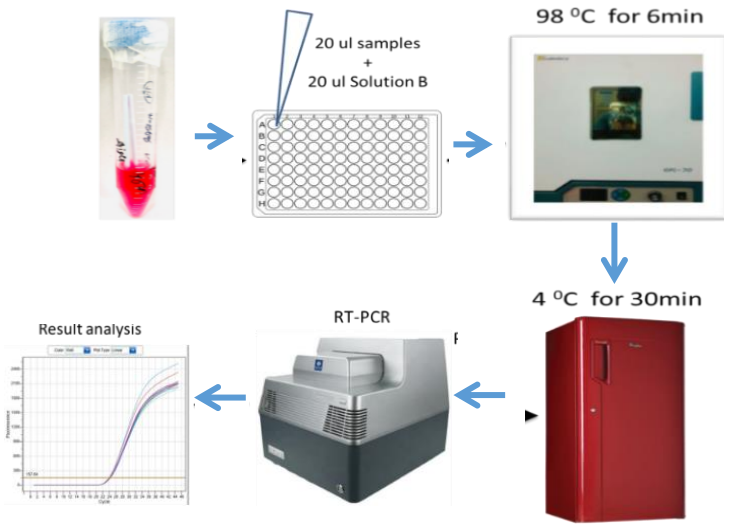
Mid stage Technology

Domain: Vaccine
Name of Institute: ICMR-National Institute for Research in Bacterial Infections (NIRBI)
Name of the inventor(s): Dr. Hemanta Koley Dr Soma Mitra, Dr Santa Sabuj Das, Dr Mk Chakrabarti
Brief about Technology: The vaccine is developed to reduce the burden of disease and mortality caused by enteric pathogen like Shigella. This vaccine has been designed for protection against Six Shigella strains (S.sonnei, S.dysenteriae i , S. Boydii, and S. flexneri 2a, 3a, and 6) **Intended Use:** For prevention of Shigella infections
USP: The vaccine is based Hexavalent strategy that can collectively provide the necessary broad spectrum protection needed to achieve a vaccine of global utility
Status: Third party validation complete
IP Status: Indian patent - IN 502420

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Method for preparation of sample for nucleic acid extraction free PCR

Mid stage Technology



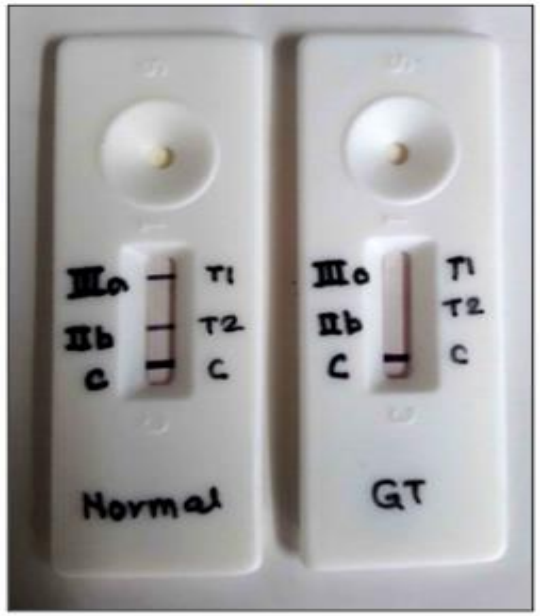
Domain: Diagnostic (Assay/Kit)
Name of Institute: ICMR-National Institute of Cancer Prevention and Research (NICPR)
Name of the inventor(s): Dr R Suresh Kumar, Dr Yashawardhan, Mr Ravi Shankar, Mr Babar Ali, Dr Shalini
Brief about Technology: The developed solution along with specific methodological processes like incubation at particular temperature and time period can help performing PCR from sample directly **Intended Use:** Real time PCR with out Nucleic acid extraction
USP: This is a rapid, extraction-free real-time PCR method using simple chemicals and incubation, ideal for liquid biopsies, with minimal time, consumables, and suitability for resource-limited settings
Status: Inhouse validation complete
IP Status: Filed (Indian Patent application number –202211041619)

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Rapid diagnostic POC for Glanzmann's thrombasthenia (GT)

Mid stage Technology

Pictorial Representation of technology/Product



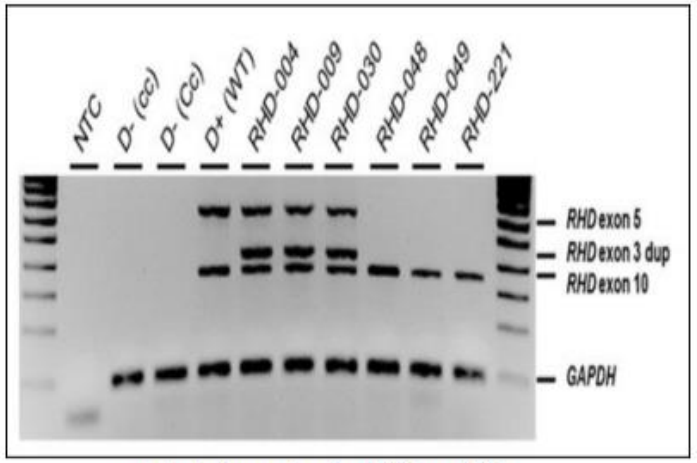
Domain: Diagnostic (Assay/Kit)
Name of Institute: ICMR - National Institute of Immunohematology (NIIH)
Name of the inventor(s): Dr. Shrimati Shetty & Dr. Tejasvita Gaikwad
Brief about Technology: For the first time, a point of care (POC) test has been successfully developed for detecting Glanzmann's thrombasthenia. This novel, rapid and simple test can be widely used for diagnosing GT cases without using a sophisticated flow cytometer or a platelet aggregometer . It is a lateral flow test strip. **Intended Use:** Detecting Glanzmann's thrombasthenia
USP: The kit is a a novel, specific, and sensitive strip-based point-of-care test for platelet function defects, offering rapid results within 20 minutes and enabling diagnosis of Glanzmann's Thrombasthenia (GT) even at PHC level, with a working cost of ₹120
Status: Internal and External validation completed
IP Status: Filed (Indian Patent application number -202211003648)

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Indian RhD genotyping assay

Mid stage Technology

Pictorial Representation



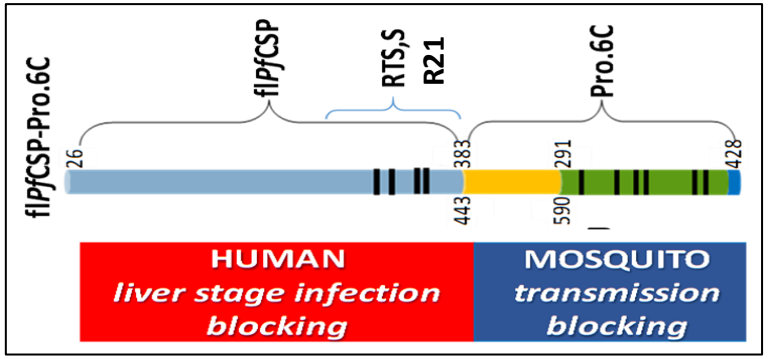
Gel photograph of multiplex PCR

Domain: Diagnostic (Assay/Kit)
Name of Institute: ICMR - National Institute of Immunohematology (NIIH)
Name of the inventor(s): Dr Swati Kulkarni, NIIH, Dr Yann Fichou, Establishment Francais Du Sang (EFS) Inserm, Brest (France)
Brief about Technology: The multiplex PCR assay determining RHD genotype and detecting most common weak D phenotype in Indian population. The method comprising detecting the presence of RHD exon 5 &10 along with duplication of exon 3 of the RHD gene from DNA sample. The presence of a duplication of exon 3 of the RHD gene in the DNA sample is indicative of a weak D type 150 phenotype. **Intended Use:** For identifying most common weak D variant in Indian population and confirming the RhD status of apparently RhD negative & D variants individuals
USP: This a Simple Multiplex PCR assay for RhD genotyping.This assay will help in identifying the most common weak D mutation in Indians i.e. Weak D type 150 (60-85%).
IP Status: Filed (Indian Patent application number –201917040421)

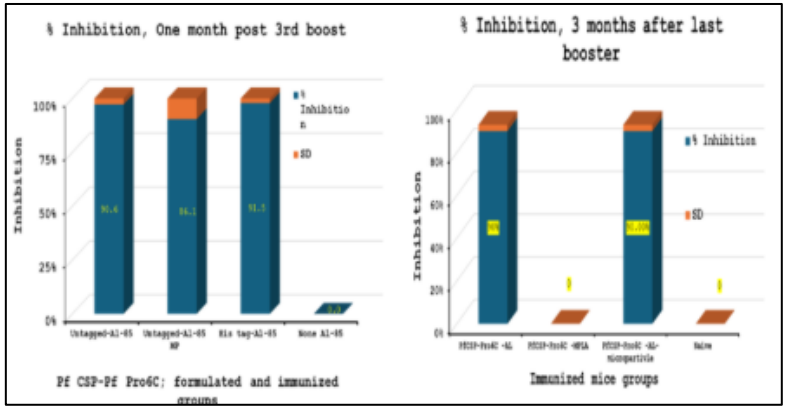
For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Chimeric recombinant multi-stage vaccine for preventing *Plasmodium falciparum* infection and its community transmission (AdFalciVac)

Mid stage Technology



Pre-clinical Investigation: Pharmaceutically acceptable product



Domain: Vaccine
Name of Institute: ICMR-RMRCBB
Name of the inventor(s): Dr. Susheel K Singh, Dr. Subhash Singh, Dr. Agam P Singh, Dr. Sanghamitra Pati
Brief about Technology: A recombinant multistage vaccine (AdFalciVac) against *P. falciparum*, produced in *Lactococcus lactis* and a pharmaceutically acceptable carrier for protection against infection in humans, as well as reducing the community transmission **Intended Use:** The vaccine has been developed to offer both protection against *Plasmodium falciparum* infection in humans and interruption of community transmission, unlike the existing two vaccines that can partially prevent infection in humans but cannot stop transmission in the community.
USP: Rational targeting of two most vulnerable stages of parasite (i.e. pre-erythrocytic stage and Sexual stage of malaria), Stable & functional chimera between antigens, Protection against both infection in humans and controlling vector-borne community transmission.
Status: Third party validation ongoing
IP Status: Filed (Indian Patent Application- 202411095679)

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Stool NAAT for Pediatric TB detection

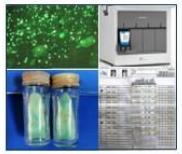
Mid stage Technology

Pictorial representation of the process

Pediatric patient unable to expectorate sputum

Stool sample collected from the child

Inhouse stool concentration and filtration protocol
(Decontamination and Bacilli enrichment)



1. Smear
2. Xpert testing
3. Culture
4. Line probe assay

Domain: Diagnostic (Assay/Kit)
Name of Institute: ICMR - National Institute for Research in Tuberculosis
Name of the inventor(s): Dr. Priya Rajendran
Brief overview of Technology: The technology involves a novel in-house stool concentration protocol optimized for pediatric samples, enabling the detection of *Mycobacterium tuberculosis* (MTB) and drug resistance markers through nucleic acid amplification tests (NAAT), Line Probe Assay (LPA), and Xpert Ultra, as well as phenotypic tests such as smear microscopy and culture methods. **Intended Use:** Detection of MTB and drug resistance in pediatric stool samples
USP: Non-invasive method of MTB detection and its drug resistance in pediatric stool samples using a standardized concentration method for molecular diagnostics.
Status: Pilot study completed and large-scale study ongoing

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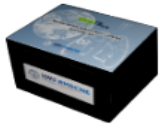
CRISPR-Cas based TB detection system

Mid stage Technology

Pictorial Representation of technology/ Product

RapidBact: DNA Extraction kit
(Patent Application No. 202511026919)



Glow-TB$_{PCR}$: PCR-CRISPR-Cas based detection kit
(Patent Application No. 202411043686)

RapidGlow: Incubation-cum-fluorescence detection device
(Patent Application No. 202411016083)

RGLOW: Data acquisition and result analysis software
(Copyright applied)

Domain: Diagnostic (Assay/Kit)
Name of Institute: ICMR -Regional Medical Research Centre, Dibrugarh (RMRCNE)
Name of the inventor(s): Dr. Md. Atique Ahmed
Brief about Technology: The system uses heat lysis and column-based DNA extraction (RapidBact), followed by multiplex PCR and CRISPR-Cas12a detection (Glow-TBPCR). Cas12a, guided by TB-specific gRNAs, triggers fluorescence upon target detection. The RapidGlow device enables incubation and real-time signal detection, supported by RGLOW software for automated analysis **Intended Use:** Diagnosis of tuberculosis
USP: Low-cost, rapid DNA extraction from 60 µl sputum; multiplex detection of 3 TB genes; ultra-sensitive (LOD ~1 copy/µl); portable, high-throughput, and cost-effective alternative to centralized diagnostics**.**
Technology Transfer Status: Transferred to a company on Non-Exclusive basis
IP Status: Filed (Indian Patent application number –202411016083, 202411043686, 202511026919)

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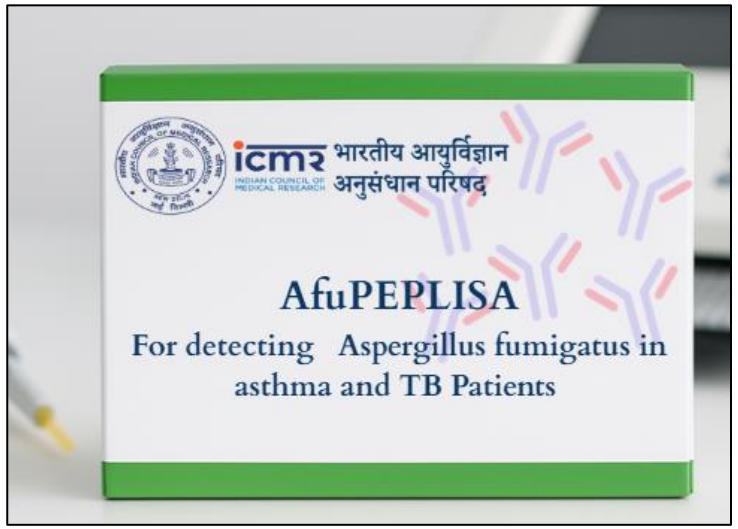
Immunodiagnostic kit for detecting Aspergillus fumigatus in asthma and TB Patients (AFuPEPLISA)

Mid stage Technology



Domain: Diagnostic (Assay/Kit)
Name of Institute: ICMR-National Institute for Research in Reproductive & Child Health (NIRRCH)
Name of the inventor(s): : Dr Taruna Madan Gupta
Brief about Technology: The AFuPEPLISA Immunodiagnostic Kit presents a strong market potential in the early detection of Aspergillus fumigatus among patients with bronchial asthma and pulmonary tuberculosis—conditions that are increasingly prevalent in developing regions. **Intended Use:** Detection of Aspergillus fumigatus in the sera of patients with bronchial asthma and pulmonary tuberculosis
USP: Aspergillus fumigatus complicates bronchial asthma and pulmonary tuberculosis, with elevated IgE and IgG levels aiding in serodiagnosis. Early detection is crucial to prevent bronchiectasis and fibrosis. Current diagnostic tests like ImmunoCAP, Immulite 2000, and Platellia Aspergillus IgG ELISA show variable sensitivity due to differences in antigen quality, assay matrices, and immobilization methods, leading to inconsistent results across platforms
Status: GMP finalized, third party validation complete
IP status: Filed (Indian patent application- 202411008706)

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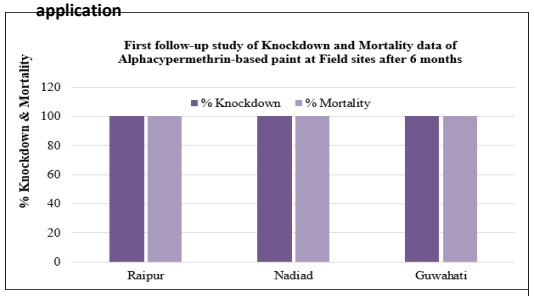
Nano-emulsion based insecticidal paint

Mid stage Technology

The efficacy of Nano encapsulated paint is persisting for more than two years in laboratory in house condition after application



The efficacy of Nano encapsulated paint is applied to the fields areas in Raipur Nadiad and Guwahati. The paint was effective and 100% mortality of mosquitoes observed after 6 months study continued

Domain: Insecticide
Name of Institute: ICMR-National Institute of Malaria Research (NIMR)
Name of the inventor(s): Dr Himmat Singh
Brief about Technology: Slow releasing insecticidal paint using Nanoencapsulation technique **Intended Use:** Insecticide
USP: This is targeted application, has long-lasting protection, reduced environmental impact, ease of application, wide area application and cost effective
Status: In house validation complete
IP Status: Filed (Indian patent application- 202411054306)

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Diagnostic Assay kit for common enteric viruses

Mid stage Technology

Domain: Diagnostic (Assay/Kit)
Name of Institute: ICMR-National Institute for Research in Bacterial Infections (NIRBI)
Name of the inventor(s): Dr Mamta Chawla-Sarkar, Dr. Santasabuj Das
Brief about Technology: A multiplex, 2-tube Real-time qRT-PCR assay (Taqman-based assay) **Intended Use:** The kit allows multiple enteric viruses causing childhood gastroenteritis by Real Time PCR
USP: Single kit for detection of multiple enteric viruses
Status: Third party validation complete
Technology Transfer Status: Transferred to a company on non-exclusive basis

For Licensing Opportunity, Contact: patentmitra.hq@icmr.gov.in

Single tube multiplex method for simultaneous detection of Influenza A,B,C and D viruses

Early stage Technology

Domain: Diagnostics (Assay/kits)
Name of Institute: ICMR-National Institute of Virology (NIV)
Name of the inventor(s): Dr Varsha Potdar , Mrds Veena Vipat and Mrs Sheetal Jadhav
Brief about Technology: TaqMan based Real Time PCR, Single tube influenza multi virus detection assay (Four plex) Intended Use: Accurate detection of diverse Influenza types which may have zoonotic potential in single tube assay . **Intended Use: S**imultaneous detection of Influenza A, B, C, and D to identify zoonotic infections and track animal-to-human spillover event
USP: This will be unique product useful for One health approach
Status: In-house validation complete
Technology Transfer Status: Not Transferred

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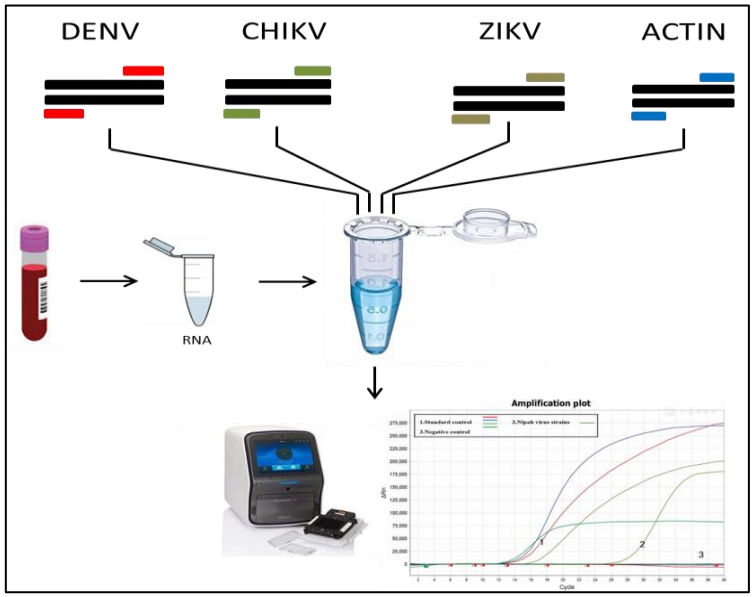
Single tube multiplex real-time RT-PCR method for simultaneous detection of Dengue, Chikungunya and Zika viruses

Early stage Technology



Real-time RT-PCR method

Domain: Diagnostic kits/Assay
Name of Institute: ICMR-National Institute of Virology
Name of the inventor(s): Dr. Alagarasu Kalichamy, Dr. Deepti Parashar, Mr. Mahadeo Kakade, Dr. Gajanan Sapkal, Dr. Anukumar, Dr. Ashok M
Brief about Technology: Customized primers and probes with actin control to ensure RNA integrity and precise amplification. Optimized multiplex setup enables rapid, sensitive detection of co-circulating arboviruses with minimal reagent usage **Intended Use:** Simultaneous Detection of DENV, CHIKV, and ZIKV in a Single-Tube Multiplex RT-PCR Assay in clinical samples
USP: Multiplex assay with a stably expressing endogenous internal control in a single reaction
Status: In-house validation complete with sensitivity of 96.1% for dengue, 97.2% for chikungunya and specificity of 100% for all three viruses. Concurrent results in QCMD panel for Zika

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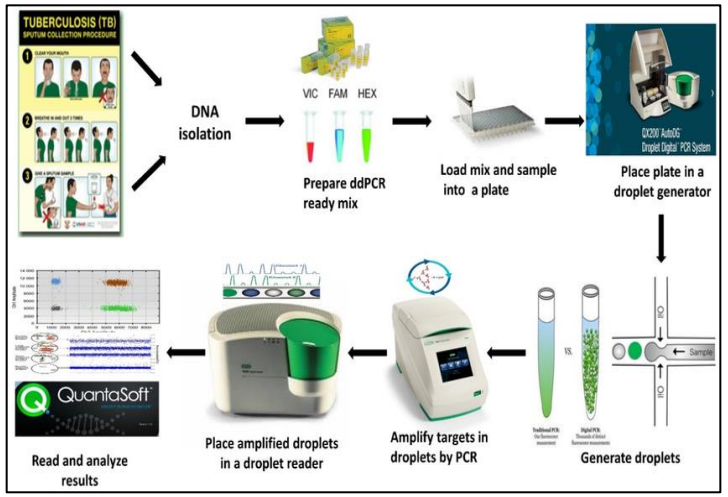
Detection of *Mycobacterium* tuberculosis-derived circulating cell-free DNA (ccfDNA) in plasma for early TB diagnosis

Early stage Technology



Domain: Diagnostic kits/Assay
Name of Institute: ICMR-National Institute for Research in Tuberculosis (NIRT)
Name of the inventor(s): Dr. Luke Elizabeth Hanna, Mr. Manohar Nesakumar, Ms. Evangeline Ann Daniel
Brief about Technology: Optimized dual target droplet digital PCR assay **Intended Use:** Early diagnosis of Extrapulmonary TB, Asymptomatic/subclinical TB, Symptomatic clinically diagnosed/possible TB, Individuals at high risk of developing TB
USP: This ultrasensitive, highly specific plasma-based test detects tuberculosis across its full spectrum, even in diagnostically challenging cases.
Status: In-house validation complete

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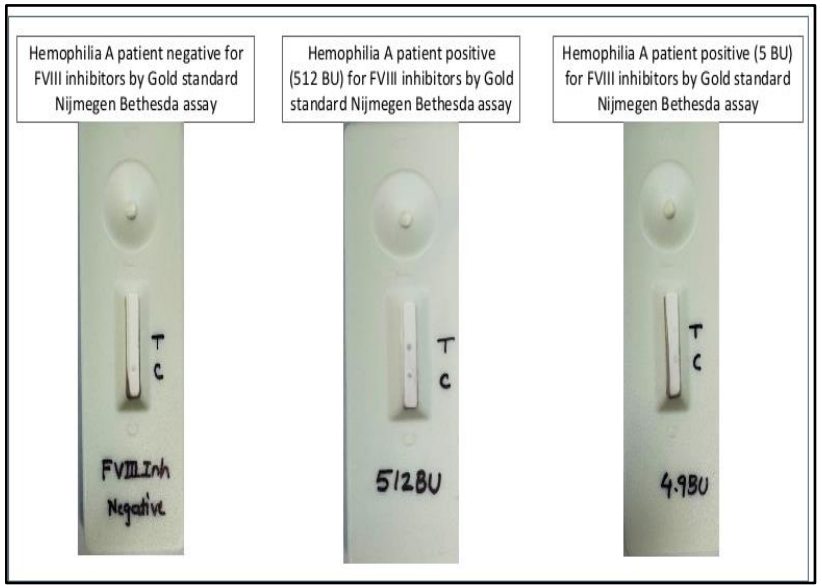
Factor VIII inhibitor Point of care test

Early stage Technology



Factor VIII inhibitor Point of care test kit

Domain: Diagnostics (Assay/kits)
Name of Institute: ICMR- National Institute of Immunohaematology (NIIH)
Name of the inventor(s): Dr. Rucha Patil, Sharda Shanbhag, Sweta Kaskar, Moni Singh
Brief about Technology: The technology utilizes gold nanoparticles conjugated with Factor VIII antigen to specifically detect FVIII inhibitors in plasma **Intended Use:** To detect FVIII inhibitors in hemophilia A patients
USP: It is a first-of-its-kind LFIA uses gold nanoparticles to rapidly detect FVIII inhibitors in plasma within 20 minutes, requiring minimal equipment and no technical expertise. Cost-effective (~₹100), user-friendly, and compatible with Emicizumab therapy, it outperforms conventional assays in speed, accessibility, and affordability
Status: Completed and internal validation performed with >90% sensitivity and specificity for > 5BU (high titer inhibitors)
IP status: Filed (Indian Patent application number- 202511083527)

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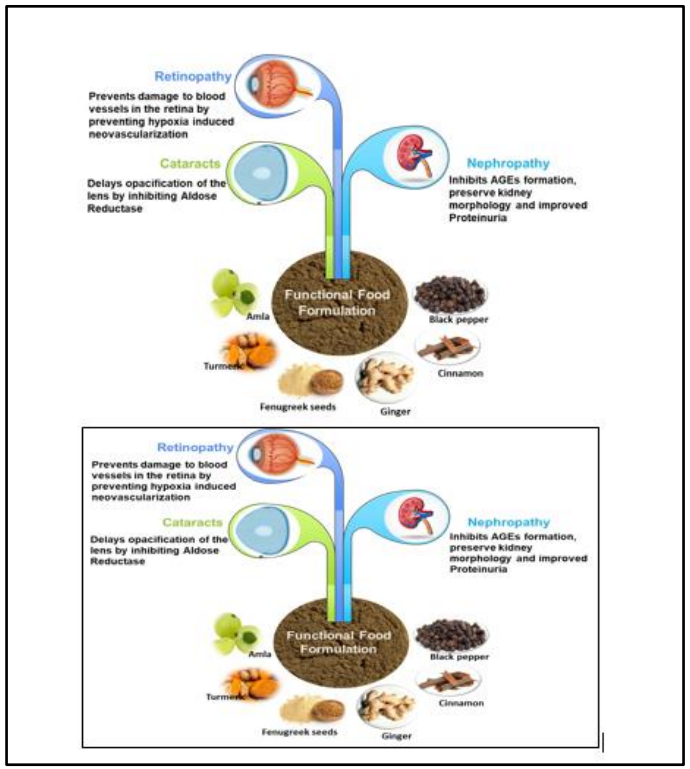
Prophylactic composition for diabetes-associated complications

Early stage Technology



Domain: Functional Food
Name of Institute: ICMR-National Institute of Nutrition (NIN)
Name of the inventor(s): GB Reddy, SS Reddy, KK Kalahasti, S Pandarinath, M Nagaraju
Brief about Technology: The invention relates to two functional food compositions aimed at preventing diabetes/hyperglycemia-associated complications: cataract, retinopathy, and nephropathy. **Intended Use:** A molecular target-based functional food composition for ameliorating diabetes/ hyperglycemia associated complications
USP: This product has demonstrated preventive and therapeutic efficacy against diabetes and its complications in preclinical studies.
Status: In-house validation complete

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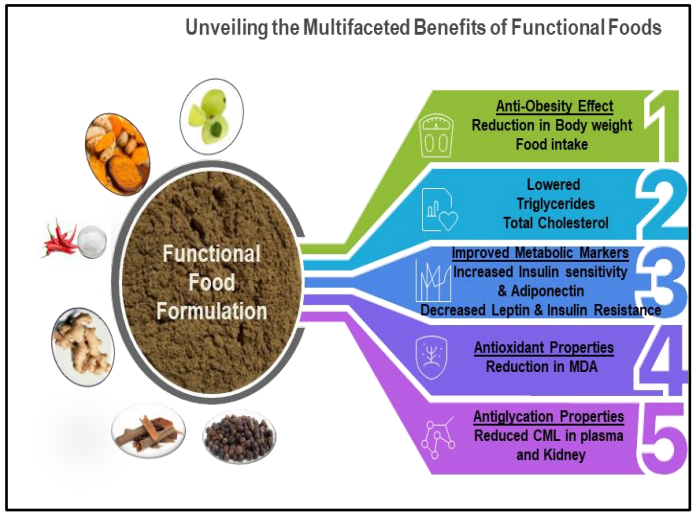
Anti-obesogenic functional food and method of preparation thereof

Early stage Technology



Domain: Functional food
Name of Institute: ICMR-National Institute of Nutrition (NIN)
Name of the inventor(s): GB Reddy, SS Reddy, KK Kalahasti, S Pandarinath
Brief about Technology: The anti-obesogenic functional food due to its anti-inflammatory, antiglycation, AR inhibition, antioxidant, and immunomodulatory properties with no side effects provides a sustainable solution to managing obesity and improving the outcomes of obesity-related complications. It is cost-effective, contains easily available and regularly consumed dietary agents **Intended Use:** A molecular target-based functional food composition for the management of obesity and associated complications
USP: This anti-obesogenic functional food is made of commonly consumed and affordable dietary ingredients, offers a safe, multi-targeted approach to sustainably manage obesity and its related complications through anti-inflammatory, anti-glycation, AR inhibitory, anti- oxidant, and immunomodulatory effects
Status: Preclinical studies complete
IP Status: Filed (Indian patent Application - 202411045411)

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Light-responsive in situ hydrogel for intraocular drug delivery

Early stage Technology

Domain: Therapeutics
Name of Institute: Department of Pharmacy, Birla Institute of Technology and Sciences (BITS), Hyderabad Campus
Name of the inventor(s): Prof. Nirmal Jayabalan, Sai Shreya Cheruvu
Brief about Technology: This technology involves a UV-triggered intravitreal gel depot designed for sustained drug release, minimizing injection frequency in chorioretinal conditions and providing a promising alternative for patients unresponsive to anti-VEGF therapy **Intended Use:** Spironolactone-loaded, long-acting, light-responsive in situ hydrogel: a novel therapy beyond anti-VEGF for treating diabetic retinopathy.
USP: The technology enables up to 90 days of sustained drug release with enhanced biocompatibility, reducing injection frequency and improving safety and patient adherence.
Status: Preclinical studies completed

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Natamycin loaded peptide conjugated nanomicelles (PeNatcel)

Early stage Technology

Domain: Therapeutics
Name of Institute: Department of Pharmacy, Birla Institute of Technology and Sciences (BITS), Hyderabad Campus; Shantilal Shanghvi Cornea Institute, KAR Campus, LV Prasad Eye Institute, Hyderabad
Name of the inventor(s): Prof. Nirmal Jayabalan, Priyadarshini Sathe, Dr. Prashant Garg
Brief about Technology: This innovation encapsulates natamycin, a poorly water-soluble antifungal, into peptide-transporter-targeted nanomicelles. The design significantly enhances the solubility, corneal permeation, and bioavailability, thus delivering superior therapeutic outcomes **Intended Use:** Topical eye drop for treating fungal keratitis that achieves bioavailability with lower drug doses and fewer instillations, leading to higher patient compliance and faster recovery
USP: With a reduced dose (0.6%) and dosing frequency (4×/day), the formulation achieves 13× higher transcorneal permeation and 2× longer pre-corneal residence, enhancing patient compliance
Status: Preclinical studies completed

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Your vaccine development journey starts here – Pathogen isolates available for material transfer

Name of the Pathogen	Targeted Disease
SARS-Cov2	COVID
Influenza A virus (H1N1 and H3N2)	Influenza
Influenza B virus	Influenza
Measles virus (Morbillivirus)	Measles
Mumps virus	Mumps
Nipah virus	Nipah virus infection
Rubella virus	Rubella
Zika virus	Zika virus infection
Crimean-Congo haemorrhagic fever (CCHF) virus	Crimean-Congo haemorrhagic fever
Chandipura Virus	Acute encephalitis syndrome (AES)

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Patents Available For Commercialization from the ICMR portfolio

ICMR has portfolio of **55 publications** available for licensing, which includes **45 patents** and **10 pending applications**. These are organized across **five key technology areas:**
Therapeutics: We have 16 patents/patent applications in this category. This is our largest area of focus, reflecting our commitment to advanced treatment solutions.
Diagnostics: We have 12 patents/patent applications in this category, showcasing our tools for precision healthcare.
Devices: We have 6 patents/patent applications in this category for targeted opportunities in medical devices.
Vaccines: We have 3 patents/patent applications in this category which are focused on immunization.
Miscellaneous: We have 18 patents/patent applications in this category showcasing a diverse range of versatile technologies.

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