Medical Innovations PATENT mitra
Patent and Technology Transfer Enabler

I2I CONNECT
INNOVATORS-TO-INDUSTRY CONNECT

Government of India
Department of Health Research

MEDICAL INNOVATIONS PATENT MITRA INNOVATORS-TO-INDUSTRY CONNECT

HealthTech संकलन

A Compendium of leading Biomedical Innovations of India

2026

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प्रतापराव जाधव
PRATAPRAO JADHAV

राज्य मंत्री (स्वतंत्र प्रभार)
आयुष मंत्रालय
व
राज्य मंत्री
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
भारत सरकार
MINISTER OF STATE
(INDEPENDENT CHARGE) OF
MINISTRY OF AYUSH AND
MINISTER OF STATE OF
MINISTRY OF HEALTH & FAMILY WELFARE
GOVERNMENT OF INDIA

FOREWORD

India today stands at a transformative juncture in healthcare innovation, driven by the vision of Atmanirbhar Bharat and strengthened by our nation's scientific capabilities, innovation ecosystem, and commitment to equitable healthcare access.

The Indian Council of Medical Research (ICMR), the apex body in India for the formulation, coordination and promotion of biomedical research, established in 1911, is one of the oldest medical research bodies in the world. ICMR has been actively fostering biomedical innovation through translational research, technology development, validation, and strategic partnerships aimed at addressing national healthcare priorities. The DHR aims to bring modern health technologies to the people through research and innovations related to diagnosis, treatment methods and vaccines and to translate them into products and processes for introducing these innovations into public health system.

This Compendium of Technologies in the biomedical sector compiled by ICMR brings together a wide spectrum of innovations spanning diagnostics, medical devices, therapeutics, vaccines, biomaterials, viral and bacterial isolates, and other healthcare technologies available for translation and collaborative development. These technologies reflect the collective efforts of researchers, clinicians, innovators, and public health experts working towards strengthening India's healthcare preparedness and advancing translational research for societal benefit. The compilation serves not only as a repository of scientific achievements but also as a platform to promote partnerships among academia, industry, start-ups, manufacturers, and healthcare stakeholders for technology transfer, commercialization, and wider public health impact. I am confident that such collaborations will accelerate the development of affordable indigenous solutions and contribute significantly towards strengthening healthcare delivery systems in the country.

Government of India under the visionary leadership of Hon'ble Prime Minister Shri Narendra Modi ji and able guidance of Hon'ble Union Minister of Health and Family Welfare, Shri Jagat Prakash Nadda ji, is committed to ensure the safety and well-being of citizens in India.

I commend ICMR and all contributing scientists and institutions for their dedicated efforts in developing these technologies and compiling them into this valuable resource. I hope this compendium will inspire innovation, facilitate meaningful collaborations, and support the translation of research into impactful healthcare solutions for India and beyond. I extend my best wishes for the success of this important initiative.

(Prataprao Jadhav)

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सत्यमेव जयते

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DR. RAJIV BAHL MD, PhD

सचिव, भारत सरकार
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भारतीय आयुर्विज्ञान अनुसंधान परिषद
Secretary, Government of India
Department of Health Research
Ministry of Health & Family Welfare
Director-General
Indian Council of Medical Research

FOREWORD

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I extend my best wishes for the success of this important initiative.

Rajiv Bahl

(Rajiv Bahl)

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ABOUT DHR & ICMR

The Department of Health Research (DHR) was created as a separate Department under the Ministry of Health & Family Welfare in 2007. The DHR aims to bring modern health technologies to the people through research and innovations related to diagnosis, treatment methods, therapeutics and vaccines for prevention; to translate them into products and processes and, in synergy with concerned organizations, introduce these innovations into the public health system. DHR also has the mandate of promoting inter-sectoral coordination and promotion of public-private partnership in medical, biomedical and health research-related areas.

The Indian Council of Medical Research (ICMR), is an autonomous organization under the DHR for the planning, promoting, coordinating and conducting biomedical research in India. The objectives of ICMR are in consonance with the National Health policy and aim towards improving the health of the people of India through biomedical research. ICMR, established in 1911, is one of the oldest medical research organizations in the world, with a broad mandate to generate new knowledge through the conduct and support of biomedical research in all areas that would have a bearing on improving the health of Indian people. The Council carries out its mandate through its network of institutes/centres, extramural research support to investigators at various institutes and medical colleges in India, and through active international collaborations. ICMR has been actively fostering biomedical innovation through translational research, technology development, validation, and strategic partnerships aimed at addressing national healthcare priorities.

The Innovation and Translation Research (ITR) Unit under ICMR serves as a strategic enabler for advancing innovation-driven healthcare technology development and supporting the vision of self-reliance in medical technologies. Through the Medical Innovations Patent Mitra initiative, the ICMR-ITR Unit aims to build a robust and dynamic ecosystem that promotes innovation in biomedical research by providing comprehensive Patent and Technology Transfer (TT) support to innovators across the innovation lifecycle. The initiative seeks to translate innovative biomedical research into practical healthcare solutions that drive meaningful advancements in public health across India, while providing comprehensive support to researchers, start-ups, and innovators. Through the MedTech Mitra initiative, ICMR provides strategic handholding support to MedTech innovators for clinical evaluation, regulatory facilitation, and the uptake of new products and technologies. The ICMR-ITR Unit also undertakes targeted capacity-building programmes to equip innovators with the knowledge required to navigate complex innovation pathways. Through initiatives such as Innovator-to-Industry (I2I) Connect, the ICMR-ITR unit fosters collaboration among innovators, industry, investors, and policymakers, accelerating the adoption of new technologies and strengthening India's position as a global hub for affordable, accessible, and impactful healthcare solutions.

About Medical Innovations Patent Mitra

Launched on March 8th, 2025 by the Hon'ble Health Minister Shri J.P. Nadda, Medical Innovations Patent Mitra is a flagship initiative led by ICMR, under the guidance of NITI Aayog, in partnership with the Department of Pharmaceuticals (DoP) and supported by the Department for Promotion of Industry and Internal Trade (DPIIT) to strengthen India's medical innovation ecosystem by simplifying patenting and enabling commercialization. It offers a no-cost, open-access platform supporting startups, clinicians, researchers, and biomedical innovators with end-to-end IP assistance, including prior art support, patent filing facilitation, legal facilitation, and strategic advisory.

A key pillar of the initiative is Technology Transfer (TT), which bridges the gap between innovation and impact by enabling the translation of research into real-world healthcare solutions through industry linkages, licensing, and commercialization pathways. By streamlining IP processes and removing cost barriers, it fosters a more accessible and innovation-friendly ecosystem, strengthening India's position in med-tech and healthcare innovation.

The Medical Innovations Patent Mitra Compendium serves as a curated repository of over 100 cutting-edge healthcare technologies developed by a vibrant community of innovators, addressing critical needs across the healthcare spectrum. The compendium spans diverse domains including diagnostics, medical devices, therapeutics, vaccines, and emerging areas such as advanced biomaterials and microbial innovations. It acts as a strategic interface for industry stakeholders, enabling them to explore validated innovations for collaboration, licensing, and commercialization, thereby facilitating faster translation of research into scalable healthcare solutions and strengthening industry–academia–government partnerships

TABLE OF CONTENTS

DIAGNOSTICS

Domain: Diagnostics

Name of the Institute: National Institute of Virology, Mumbai

LAMP Assay for Detection of Monkeypox virus

Overview

The technology discloses a loop-mediated isothermal amplification (LAMP) for rapid and low-cost detection of Monkeypox virus. According to the WHO requirement, the diagnosis of the Monkeypox requires detection of an Orthopoxvirus genus specific gene and confirmation based on Monkeypox virus specific genes. The assay targeted the genus specific B6R (Envelope protein) gene and species specific F3L (F3 protein which an enzyme double-strand RNA-binding domain) gene of Monkeypox virus.

Key Features

- The assay can be run with a single heating apparatus set to 65 ± 10ºC. The assay only takes 40 minutes to complete.
- No further complex tools are needed to interpret the results; they may be grasped visually.
- This assay can be completed without the need for a highly skilled technical person, and it is also cost-effective technology.
- Comparing the LAMP assay with the Real Time PCR, the overall diagnostic sensitivity and specificity are 100% and 100%, respectively.

USP of the technology

- By application of the LAMP, the demerits of real-time RT-PCR such as long detection period, complex operation, and sophisticated instrument requirement have been overcome.
- When quantitative detection is not required, the assay will be the method of choice for detecting the monkeypox virus and distinguishing it from other Orthopoxviruses.
- Reduce turn-around time for reporting results; hence prime significance for preventing and controlling the spread of Monkeypox virus.
- This assay will increase the Primary Health Center's testing capability or lower-level laboratories.

Implementation Review

IP Status Details

IN202211057074

TRL Status

TRL-6

Technology Transfer Status

Transferred to three companies:
SmartQr technologies Pvt. Ltd., Pune,
Acrannolife Genomics Pvt. Ltd., Chennai
J Mitra Pvt. Ltd-New Delhi

Inventor Details

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Domain: Diagnostics

Name of the Institute: National Institute of Virology, Mumbai

RT-LAMP Assay for Detection of Nipah virus

Overview

The assay is based on a reverse transcription loop-mediatedisothermal amplification (RT-LAMP) for the detection of Nipah virus. The assay specifically detects two genes of Nipah virus -N and Mgene. It is an isothermal amplification method which does not require a thermal cycler as in case of real-time PCR. The assay can be performed using a single temperature heating device (62 ± 10° C) and the time required for the assay is only 40 minutes

Key Features

- A novel and Indigenous RT-LAMP assay for detection of Nipah virus.
- The results can be interpreted visually form color change form pink to yellow.
- The overall diagnostic sensitivity and specificity is 100% and 100%,respectively, as compared to the gold standard rRT-PCR.
- This molecular assay is applicable for sensitive and specific detection of Nipah virus where quantitative detection is not necessary.

USP of the technology

- Technically less demanding, require minimum equipment
- The assay only takes 40 minutes to complete and no need for a highly skilled technical person.
- Reduce turn-around time for reporting results.
- This assay will increase the Primary Health Center's testing capability or lower-level laboratories.
- Indigenous, simple and cost-effective Point of care technology can be used in the fields for detection of Nipah virus.

Implementation Review

IP Status Details

IN202211066352

TRL Status

TRL-6

Technology Transfer Status

Transferred to three companies:
SmartQr technologies Pvt. Ltd., Pune,
Acrannolife Genomics Pvt. Ltd., Chennai
J Mitra Pvt. Ltd-New Delhi

Inventor Details

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Domain: Diagnostics

Name of the Institute: ICMR - National Institute of Virology, Pune

Diagnostic ELISA for detection of IgM antibodies against Japanese Encephalitis virus

Overview

Japanese Encephalitis (JE) is a mosquito borne viral disease and is an important cause of seasonal viral encephalitis. The disease is prevalent in large areas of Asia and the virus is transmitted by Culex species of mosquitoes. The JE virus belongs to family Flaviviridae, genus Flavivirus. NIV JE IgM Capture ELISA kit is intended for qualitative detection of IgM antibodies in serum / CSF of patients presenting clinical signs and symptoms consistent with Japanese Encephalitis. The serological assay is designed for providing the presumptive diagnosis of JE. The test was standardized and reported by NIV in 1984)

Key Features

Diagnostic Characteristics:

- Diagnostic Sensitivity 81%
- Diagnostic Specificity 86%

USP of the technology

NIV JE IgM Capture ELISA Can be used as a diagnostic tool to detect probable JE at late post onset day of infection (POD) (From 5 POD onwards) can be used at any levels -clinical set ups, public health centres and hospitals). Technology is being used in National Health Program.

Implementation Review

IP Status Details

NA

TRL Status

TRL-6

Technology Transfer Status

Transferred to 2 different companies

Inventor Details

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Domain: Diagnostics

Name of the Institute: ICMR - National Institute of Virology, Pune

Diagnostic ELISA for detection of IgM antibodies against Dengue virus

Overview

NIV Dengue IgM Capture ELISA kit is intended for qualitative detection of IgM antibodies in serum of patients presenting clinical signs and symptoms consistent with Dengue. The test was standardized and reported by NIV in 1984. The performance of the test was evaluated by Christian Medical

College (CMC), Vellore in 2002. The present DEN IgM kit contains ready to use reagents. Recent evaluation using well characterized samples (n=377) revealed that the kit has a diagnostic sensitivity of 98.53% and diagnostic specificity of 98.84%. The kit has high inter and intra assay reproducibility.

Key Features

Diagnostic Characteristics:

- Diagnostic Sensitivity 98.53%
- Diagnostic Specificity 98.84%

USP of the technology

Dengue IgM Capture ELISA developed by ICMR-NIV, can be used as a diagnostic tool to detect probable dengue at late post onset day of infection (POD) (From 5 POD onwards) (can be used at any levels - clinical set ups, public health centres and hospitals) Technology is being used in National Health Program.

Implementation Review

IP Status Details

NA

TRL Status

TRL-6

Technology Transfer Status

Transferred to 3 different companies

Inventor Details

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Domain: Diagnostics

Name of the Institute: ICMR - National Institute of Virology, Pune

Diagnostic ELISA for detection of IgM antibodies against Chikungunya virus

Overview

CHIK IgM Capture ELISA developed by ICMR- NIV is intended or qualitative detection of Chikungunya virus specific IgM antibodies in serum of patients presenting clinical signs and symptoms consistent with Chikungunya. The present CHIK IgM kit contains all ready to use reagents and has been evaluated for performance by Center for Disease Control (CDC), Fort Collins, CO, USA. The kit has a diagnostic sensitivity of 95% and diagnostic specificity of 98%. The kit has high inter and intra assay reproducibility

Key Features

Diagnostic Characteristics:

- Diagnostic Sensitivity: 95%
- Diagnostic Specificity: 98%

USP of the technology

Chikungunya IgM Capture ELISA developed by ICMR-NIV, can be used as a diagnostic tool to detect probable Chikungunya at late post onset day of infection (POD) (From 5 POD onwards) (can be used at any levels - clinical set ups, public health centres and hospitals) Technology is being used in National Health Program.

Implementation Review

IP Status Details

NA

TRL Status

TRL-7

Technology Transfer Status

Transferred to 3 different companies

Inventor Details

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Domain: Diagnostics

Name of the Institute: ICMR - National Institute of Bacterial Infections (ICMR-NIRBI), Kolkata

EnViro-Q: A multiplex real-time RT-PCR assay for detection of enteric viruses

Overview

Despite introduction of RV vaccine, there is a persistent burden of childhood viral diarrhoea in India. Due to the absence of indigenous kits for diagnosis of viral aetiology, viral gastroenteritis is often misdiagnosed as bacterial leading to irrational antibiotic usage. To fill this lacunae, ICMR-NIRBI has developed:

- A cost effective multiplex real time PCR based diagnostic assay for detection of most common enteric viruses namely Rotavirus, Norovirus and Adenovirus F
- The assay is an open system and can be performed using all Q-PCR equipment and reagents available in market

Key Features

- A multiplex two tube taqman probe based assay for detection of common viruses causing childhood diarrhoea
- Sensitivity ≥96% and Specificity ≥98%
- Limit of detection of each of the viral targets as low as 10 copies/ml in multiplex format.
- Validated and approved by two external labs

USP of the technology

- Indigenous molecular diagnostic kit allowing detection of multiple enteric viruses causing childhood gastroenteritis.
- Comparable sensitivity and specificity with the commercial assay kits.
- Cost-effective, easy-to use, open platform diagnostic method. Generates result within ~2-2.5 hr
- Facilitates detection of co-infections in single test

Implementation Review

IP Status Details

NA

TRL Status

TRL-6

Technology Transfer Status

Yes, Transferred on non-exclusive basis

Inventor Details

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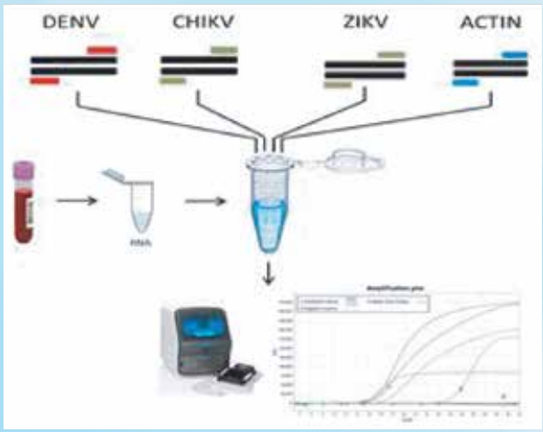
Domain: Diagnostics

Name of the Institute: ICMR - National Institute of Virology, Pune

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

Overview

This technology aids in the early and simultaneous diagnosis of dengue, chikungunya and Zika viruses in patients with dengue like illness



Key Features

- Single-tube multiplex assay reduces cost and turnaround time
- In-house validation demonstrates strong performance, with 96.1% sensitivity for dengue, 97.2% for chikungunya
- 100% specificity across all three targets
- Custom primers and probes ensure high specificity and sensitivity. Built-in actin control ensures reliable and accurate results

USP of the technology

- Simultaneous detection of dengue, chikungunya, and Zika viruses in one reaction
- Enables early differential diagnosis in acute febrile illness cases
- Includes internal control to validate sample quality and assay performance
- This technology can be of useful in the regions wherein these viruses are co-circulating.
- Since the all three viruses are detected using a single tube reaction, this is highly cost-effective.

Implementation Review

IP Status Details

IN202511095659

TRL Status

TRL-4

Technology Transfer Status

Yes, Licensed to Two Companies

Inventor Details

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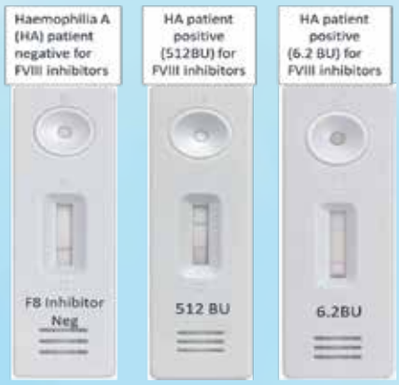
Domain: Diagnostics

Name of the Institute: ICMR - National Institute for Research On Blood and Immune Disorders (NIRBID), Mumbai

Qualitative Factor VIII inhibitor POCT for haemophilia patients

Overview

India has the world's second-highest burden of Haemophilia A, affecting ~140,000 people. Nearly one-third patients develop factor VIII (FVIII) inhibitors, making standard therapy ineffective and requiring repeated inhibitor testing throughout treatment. Current assays are expensive, complex, limited to just seven labs nationwide, and unreliable in patients on Emicizumab. To address this gap, we developed a low-cost, point-of-care gold nanoparticle lateral flow assay for rapid FVIII inhibitor detection. The test provides bedside results in minutes, requires no specialised equipment, and costs 20 times less than conventional assays. It demonstrated 86% sensitivity and 94% specificity, with no interference from Emicizumab.



Key Features

- First-of-its-kind gold nanoparticle-based LFIA for specific detection of FVIII inhibitors in plasma.
- Rapid, user-friendly, and cost-effective test that provides results within 20 minutes, one twentieth the cost of conventional gold-standard assays.
- Designed for use by non-specialized appropriate personnel, without the need for specialized instruments.
- Compatible for non-factor therapy where standard functional assays are ineffective

USP of the technology

- World's first "Make in India" point-of-care lateral flow assay for rapid FVIII inhibitor detection in Haemophilia A — delivering accurate bedside results within minutes, compatible with Emicizumab therapy, and costing nearly 95% less than conventional assays.
- It holds promise to reduce morbidity and mortality, especially in emergency settings, by enabling rapid diagnosis and appropriate interventions

Implementation Review

IP Status Details

Indian Patent Application No: 202511083527

TRL Status

TRL-4

Technology Transfer Status

Transferred to Meril Pvt Ltd

Inventor Details

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Ms. Sharda Shanbhag(Technical Officer B)
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Ms. Moni Singh (Project Technical Support II)

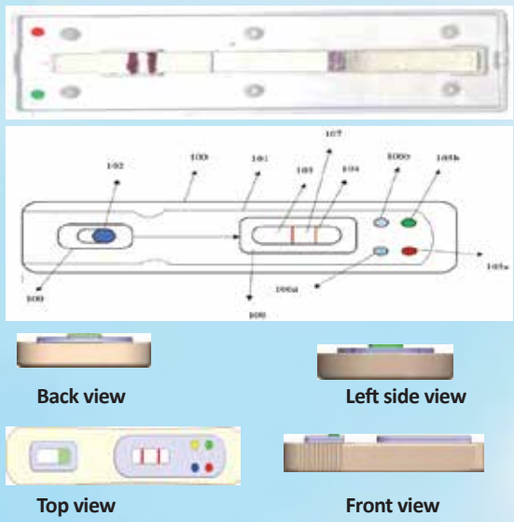
Domain: Diagnostics

Name of the Institute: Macvins Research and Innovations & Vardhaman College of Engineering

Smart Strip to Identify the Formation of Kidney Stones

Overview

This invention focuses on designing a smart diagnostic strip that helps in the early identification of kidney stone formation through urine analysis. The Smart Strip detects specific chemical indicators associated with kidney stone development and provides a quick visual indication of potential risk. This device enables early diagnosis, supports preventive healthcare, and reduces the need for expensive diagnostic procedures. It is designed to be simple, cost-effective, and suitable for both clinical and home-based monitoring of kidney health.



Key Features

- Smart diagnostic strip designed for early identification of kidney stone formation through urine analysis.
- Detects specific chemical indicators associated with kidney stone development.
- Provides quick visual results for easy and rapid diagnosis.
- Suitable for both clinical use and home-based kidney health monitoring.

USP of the technology

- Enables early detection of kidney stone risks before severe complications occur.
- Non-invasive diagnostic solution using a simple urine test method.
- Quick and user-friendly testing process without requiring specialized equipment.
- Cost-effective alternative compared to expensive imaging and laboratory diagnostics.
- Supports preventive healthcare and continuous monitoring of kidney health.
- Prototype already developed and laboratory testing is in progress.

Implementation Review

IP Status Details

Patent Granted

TRL Status

TRL - 7

Technology Transfer Status

Currently identifying and engaging potential industry partners for technology transfer, manufacturing, and commercialization

Inventor Details

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Government of India
Department of Health Research

Domain: Diagnostics

Name of the Institute: Tata Memorial Centre, Advanced Centre for Treatment, Research and Education in Cancer, Navi Mumbai

RAPID-CRISPR-based Assay System for Detecting Fusion-Driven Leukemia

Overview

RAPID-CRISPR is a novel diagnostic platform that enables ultra-fast and precise detection of PML::RARA fusion isoforms in acute promyelocytic leukemia. By combining loop-mediated isothermal amplification (LAMP) with CRISPR-Cas12a DETECTR technology, it delivers results in under 3 hours without requiring complex instrumentation. The assay is designed for point-of-care use, ensuring timely diagnosis and immediate initiation of lifesaving therapies in both advanced hospitals and resource-limited settings.

Key Features

- Provides swift diagnosis (<3 hours) of APL, minimizing risk of early mortality with 100% sensitivity and 100% specificity in clinical validation cohorts
- Detects all three PML::RARA isoforms (bcr1, bcr2, bcr3) with equal efficiency and as few as 1 copy of fusion transcript, surpassing RT-PCR sensitivity
- Extraction-free workflow using modified HUDSON protocol for simplified sample preparation
- Easy-to-read lateral flow strip output, cost-effective and scalable for mass screening in under-resourced regions

USP of the technology

- First-of-its-kind CRISPR diagnostic for acute promyelocytic leukemia in India
- Three-layer specificity (isoform-specific LAMP primers + synthetic PAM + CRISPR RNAs) ensures zero off-target detection
- Portable and low-cost, enabling deployment in peripheralhospitals and rural clinics
- Rapid turnaround supports immediate therapeutic intervention with ATRA and arsenic trioxide
- Indigenous innovation, strengthening national capacity in advanced molecular diagnostics
- Compatible with blinded validation workflows, ensuring reproducibility and unbiased accuracy
- Potential for adaptation to other hematological malignancies and infectious diseases

Implementation Review

IP Status Details

IN20251037567

TRL Status

TRL 6–7

Technology Transfer Status

Ready to transfer

Inventor Details

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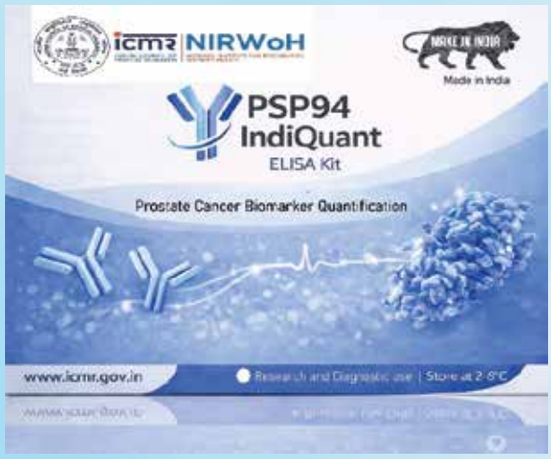
Domain: Diagnostics

Name of the Institute: ICMR - National Institute for Research on Women's Health (NIRWoH), (formerly ICMR-NIRRCH), Mumbai

Development of a Cost-Effective PSP94 ELISA for Guiding Prostate Biopsy Decisions in Patients with PSA less than 20 ng/ml

Overview

Prostate Cancer (PCa) is an increasing health concern with symptoms overlapping with Benign Prostatic Hyperplasia. Currently, PSA is commonly used for screening of PCa. However, PSA lacks specificity, particularly at levels below 20 ng/ml, leading to unnecessary biopsies. We developed a cost-effective in-house ELISA using an indigenously purified PSP94 antigen and polyclonal anti-PSP94 antibodies for sensitive and specific quantification of Prostate Secretory Protein 94 (PSP94). Use ofPSP94/PSA ratio improves differentiation between Non-PCa and PCa and can guide clinical decision-making to minimise invasive prostate biopsies.



Key Features

- Beneficial for screening of patients suspected of prostate cancer with PSA < 20ng/ml
- Affordable adjunct marker to PSA
- Useful in setting where mpMRI access is limited
- Can minimize invasive biopsies

USP of the technology

- Indigenously developed
- Cost-effective technology for improving the diagnostic accuracy of PSA testing
- Scalable and customizable platform with potential for integration into broader diagnostic panels and population screening programs

Implementation Review

IP Status Details

NA

TRL Status

TRL-5

Technology Transfer Status

Transferred to one Company

Inventor Details

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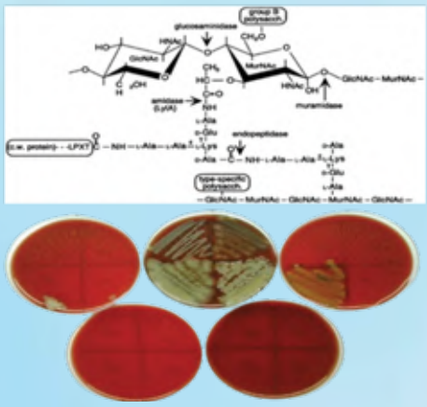
Domain: Diagnostics

Name of the Institute: ICMR - National Institute for Research in Tuberculosis, Chennai

Bacteriophage lysin as an alternative to MGIT PANTA to control normal flora in processed sputum specimens for rapid detection of *Mycobacterium tuberculosis* using BACTEC MGIT 960 system

Overview

Phage lysin can selectively remove non-mycobacterial contaminants without affecting mycobacterial viability, offering a low-cost alternative to the current PANTA antibiotic mix used in sputum processing. Given its similar effectiveness and minimal production cost, it has strong potential for commercialization in rapid mycobacterial detection across liquid culture systems, including BACTEC MGIT 960.



Key Features

- Phage lysin can be used as alternative to commercial MGIT PANTA
- Commercial value for liquid based TB diagnostic methods
- Suitable for use in all TB laboratories for rapid TB detection with less cost
- The efficiency of phage lysin is proved through multicenter validation

USP of the technology

- Phage lysin is developed using indigenous technology, strengthening national TB elimination program
- Phage lysin was independently validated across four centres and proved to be comparable to MGIT-PANTA
- Compatible to use with MGIT 960 with reduced cost
- The phage lysin has no deleterious effect on the growth of M. tuberculosis

Implementation Review

IP Status Details

IN269659

TRL Status

TRL-5

Technology Transfer Status

Not transferred

Inventor Details

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Domain: Diagnostics

Name of the Institute: ICMR - National Institute of Translational Virology and AIDS Research, Pune

DNA Based test for HIV-2 diagnosis

Overview

- A DNA-based molecular assay developed for precise detection of HIV-2 infection from whole blood specimens.
- Specifically targets the HIV-2 gag gene for highly accurate and reliable amplification.
- Detects HIV-2 even in samples with low or undetectable plasma viral load.
- Provides a cost-effective, highly specific alternative for confirmatory HIV-2 diagnosis with no cross-reactivity to HIV-1.

Key Features

- Highly sensitive detection of HIV-2 proviral DNA making it effective in cases with undetectable plasma viral load
- Cost-effective and scalable for routine laboratory implementation
- Specificity (100%), No cross-reactivity to HIV-1 Accurate detection even in low or undetectable viral load conditions
- Reliable and reproducible molecular diagnostic performance

USP of the technology

- High Accuracy: Sensitive and specific, with no cross-reactivity with HIV-1.
- Molecular Confirmation: Detects proviral DNA, offering definitive diagnosis.
- Cost-Effective: Affordable alternative to expensive commercial Western Blot kits.
- Suitable for routinediagnostic laboratories and national HIV programs

Implementation Review

IP Status Details

IN202611051908

TRL Status

TRL-5

Technology Transfer Status

Not transferred

Inventor Details

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Domain: Diagnostics

Name of the Institute: ICMR - NIVCR, Puducherry

A novel immunoassay for screening infective and infected stages of Lymphatic Filariasis

Overview

Lymfab is an ELISA kit for the detection of filaria-specific antibodies developed by ICMR-NIVCR. A recombinant filaria-specific antigen is the main component of the ELISA kit to detect filaria-specific antibodies in serum. This ELISA is highly sensitive and specific for the diagnosis of Lymphatic Filariasis(LF) and can be used in the mapping and post-MDA surveillance phases of the LF elimination program.

Key Features

- Detects early exposure to LF infection in children
- Detects active and patent infection in adults
- Suitable for testing in daytime- collected blood and dried blood spots
- Requires standard cold chain storage conditions.

USP of the technology

- The antigen biomarker, is expressed in L3 larvae, adult and microfilaria stages of the parasite.
- Highly sensitive and specific for the diagnosis of LF infection
- Cheaper and an import substitute to the existing diagnostic ELISA
- Qualifies WHO Diagnostic Technical Advisory Group Target Product Profile (DTAG-TPP) criteria
- Useful for global and national LF elimination programs
- Validated by two national institutes

Implementation Review

IP Status Details

IN202411079951

TRL Status

TRL-5

Technology Transfer Status

Not transferred

Inventor Details

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Domain: Diagnostics

Name of the Institute: ICMR - National Institute for Research in Bacterial infections

DENAMP®: Dual-Tube One-Step RT Multiplex PCR for Dengue NGS

Overview

A single-step, dual-tube multiplex RT-PCR method that can be used to amplify the Dengue virus whole genome. The resulting PCR- amplified product is compatible with both Nanopore- and Illumina- platform-based Next Generation Sequencing (NGS) for viral whole- genome sequencing. USP of the technology

Key Features

- Single-step dual-tube RT-PCR combining RT and amplification
- Full-genome coverage using overlapping ~400 bp amplicons for all four serotypes
- Fast, low-cost, low-contamination workflow with high sensitivity
- NGS-compatible, sensitive and adaptable for other RNA viruses

USP of the technology

- **Serotype-specific precision:** Targets each dengue serotype for accurate, reliable near full-length genome amplification.
- **Cost advantage:** Significantly more affordable than non-specific commercial kits.
- **In-house standardized:** Optimized and validated workflow ensuring consistent performance.
- **High specificity, low background:** Reduces off-target amplification compared to generic kits.
- **Efficient genome recovery:** Delivers near full-length coverage even from challenging samples.
- **Customizable and flexible:** Easily adaptable for different RNA virus study.

Implementation Review

IP Status Details

NA

TRL Status

TRL-5

Technology Transfer Status

Not transferred

Inventor Details

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2. **Dr. Supradip Dutta**
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Domain: Diagnostics

Name of the Institute: ICMR - National Institute for Research in Bacterial infections

Multiplex qPCR based diagnostic kit for identification and differentiation of gastrointestinal parasites- *Giardia lamblia, Entamoeba spp. (Entamoeba histolytica, Entamoeba moshkovskii Entamoeba dispar)* and *Cryptosporidium*

Overview

This technology is a TaqMan® Probe-based rapid in-vitro diagnostic assay developed for the qualitative detection of major gastrointestinal protozoan pathogens directly from stool specimens using multiplex qPCR technology. The assay follows a sequential two-step detection strategy for rapid and accurate identification of intestinal parasitic infections. In the first step, the assay simultaneously detectsnucleic acids of Giardia lamblia, Entamoeba spp., and Cryptosporidium spp. In the second step, species-level differentiation is performed to identify pathogenic Entamoeba histolytica and Entamoeba moshkovskii, along with non-pathogenic Entamoeba dispar. The kit is a rapid single-run multiplex RT-PCR solution that enables simultaneous detection and differentiation of key intestinal protozoa with high specificity and precision. By combining comprehensive detection, accurate species differentiation, and results in under one hour, the assay reduces diagnostic time, laboratory workload, and overall testing costs compared to conventional and existing multi-test methods.

Key Features

- High sensitivity and specificity powered by advanced TaqMan® qPCR technology.
- User-friendly, closed-tube qPCR workflow suitable for routine diagnostic and research laboratories with reduced risk of contamination.
- Simultaneous identification of multiple targets in a single run, saving both time and cost.
- Simple, contamination-resistant workflow compatible with standard real-time PCR platforms.
- Compatible with Standard Real-Time PCR Platforms commonly available in molecular laboratories.

USP of the technology

- First indigenous multiplex qPCR kit developed for detection of Entamoeba moshkovskii and Entamoeba dispar along with other major enteric parasites.
- Completely indigenous technology, developed and optimized in India for local diagnostic needs.
- Cost-effective solution compared to imported molecular diagnostic kits.
- High-sensitivity and high-specificity molecular detection enabling early diagnosis and improved public health surveillance of enteric parasitic infections
- Rapid, user-friendly workflow supporting large-scale screening laboratories.

Implementation Review

IP Status Details

Patent application Filed

TRL Status

TRL-5

Technology Transfer Status

Not Transferred

Inventor Details

Dr. Santasabuj Das
Designation: Director & Scientist-G
Institute: : ICMR-NIRBI

Domain: Diagnostics

Name of the Institute: Indian Institute of Technology, Banaras Hindu University IIT (BHU), Varanasi

OxaStore Biotech: Novel Blood Collection Vials

Overview

Oxalate nanoparticle-based vacutainers for blood collection and preservation are designed to overcome the limitations of conventional anticoagulants such as EDTA and citrate by providing improved blood stability, reduced cell distortion, and greater diagnostic reliability. OxaStore aims to deliver affordable, high-performance blood collection solutions for diagnostic laboratories, hospitals, and research institutions.

Key Features

- Advanced oxalate-based nanoparticle technology for efficient blood anticoagulation and preservation.
- Superior blood cell stability with minimal changes in RBC morphology compared to conventiona lDTA tubes
- Compatible with existing vacutainer systems for easy integration into the current laboratory workflows
- Cost-effective alternative to conventional nticoagulant vacutainers with reduced per-vial cost

USP of the technology

- Dual Functionality: Simultaneous anticoagulation and enhanced blood preservation in a single vial
- Better accuracy, temperature stability and uniform cellular integrity
- Lower cost than EDTA/citrate anticoagulants
- Single anticoagulant tube for multiple tests
- Reduced pre-analytical errors by minimizing platelet clumping, RBC distortion and assay interference.

Implementation Review

IP Status Details

Patent Grant/application number: Two Indian Patents filed - 202411043077, 2202511013514

TRL Status

TRL 5-6,

Technology Transfer Status

Not transferred

Inventor Details

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Domain: Diagnostics

Name of the Institute: Dr B R Ambedkar Center for Biomedical Research, University of Delhi, Delhi

Single-Step Multiplex RT-qPCR Diagnostic for Simultaneous Detection of *Neisseria gonorrhoeae, Chlamydia trachomatis* and *Trichomonas vaginalis*

Overview

One million people acquire Sexually Transmitted Infections everyday summing up to more than 370 million cases of CHLAMYDIA TRACHOMATIS (CT), NEISSERIA GONORRHOEAE (NG) and TRICHOMONAS VAGINALIS (TV) infections added globally every year. These infections chronically ascend to cause pelvic inflammatory disease, ectopic pregnancy and tubal factor infertility while rendering the patient more vulnerable to acquire HIV infection. Further, the presence of NG is predictive of CT in up to 50% of infections whereas, co-infection of NG, CT or both in TV positive patients has been over 2%. In the light of exorbitant prevalence of these STIs, the absolute number of coinfections in population are overwhelming. These insights signify the need of an accurate, sensitive and specific assay which can potentially detect CT, NG and TV simultaneously, thereby reducing the turnaround time and saving up on the clinical samples as well as resources.

Key Features

- Simultaneous detection of Neisseria gonorrhoeae, Chlamydia trachomatis and Trichomonas vaginalis in each tube.
- 8 patients can be tested using one STRIP.
- No expertise of molecular biology required. Only sample DNA has to be added to premix reagents. Premix stable at room temperature for more than two years.
- Highly prevalent STI-causing pathogens with overlapping symptoms can be detected in one reaction, unlike other RT-PCR-based- or immunological tests.
- Saves time and resources while maintaining high clinical sensitivity and specificity.

USP of the technology

- Low capital investment. Indegenous, low running cost.
- Highly specific, sensitive and stable & rapid diagnostic assay (WHO: ASSURED).
- First indigenous qPCR kit for simultaneous detection of three most common non-viral STDs with over-lapping symptoms in a single well.
- Assay available in lyophilized format imparting increased shelf life (shelf life of >12 months at 4°C). No dependency on deep freezers for storage and transportation.
- No expertise required to conduct assay as only sample addition is required.
- Point of care testing of the patient on the site with the CB- NAAT version of the test using a portable, handheld qPCR instrument.

Implementation Review

IP Status Details

IN202111030102

TRL Status

TRL 4

Technology Transfer Status

Not transferred

Inventor Details

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Domain: Diagnostics

Name of the Start-up: Diagopreutic Pvt Ltd, Ponda, Goa

Antimicrobial Susceptibility and bacterial identification

Overview

We have clinically validated with 95% sensitivity, 98% specificity and CDSCO approved integrated rapid Urinary tract infection diagnostic — replacing 48-hour culture with a complete 6-hour clinical picture

Key Features

- Same-day antibiotic susceptibility data directly from urine specimens
- Bacterial identification (E.coli, Klebsiella pneumoniae)
- Bacterial threshold defined
- Assay compatible with blood, wound swab, CSF, sputum

USP of the technology

- Bacterial load-Proprietary chromogenic media quantifies infection severity — replacing microscopy & manual culture.
- Species Identification- Differential media identifies E. coli, Klebsiella, for targeted therapy
- 18 antibiotics Antimicrobial sensitivity-Full resistance profile per CLSI guidelines — in one integrated test, no secondary send-out
- Digital analysis-Web app eliminates subjective color reading — consistent, auditable results at any skill level.

Implementation Review

IP Status Details

IN553621

TRL Status

TRL-8

Technology Transfer Status

No

Inventor Details

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Phone number: 9503152848

Domain: Diagnostics

Name of the Institute: ICMR - Regional Medical Research Centre, NE Region, Dibrugarh, Assam

CRISPR-Cas12a-based assay and kit for detecting the presence of *Burkholderia pseudomallei* (Melioidosis) "MelioGlow PCR "

Overview

The present technology is a multiplex PCR andCRISPR-Cas-based diagnostic kit for detecting Burkholderia pseudomallei, the bacterium causing melioidosis, in hospital settings. The multiplex conventional PCR amplifies two target regions of T3SS-1, followed by CRISPR-Cas12a detection. Cas12a, guided by B. pseudomallei-specific gRNAs, generates a fluorescence signal upon target recognition. Integrated with our DNA isolation kit: RapidBact, incubator-cum-detection device: RAPIDGLOW, and result analysis software: RGLOW, this standalone indigenous system offers a fast, affordable solution for melioidosis detection in endemic regions across India.

Key Features

Detects Melioidosis using multiplex PCR and CRISPR-Cas12a fluorescence-based assay, using an in-house developed DNA isolation kit (RapidBact), an incubator-cum-detection device (RAPIDGLOW), and a result analysis software (RGLOW)

USP of the technology

- Fast (~2.5 hours turnaround time) and low-cost (~₹72.00 INR per test
- High sensitivity and specificity: Multiplex (two target regions of T3SS-1 of B. pseudomallei), limit of detection: ~1 copy of DNA, 100% sensitivity and specificity (153 clinical samples vis-à-vis culture)

Implementation Review

IP Status Details

Patent application number: 202611027382

TRL Status

TRL-4

Technology Transfer Status

No

Inventor Details

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Scientist D
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Phone number: - 6901967427

Domain: Diagnostics

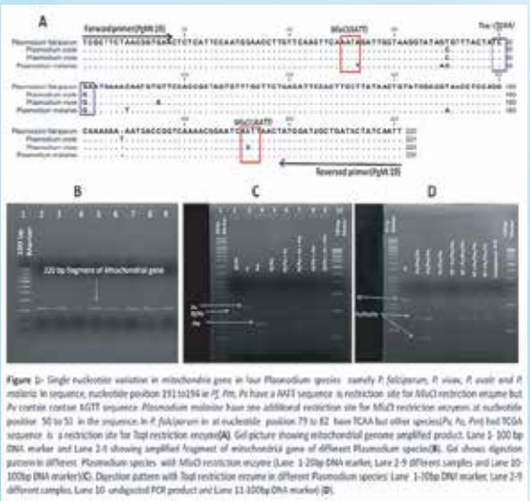
Name of the Institute: ICMR - National Institute of Malaria Research, New Delhi

A process for differentiating species of Plasmodium

Overview

Plasmodium species-specific polymerase chain reaction (PCR) -restriction fragment length polymorphism (RFLP) assays, based on mitochondrial genes.

Rapid and accurate diagnosis of malaria is essential to decrease morbidity and mortality. The routinely used methods for diagnosing malaria include microscopy and Rapid Diagnostic Tests (RDTs), which have challenges such as the requirement of experienced technicians, equipment, and optimal storage conditions.



Key Features

- The two-step method for amplification and detection of four Plasmodium species causing infection in humans
- One-step PCR amplification.
- Digestion of the amplified product with two enzymes within 20 minutes yields results for four Plasmodium species.
- No sequencing to generate results.

USP of the technology

- Highly sensitive, can detect up to 0.5 parasites per microliter of blood.
- A single-step PCR to identify the species-specific mitochondrial region for four Plasmodium species: vivax, falciparum, malariae, and ovale.
- The digestion of the PCR product for species identification is accomplished using two restriction enzymes, requiring only 10-20 minutes.
- Cost-effective and time-saving.
- Compatible with heterologous booster strategies for enhanced immunity
- No sequencing is required for species detection.

Implementation Review

IP Status Details

IN426216

TRL Status

TRL-4

Technology Transfer Status

Transfer to Vanguard Diagnostics

Inventor Details

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Domain: Diagnostics

Name of the Institute: ICMR - Regional Medical Research Centre, NE Region, Dibrugarh, Assam

CRISPR-Cas based TB detection system

Overview

A CRISPR-Cas12a based TB detection system integrating rapid DNA extraction (RapidBact, Patent Appl. No. IN202511026919), multiplex PCR-CRISPR-Cas12a assay (Glow-TBPCR, Patent Appl. No. IN202411043686), and incubation-cum-fluorescence detection device (RapidGlow, Patent Appl. No. IN202411016083) and software (RGLOW, Copyright Diary No. SW-48607/2025-CO). This is a high-throughput, and cost-effective, alternative to centralized diagnostics; enables early, affordable TB detection, reducing disease spread, deaths, stigma, and patient costs, while improving access to diagnosis in hospital settings.

Key Features

- Performs heat-based lysis and rapid column DNA extraction from sputum samples
- Detects TB using multiplex PCR and CRISPR-Cas12a fluorescence-based assay
- Enables real-time detection and analysis via integrated RGLOW software

USP of the technology

- Fast (~3.5 hours turnaround time) and low-cost (~₹150 per test and one-time device cost of ~₹5,550).
- High sensitivity and specificity: Multiplex (targets 3 MTB genes), limit of detection: ~1 copy of DNA, 100% sensitivity and specificity vis-à-vis GeneXpert (in 323 clinical samples)
- High scalability (16 samples at a time), light-weight device (~5 kg)

Implementation Review

IP Status Details

IN202511026919
IN202411043686
IN202411016083

TRL Status

TRL-5

Technology Transfer Status

Transfer to 2 companies

Inventor Details

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NE Region, Dibrugarh, Assam
Email: atiqbiotech@gmail.com
Phone number: -6901967427

Domain: Diagnostics

Name of the Institute: ICMR - National Institute of Virology, Pune

Anti-SARS CoV-2 human IgG antibody detection ELISA assay (COVID Kavach)

Overview

COVID Kavach is an ELISA-based diagnostic assay designed to detect IgG antibodies against SARS-CoV-2 in human serum or plasma. It helps identify past infection and supports sero-surveillance, epidemiological studies, and vaccine response assessment. The test is cost-effective, scalable, and suitable for large populations, benefiting public health systems by enabling informed policy decisions and tracking immunity trends in communities.

Key Features

- Detects SARS-CoV-2 specific IgG antibodies in human serum or plasma samples.
- Enables identification of past infection and immune response in tested individuals.
- Supports large-scale sero-surveillance and population-level epidemiological studies.
- Assesses antibody response following vaccination or natural infection

USP of the technology

- High sensitivity and specificity for accurate antibody detection.
- Cost-effective solution suitable for large-scale population screening.
- ELISA-based platform ensures standardized and reproducible test results.
- High-throughput capability enables testing of large sample volumes.
- Useful for epidemiological studies and vaccine response monitoring.

Implementation Review

IP Status Details

NA

TRL Status

TRL-9

Technology Transfer Status

Yes

Inventor Details

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Domain: Diagnostics

Name of the Institute: ICMR - National Institute of Virology, Pune

Nipah Point of Care assay

Overview

The Nipah Point-of-Care diagnostic is a rapid, field-deployable test developed for early detection of Nipah Virus Infection in humans. It enables timely diagnosis at peripheral healthcare settings without advanced laboratory infrastructure. This innovation supports outbreak containment, reduces transmission risk, and strengthens public health response, particularly benefiting rural and resource-limited regions through faster clinical decision-making and improved disease surveillance.

Key Features

- Rapid results within minutes, enabling immediate clinical decision-making.
- Portable design suitable for field and remote healthcare settings.
- Minimal infrastructure requirement compared to conventional laboratory diagnostics.
- High sensitivity and specificity for Nipah Virus Infection detection.
- Emergency use approval received from CDSCO.

USP of the technology

- Rapidly detects Nipah Virus Infection at point-of-care settings without complex laboratory infrastructure.
- Provides early diagnosis using minimal sample processing and simplified testing workflow.
- Enables on-site screening in remote or resource-limited healthcare facilities.
- Supports timely clinical decision-making and immediate patient management during outbreaks.
- Facilitates surveillance and outbreak control through quick identification of suspected cases

Implementation Review

IP Status Details

NA

TRL Status

TRL-8

Technology Transfer Status

Transferred

Inventor Details

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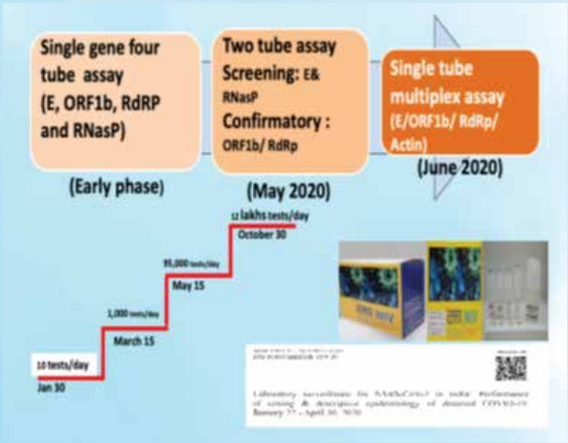
Domain: Diagnostics

Name of the Institute: ICMR - National Institute of Virology, Pune

ICMR-NIV Single tube multiplex RT PCR assay for detection of SARS CoV -2 from human respiratory samples

Overview

In view of the emergence of the SARS-CoV-2 pandemic in December 2019, there was an instant need to have highly sensitive molecular tests for rapid detection of SARS-CoV-2 to facilitate public health interventions. This diagnostic kit is for the qualitative detection and characterization of SARS-CoV-2 RNA. The assay includes three targets E gene, ORF lab, RdRp of SARS-CoV-2 genes. In assay E gene works as screening gene for Human Corona viruses while ORF1ab and RdRp gene are confirmatory genes for SARS CoV-2.



Key Features

Cost effective: Comes in kit format

Short turnaround time: Results available within 60mins after extraction

Public Health Information: Helps to prevent the spread of SARS CoV-2.

Extensively used nationwide by VRDLS and Government Laboratories during COVID pandemic.

USP of the technology

- This is single tube multiplex assay with one screening and two confirmatory genes
- High Specificity and Sensitivity: The method results in 99.8 to 100% sensitivity and 100% specificity.
- The kit Passed WHO External Quality assurance program from 2021 ,2022 and 2023 with 100% concordant
- The kit detects the SARS CoV 2 and all its variants. The recent XFG and NB.1.8

Implementation Review

IP Status Details

IN202111015708

TRL Status

Advance

Technology Transfer Status

Technology has been transferred to MyLab solution and J Mitra. Extensively used by VRDL network laboratory

Inventor Details

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Tel : +91-20-26016290

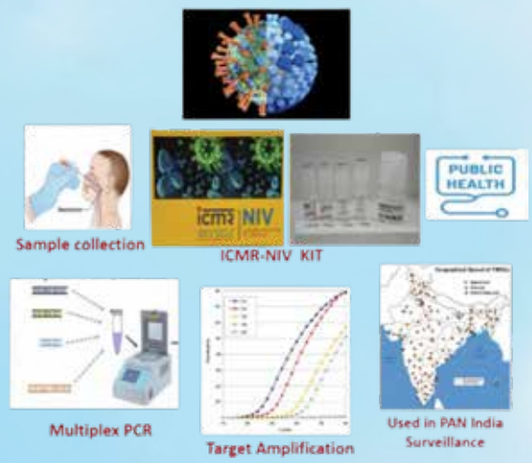
Domain: Diagnostics

Name of the Institute: ICMR - National Institute of Virology, Pune

ICMR-NIV Single tube multiplex RT PCR assay for detection of SARS CoV -2 , Influenza A and Influenza B from human respiratory samples

Overview

Influenza and SARS CoV2 are respiratory infections and shared overlapping symptoms like fever, cough, and body aches. Influenza A viruses and SARS-CoV-2 poses the threat of pandemic and seasonal outbreaks. In view of the emergence of the SARS-CoV-2 pandemic in December 2019, there was an instant need to have highly sensitive molecular tests for rapid s detection of SARS-CoV-2 and Influenza A and B to facilitate public health interventions. Continuous monitoring of these viruses is crucial to track newer variants. ICMR NIV Pune developed cost effective multiplex single tube assay for simultaneously detection and differentiate between SARS-CoV-2, Influenza A, and Influenza B from respiratory samples.



Key Features

- The assay is based on Taqman chemistry (real time RT PCR) for accurate detection of Influenza A, Influenza B and SARS CoV -2 from clinical samples
- Accurate detection of SARS CoV 2 and its variants (Till date XFG), H1N1/pdm09 and H3N2; Yamagata and Victoria of Inf B.
- Helps to identify co-infections and give targeted treatment for influenza and SARS CoV-2.
- Cost effective: Comes in kit format hence minimizes the cost.
- The ease of reagent addition as Kit contains primer probe pool (three viruses) Enzyme and positive control. Easiness for setting up the reactions (multiple additions are not required) minimizes handling errors

USP of the technology

- **Simultaneous Detection:** Identify multiple viral targets and differentiate as Influenza A, Influenza B and SARSV CoV-2 in same tube.
- **High Specificity and Sensitivity:** 10 viral diagnostic laboratories externally validated the multiplex kit with 98.9 to 100% sensitivity and 100% specificity.Assay do not have cross reactivity with other respiratory viruses.
- The kit **also validated by WHO CC Melbourne** with 100% specificity and sensitivity against CDC Kit.
- **Participated in EQAS program** with 100% oncordance result using this assay.
- Analytical sensitivity (limit of detection): Assay detects 15 Copies of Influenza A, 16 Copies of influenza B and 20 Copies of SARS COV 2

Implementation Review

IP Status Details

IN202211052927

TRL Status

Advance

Technology Transfer Status

Technology has been transferred to Meril life science and extensively used by VRDL network laboratory

Inventor Details

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Pune 411001 Tel : +91-20-26016290

Domain: Diagnostics

Name of the Institute: ICMR - National Institute of Virology, Pune

ICMR-NIV Multiplex Real Time assay for simultaneous detection of Influenza A, Influenza B, RSVA, RSVB and SARS CoV-2

Overview

RSV is leading cause of severe respiratory illness in very young children and most of the time with fatal outcome. Differential and timely diagnosis is important for clinical management. Currently very few multiplex assays are available commercially which can differentiate Influenza A, B, SARS CoV 2 and RSV in single tube format. This assay is diagnostic tool designed to simultaneously detect and differentiate between B in single tube from respiratory samples. This multiplex test is particularly valuable during winter RSVA/B, SARS-CoV-2, Influenza A, and Influenza seasons when these viruses co-circulate and present with overlapping symptoms like fever, cough, and body aches

Key Features

- **Public Health Information:** Integrated surveillance of Flu, SARS-CoV-2 and RSV help to take control measures of public health important viruses
- **Cost effective:** Comes in kit format hence minimizes the cost.
- **The ease of reagent addition as** Kit contains primer probe pool (four viruses) Enzyme and positive control. Easiness for setting up the reactions (multiple additions are not required) minimizes handling errors
- The kit reagents are stable at -20° C and showed long shelf life i.e. 24 months
- Kit has compact and attractive package with one pager hand out (Kit insert)

USP of the technology

- **TaqMan based Real Time PCR** , Single tube multi virus detection assay (five plex)
- **Simultaneous Detection:** Identify multiple viral targets and differentiate as Influenza A, Influenza B ,SARSCoV-2 and RSVA/B in same tube.
- **The kit also validated by WHO CC Melbourne** with 100% sensitivity and specificity for Influenza A, B, and showed 82% sensitivity for SARS-CoV-2 against CDC Kit
- Analytical sensitivity (limit of detection): Assay detects 15.6 Copies of Influenza A, 12 Copies of influenza B , 22.9 Copies of SARS COV 2 and 23.5 copies of RSVA/RSVB

Implementation Review

IP Status Details

IN202613058339

TRL Status

Advance

Technology Transfer Status

Ready for transfer
Technology has been extensively used by VRDL network laboratory

Inventor Details

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Domain: Diagnostics

Name of the Institute: ICMR - National Institute of Virology, Pune

Multiplex Real Time PCR Assay for simultaneous detection of Human PARAINFLUENZA Viruses (1-4)

Overview

Human parainfluenza viruses (HPIVs) are a group of common RNA viruses that cause respiratory infections, ranging from mild colds to severe, life-threatening pneumonia and croup in children and adults.

Differential and timely diagnosis is important for clinical management. Currently very few multiplex assays available commercially which can simultaneously detect all four parainfluenza viruses. This kit provides accurate detection of Parainfluenza viruses including co-infections.

Key Features

- **Public Health Information:** Helps to prevent the spread of Parainfluenza viruses.
- **Short turnaround time:** Results available within 60mins after extraction
- **Cost effective:** Comes in kit format hence minimizes the cost.
- Support national respiratory surveillance programs, disease burden estimation, vaccine effectiveness studies, and assessment of antiviral effectiveness through reliable detection of HPIVs
- The kit reagents are stable at -20° C and showed long shelf life i.e. 24 months
- Kit has compact and attractive package with one pager hand out (Kit insert)

USP of the technology

- Provide a rapid, sensitive, and specific multiplex real-time RT-PCR assay capable of detecting all four types of human parainfluenza viruses (HPIV 1–4) in a single-tube format.
- Enable accurate detection of co-infections, allowing simultaneous amplification and differentiation of multiple HPIV targets within the same reaction.

Implementation Review

IP Status Details	TRL Status	Technology Transfer Status
IN202611048854	Mid	No

Inventor Details

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Domain: Diagnostics

Name of the Institute: ICMR - National Institute of Virology, Pune

Multiplex Real Time PCR Assay for simultaneous detection of Human Metapneumovirus and Respiratory Syncytial Virus in a respiratory sample

Overview

RSV is leading cause of severe respiratory illness in very young children and most of the time with fatal outcome. Hence differential and timely diagnosis is important for clinical management. Additionally, hMPV is a leading cause of respiratory infections in children (5–7% of hospitalizations) and affects 3% of the general population seeking medical care hence continuous monitoring is important through integrated surveillance. Currently very few multiplex assays available commercially which can simultaneously detect hMPV, RSVA and RSVB. This kit is detects hMPV, RSVA & RSV B simultaneously in one tube.

Key Features

- **Public Health Information:** Helps to prevent the spread of RSV& hMPV.
- **Short turnaround time:** Results available within 60mins after extraction
- **Cost effective:** Comes in kit format hence minimizes the cost.
- The kit reagents are stable at -20º C and showed long shelf life i.e. 24 months
- Kit has compact and attractive package with one pager hand out (Kit insert)

USP of the technology

- Provide a rapid, sensitive, and specific multiplex real-time RT-PCR assay capable of detecting hMPV , RSVA and RSVB in a single-tube format.
- Enable accurate detection of co-infections, allowing simultaneous amplification and differentiation of hMPV, RSVA and RSVB targets within the same reaction.

Implementation Review

IP Status Details

IN202611048232

TRL Status

TRL-4

Technology Transfer Status

No

Inventor Details

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Domain: Diagnostics

Name of the Institute: ICMR - National Institute of Virology, Pune

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

Overview

Influenza viruses are prone to have pandemic potential. Vigilant about the reassortment of influenza virus to evolve into novel strain. There is no single kit available to detect all four types of influenza in one tube . Influenza A,B and C are known to infect humans however no data for Influenza D . This kit is useful to track the spillover events in Human from animal, Zoonotic infection identification and can be useful tool in one health surveillance approach

Key Features

- **Public Health Information:** Helps to prevent the spread of Influenza.
- **Short turnaround time:** Results available within 60mins after extraction
- **Cost effective:** Comes in kit format hence minimizes the cost.
- The kit reagents are stable at -20° C and showed long shelf life i.e. 24 months
- Kit has compact and attractive package with one pager hand out (Kit insert)

USP of the technology

- TaqMan based Real Time PCR assay for Simultaneous detection of all four types of Influenza A,B,C and D
- Rapid differential diagnosis of all four type of Influenza viruses for epidemiological surveillance, and tracking of potential zoonotic spillovers without needing to run separate tests for each virus.

Implementation Review

IP Status Details

NA

TRL Status

TRL-4

Technology Transfer Status

No

Inventor Details

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Domain: Diagnostics

Name of the Institute: ICMR - National Institute of Virology, Pune

KFD Human IgM ELISA

Overview

The Anti-KFD Human IgM ELISA is a diagnostic assay designed to detect Immunoglobulin M (IgM) antibodies against Kyasanur Forest Disease virus in patients presenting clinical signs and symptoms consistent with KFDV infection human serum. It enables early and accurate diagnosis of acute infections, supporting timely treatment. This technology strengthens public health surveillance, particularly in endemic regions, benefiting healthcare systems, clinicians, and at-risk populations through rapid, reliable testing. This serological assay is designed for providing the presumptive diagnosis of KFDV..

Key Features

- Rapid turnaround time enables prompt clinical and public health response
- Suitable for large-scale screening during outbreaks in endemic regions
- Standardized assay protocol ensures reproducibility across diagnostic laboratories
- Cost-effective testing compared to advanced molecular diagnostic methods

USP of the technology

- Detects KFD-specific IgM antibodies in human serum samples for early-stage diagnosis.
- Enables early diagnosis of acute CCHF infection through detection of anti-CCHF IgM antibodies.
- Simple ELISA procedure suitable for routine laboratory use.
- Requires standard ELISA laboratory infrastructure without advanced molecular equipment.
- Provides high sensitivity and specificity for accurate differentiation from other febrile illnesses.
- Useful for epidemiological studies, outbreak monitoring, and disease control programs.

Implementation Review

IP Status Details

NA

TRL Status

TRL-6

Technology Transfer Status

No

Inventor Details

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Domain: Diagnostics

Name of the Institute: ICMR - National Institute of Virology, Pune

CCHF Human IgM ELISA

Overview

The Crimean-Congo hemorrhagic fever virus (CCHFV) belongs to the genus Orthonairovirus within the family Nairoviridae. The disease is transmitted through infected Hyalomma ticks, contact with infected animal blood or tissues, and human-to-human transmission via bodily fluids. CCHF is characterized by sudden onset of fever, headache, muscle pain, bleeding manifestations, and may progress to hemorrhagic shock with high mortality rates.

Serodiagnosis of CCHF involves the detection of virus-specific antibodies in patient serum samples. Enzyme-Linked Immunosorbent Assay (ELISA) is commonly used for the detection of anti-CCHF IgM and IgG antibodies. Detection of IgM antibodies indicates recent or acute infection, while IgG antibodies suggest past exposure or later stages of infection. Serological assays are essential for rapid diagnosis, outbreak surveillance, and epidemiological studies, especially in resource-limited settings.

Key Features

- Rapid turnaround time enables prompt clinical and public health response
- Ready-to-use reagents for easy laboratory workflow
- Compatible with standard ELISA readers and laboratory infrastructure
- Standardized assay protocol ensures reproducibility across diagnostic laboratories
- Cost-effective testing compared to advanced molecular diagnostic methods

USP of the technology

- Detects CCHF-specific IgM antibodies in human serum samples for early-stage diagnosis.
- Enables rapid, high-throughput screening suitable for outbreak surveillance and epidemiological studies.
- Provides high sensitivity and specificity for accurate differentiation from other febrile illnesses.
- Supports laboratory-based confirmation using standardized ELISA protocols and reagents.

Implementation Review

IP Status Details

NA

TRL Status

TRL-6

Technology Transfer Status

No

Inventor Details

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Domain: Diagnostics

Name of the Institute: ICMR - National Institute for Research in Tuberculosis (ICMR-NIRT)

Innovative stool processing technology for molecular detection of Tuberculosis

Overview

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) and Line Probe Assay (LPA) as well as phenotypic tests such as smear microscopy and culture methods.

Key Features

- It is an in -house developed, stool processing method specifically standardised to handle unique composition and lower bacillary loads
- Seamlessly compatible with advance molecular assays like Xpert Ultra and LPA.
- Simultanoeus detection of MTB and drug resistance from stool sample
- Since standardised, it reduces user variability, making it adaptable for clinical laboratory settings.

USP of the technology

- Eliminates the need for collecting invasive samples like gastric aspirates or bronchoalveolar lavage from children
- Solves a critical unmet medical need by providing early detection of MTB from this vulnerable population
- Utilizes an optimized protocol to concentrate low bacterial yields
- Minimizing biohazard risks for laboratory personnel while streamlining the diagnostic timeline
- Enables rapid and concurrent mapping of drug resistance markers along with MTB detection
- Compatible processing technique for widely accepted molecular platform like Xpert and LPA

Implementation Review

IP Status Details

NA

TRL Status

TRL 4

Technology Transfer Status

Yet to be done

Inventor Details

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Domain: Diagnostics

Name of the Start-up: NeoDocs

NeoDocs Kidney Care UACR Kit

Overview

The NeoDocs uACR Kit enables detection of uACR and 10+ health parameters in just 30 seconds using a smartphone, offering rapid quantification of the Albumin-Creatinine Ratio to identify early signs of kidney stress. Clinically validated and designed for point-of-care use, it allows doctors to seamlessly screen diabetic and hypertensive patients during routine OPD consultations, eliminating delays and reducing dependence on traditional lab testing

Key Features

- Provides rapid (within 30-second) uACR results with 99% specificity and 96% sensitivity;
- Eliminates reliance on laboratory infrastructure & training;
- Its smartphone-based analytics, portability, and real-time reporting enable scalable, accessible CKD screening across diverse care settings.

USP of the technology

- Point of care solution, with a fully digital system enabling automatic data capture and report generation. It seamlessly integrates with ABHA for connected health records while eliminating manual entry, reducing errors, and saving time.

Implementation Review

IP Status Details

2 Patents
in India – 1,551,820
& 493,516
1 Patent in the US
– US 12,175,677 B2

TRL Status

TRL-9

Technology Transfer Status

NA

Inventor Details

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Domain: Diagnostics

Name of the Institute:
ICMR-National Institute of Virology

Human Chandipura IgM ELISA

Overview

Chandipura virus (CHPV) causes devastating outbreaks in children with high fatality rates across India. With no vaccines or antivirals available, early diagnosis is critical for clinical management. This indigenous IgM capture ELISA provides a highly sensitive, and specific, solution for detecting the virus in serum and cerebrospinal fluid. By enabling rapid identification during the acute phase, this diagnostic tool facilitates timely supportive care, directly addressing a vital gap in regional public health preparedness and pediatric emergency response

Key Features

- Biotin-Avidin based detection technology for improved sensitivity
- Biotin-Avidin based detection technology for improved sensitivity
- Increased safety dAue to inactivated antigen

USP of the technology

- The Chandipura IgM Capture ELISA has 92.16% sensitivity, 95.57% specificity.
- Can be used for both serum and Cerebrospinal Fluid (CSF) samples
- Low sample volume requirement makes is safer of susceptible pediatric population

Implementation Review

IP Status Details

NA

TRL Status

TRL-6

Technology Transfer Status

Technology has been transferred to Zydus Cadila
Kits and reagents were shared for parallel testing and pilot scale production Kits were shared for use in research project at Department of Neurovirology, National Institute of Mental Health and Neurosciences. Kits are also being used at ICMR-NIV, Pune for research projects.

Inventor Details

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Domain: Diagnostics

Name of the Institute: ICMR - NIRWoH, Mumbai

AFuPEPLISA Immunodiagnostic Kit for Detection of Antibodies to *Aspergillus fumigatus* in Sera of Patients

Overview

AFuPEPLISA Immunodiagnostic Kits, developed by ICMR-NIRRCH, Mumbai, are designed for detecting Aspergillus fumigatus–specific IgG and IgE antibodies in sera of patients with bronchial asthma and pulmonary tuberculosis. Given the high global burden of TB and asthma and the rapid growth of immunodiagnostic markets, this indigenous technology offers strong potential for TB-associated aspergillosis detection and asthma screening through sensitive serological diagnosis

Key Features

- Synthetic peptide–based ELISA for consistent and reliable antigen recognition
- High sensitivity and specificity for accurate IgG and IgE detection
- Low intra- and inter-assay variability ensuring reproducible results
- Cost-effective kit suitable for large-scale public health screening
- Long shelf life with stable performance during storage and transport
- Amenable to use in labs of Sub-district/ District hospitals

USP of the technology

- Detects Aspergillus fumigatus–specific IgG and IgE antibodies in patient serum samples
- Enables serodiagnosis of aspergillosis in bronchial asthma and pulmonary tuberculosis patients
- Uses synthetic peptide antigens for consistent and reproducible immunological recognition
- Low intra-assay and inter-assay variations
- Provides high sensitivity and specificity for accurate laboratory-based diagnosis
- Compatible with routine ELISA workflows in district and sub-district hospital laboratories
- Stable kit design with extended shelf life for easier storage and distribution

Implementation Review

IP Status Details

NA

TRL Status

TRL-5

Technology Transfer Status

Technology transferred to Medsource Ozone Biomedicals.

Inventor Details

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Domain: Diagnostics

Name of the Institute: Ragas Dental College and Hospital, Chennai, Tamil Nadu.

SMITA

Simple Mobile Interface Technology Application

Overview

SMITA is an AI-powered mobile application designed for real-time screening and risk stratification of Oral Potentially Malignant Disorders (OPMD) and oral cancer using smartphone-based intraoral imaging. The platform enables early detection, tele-screening, digital documentation, and referral support, particularly in low-resource and rural healthcare settings. The ecosystem also includes SMITASCOPE, an optional image-stabilization device developed to improve intraoral image capture quality.

Key Features

- AI-assisted oral lesion screening and risk stratification
- Smartphone-based intraoral imaging platform
- Real-time image acquisition and assessment
- Tele-screening and remote expert consultation support
- Digital patient management and documentation system
- Scalable for public health screening programs
- Compatible with low-resource healthcare settings
- Supports early detection and referral pathways

USP of the technology

- **AI-driven real-time screening platform**
- **Mobile-based and highly portable solution**
- **No specialist dependency for primary screening**
- **Tele-screening enabled digital ecosystem**
- **Scalable public health implementation model**
- **Designed for resource-limited settings**
- **Enhances early detection of OPMD and oral cancer**
- **Integrated workflow for screening, referral, and documentation**

Implementation Review

IP Status Details

IN202511124242

TRL Status

TRL-7

Technology Transfer Status

No, Seeking industry and public health partners

Inventor Details

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Dr. Ranganathan K,
Dean, Academic

Dr. Lavanya C
Professor

Domain: Diagnostics

Name of the Institute: ACTREC, TMC, Kharghar, Navi Mumbai, Maharashtra, 410210

A nanocomposite-enabled electrochemical method to detect fluoride in both drinking water and human serum for fluorosis prevention and drug toxicity monitoring

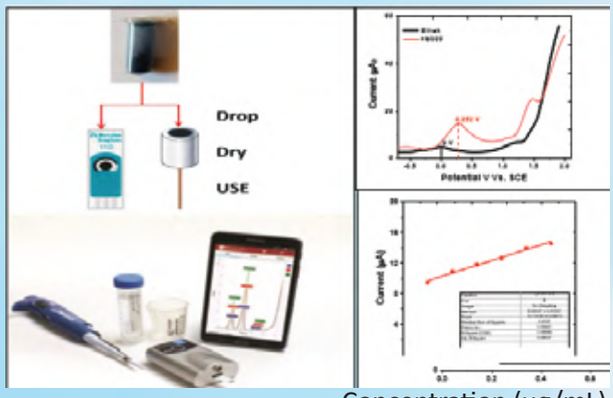
Overview

The Novel composite material to modify the Glassy carbon electrodes (GGCE) or screen printed electrodes (SPE).

Drop -dry-measure formula makes it easy.

The composite modified electrode can be used with any potentiostat or point of care device with Differential pulsed voltammetry (DPV).

The sensor has high linearity and detection limits in ng /mL This is worlds first electrochemical sensing material that can detect the fluoride in Water as well as Human serum.



Problem

- No point-of-care method for serum fluoride monitoring
- Fragmented detection approaches
- working effectively in both environmental samples and complex biological fluids
- Insufficient sensitivity at clinically relevant levels
- Limited accessibility and deployability
- Lack of scalable, portable formats

Parameter	Unit	Value
mean	µg mL^{-1}	11.510
SD	NA	0.00103
RSD	%	0.009
ASA	sq. cm	0.781
slope	µA/µgmL^{-1}	10.710
sensitivity	µA/µg$mL^{-1}cm^{-2}$	13.706
LOD	µg mL^{-1}	0.00032
LOQ	µg mL^{-1}	0.00096
LQC	µg mL^{-1}	0.100
MQC	µg mL^{-1}	0.300
HQC	µg mL^{-1}	0.600

Solution

The present technology addresses these limitations by providing:

Wide detection range:

Water (buffer systems): ~0 to 0.6 µg/mL
Serum samples: ~0 to 0.8 µg/mL

Ultra-low Limit of Detection (LOD):

~0.3 ng/mL (aqueous systems)
~0.44 ng/mL (serum)

Domain: Diagnostics

Name of the Institute: ACTREC, TMC, Kharghar, Navi Mumbai, Maharashtra, 410210

Key Features

- High sensitivity at clinically relevant levels
- Direct applicability in biological fluids
- Dual-use capability across domains
- Material-driven performance enhancement
- Cost effectiveness
- Compatibility with scalable electrode formats
- Rapid analysis
- Clinical relevance for drug monitoring

Benefits over existing alternatives known in art

- Measurement in water / **biological fluids (Serum)**
- Low cost
- Accuracy
- Reproducibility
- Adaptable to GCE as well as SPE

USP of the technology

- **Detection range**

  Water (aqueous systems): 0 to 0.6 µg/mL; Serum: 0 to 0.8 µg/mL
- **Limit of Detection (LOD)**

  Water: approximately 0.3 ng/mL

  Serum: approximately 0.44 ng/mL
- **Sensitivity**

  Water: ~13.7 $\mu A/\mu g \cdot mL^{-1} \cdot cm^{-2}$

  Serum: ~11.0 $\mu A/\mu g \cdot mL^{-1} \cdot cm^{-2}$
- **Linearity**

  Water: $R^2 \approx 0.988$ (up to 0.6 µg/mL)

  Serum: $R^2 \approx 0.975$ (up to 0.8 µg/mL)
- **Suitable for**

  Laboratory, point-of-care, and field-deployable applications

Implementation Review

IP Status Details

IN202521121097

TRL Status

TRL-4

Technology Transfer Status

Looking for Technology transfer

Inventor Details

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Domain: Diagnostics

Name of the Institute: Pt. J.N.M. Medical College, Raipur

MMqPCR Sickle Cell Anemia Genotype Kit

Overview

MMqPCR Sickle Cell Anemia Genotype Kit, a novel indigenous standalone technology designed for low-cost molecular diagnosis of sickle cell anemia developed by Pt. J.N.M. Medical College, Raipur. A probe free monochrome multiplexed qPCR-based assay has been designed using ordinary SYBR Green based qPCR chemistry resulting accurate molecular diagnosis at economic cost. The method is coupled with analytical software for automated analysis and interpretation of the raw MMqPCR data. As hemoglobin based sickle cell tests are not reliable for newborn diagnosis due to presence of variable HbF, the kit could be readily implemented in resource-limited settings as a confirmatory test for newborn screening and antenatal diagnosis of sickle cell anemia. The kit will strengthen India's afford to reduce morbidity and mortality from Sickle Cell Anemia by diagnosis at early life.

Key Features

- The assay demonstrated 100% accurate to differentiate sickle cell anemia genotype
- Sickle cell anemia diagnosis by probe free multiplexed qPCR using single DNA binding dye, resulting reduced manufacturing cost.
- Unlike conventional qPCR , two fluorescent signal is recorded / PCR cycle
- Raw MMqPCR data files from qPCR machine, in excel format could be directly uploaded to software to produce interpretation directly by a single click

USP of the technology

- Low cost , robust, molecular technique, required little expertise to perform the test.
- No requirement of multi-step agarose gel based fragment analysis as like conventional ARMS PCR
- Automated dedicated software based data analysis. No requirement for molecular-biology expert.
- Very low failure rate compare to market available other point of care molecular tests.
- Software able to detect cause of QC failure and repeat test gives correct diagnosis
- The indigenous technology
- Though DNA samples from any tissue or age group could be used to perform the test, the test could be targeted for infant sickle cell anemia diagnosis, specially new born children, for whom market available kits are not reliable.
- Can be readily implemented in resource-limited settings as a confirmatory test for newborn screening and antenatal diagnosis of sickle cell anemia. Diagnosis Sickle Cell Anemia in early life will reduce morbidity and mortality.

Implementation Review

IP Status Details

IN202621012985

TRL Status

Clinical validation done

Technology Transfer Status

No

Inventor Details

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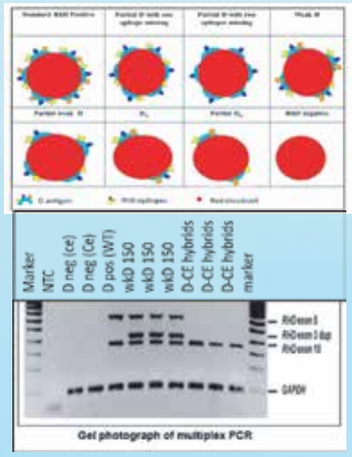
Domain: Diagnostics

Name of the Institute: ICMR- National Institute for Research on Blood and Immune Disorders

Indian RhD genotyping assay

Overview

Correct RhD blood group typing is fundamental to safe transfusion practice. Molecular testing is critical for accurate diagnosis of RhD variants as serological reagents/ techniques may not detect them. Most of these variants are clinically important and therefore identification very important. Novel mechanism causing these variant (Weak D type 150) in 60-85 % cases in India. Designed multiplex PCR assay for predicting RhD status and detecting common weak D phenotype in Indians. Screening especially important among blood donors, patients and antenatal women



Gel photograph of multiplex PCR

Key Features

- Indian specific assay to confirm the RhD blood group status
- Supports characterization of weak D and partial D variants in Indians
- Enhanced transfusion safety and helps in deciding about antenatal anti-D prophylaxis
- Cost effective than serological tests
- Suitable for diverse Indian populations

USP of the technology

- Simple Multiplex PCR assay
- Screens for a) most common weak D mutation in Indians i.e. Weak D type 150, b) RHD-CE-D hybrids and c) determine the correct RHD status
- Developed indigenous Indian specific assay, strengthening self-reliance in field of Immunohaematology
- No genotyping kit available commercially to identify and characterize most common weak D variant in Indians
- Screening for D variants especially among blood donors, patients and antenatal women

Implementation Review

IP Status Details

US9108013B2,
EP2205298B1

TRL Status

TRL-8

Technology Transfer Status

No

Inventor Details

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Domain: Diagnostics

Name of the Institute: ICMR - National Institute of Virology, Pune

JE Antigen Capture ELISA

Overview

Brief about the Technology /Principle Involved: This is the First indigenous JE Antigen detection kit which is cost effective, sensitive, rapid and user friendly.

- Kit is safe to handle in BSL-2 level of laboratory. This test can be used for the surveillance of JEV in mosquitoes to identify regions of high risk.
- **Intended Use:** Japanese encephalitis Antigen Capture ELISA is intended for qualitative detection of JE Antigen in mosquitoes. The serological assay is designed for identification of high-risk geographic area of JE outbreaks.

Key Features

- This test can be used for the surveillance of JEV in mosquitoes to identify regions of high risk.
- Moreover, the kit has the added advantage of high sensitivity 94.12% and specificity 97.67% due to the use of monoclonal antibodies.
- This test can be performed in resource limited setting.

USP of the technology

- No JE antigen capture ELISA kit is commercially available for the detection of the virus.

Implementation Review

IP Status Details

NO

TRL Status

TRL-9
(Manufacturing License received)

Technology Transfer Status

Zydus Cadila, Ahmedabad, India

Inventor Details

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Domain: Diagnostics

Name of the Institute: ICMR - National Institute of Virology, Pune

Human Measles IgM ELISA

Overview

Brief about the Technology /Principle Involved:

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. Kit is safe to handle in BSL-2 level of laboratory.

Intended Use: Anti-Measles IgM ELISA kit is a qualitative test which detects Measles IgM antibodies in the serum of patients. The assay provides presumptive diagnosis of Measles in outbreak investigations & useful for the diagnosis of Measles in hospitals & primary health centers.

Key Features

- Measles IgM ELISA has been standardized for qualitative determination of virus specific IgM in the human serum.
- The serological assay is designed for providing the presumptive diagnosis of recent infection with measles virus
- In-Direct IgM Elisa Kit had a high Sensitivity (100 %) and Specificity (96.34 %)

USP of the technology

- 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.

Implementation Review

IP Status Details

NA

TRL Status

TRL-9
(Manufacturing License received)

Technology Transfer Status

Zydus Cadila, Ahmedabad, India

Inventor Details

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Phone number: -020-25906832

MEDICAL DEVICES

Domain: Medical Device

Name of the Institute: Primary Healthtech Private Limited

Mobilab – Smart Portable Digitally Integrated Multi-Parameter Point-of-Care Testing Device

Overview

Mobilab is a portable, battery-powered, multi- parameter point-of-care diagnostic device designed for decentralized healthcare, delivering reliable test results within 30 minutes. It combines smart error detection and a step-by-step guided interface to ensure standardized testing, along with digital reporting, audit trails, and seamless offline-to-online synchronization for complete traceability.

Key Features

- Cost-effective solution with low maintenance and budget-friendly test packages
- Reduces patient drop-offs by enabling timely diagnostics in rural environments
- High demand across Ayushman Arogya Mandir, PHCs, CHCs, and wellness centers
- Compatible with telemedicine platforms and preventive health programs

USP of the technology

- Portable, battery-powered design enabling diagnostics in remote and resource-limited settings
- Smart error detection and step-by-step guided workflow ensuring standardized, technician-independent testing
- Multi-parameter testing across, biochemistry, Anemic markers and more
- Clinically validated in collaboration with ICMR, AIIMS, GMCH, and Indian Army
- Benchmarked against gold-standard automated laboratory analyzers with strong correlation Integrated digital platform with real-time data access and hospital system compatibility
- Supports decentralized healthcare through PHCs, mobile clinics, and health camps

Implementation Review

IP Status Details

- 23 Patents [6 granted]
- 11 Design Registrations [7Granted]
- 7 Publications

TRL Status

TRL-8/9

Technology Transfer Status

Technology Transfer: Available for licensing and partnership. Seeking collaborators for scale-up in government and private healthcare.

Inventor Details

Dr. Sahil Jagnani & Mr Ankit Chowdhury
Institute: Primary Healthtech Private Limited
Email: sahil@mobilab.in
Disease Area: Non-communicable Diseases

Domain: Medical Device

Name of the Institute: Nirwan University, Jaipur

SEPRDD-CHF (Sensing Pressure Releasing Diuretic Drug for Congestive Heart Failure)

Overview

SEPRDD-CHF (Sensing Pressure Releasing Diuretic Drug for Congestive Heart Failure) is a prototype-stage implantable closed-loop cardiac device developed at Nirwan University by Dr. Raja Babu Panwar. The device continuously monitors jugular venous pressure (JVP) and automatically delivers furosemide therapy when fluid overload is detected, helping prevent acute heart failure complications, reduce hospitalizations, and improve patient outcomes through timely autonomous intervention.

Key Features

- **Continuous JVP Monitoring –** Detects early fluid overload through real-time jugular venous pressure sensing.
- **Automatic Drug Delivery –** Automatically releases pre-calibrated furosemide therapy when critical pressure thresholds are reached.
- **Closed-Loop Intelligent System –** Integrates sensors, microcontroller-based signal processing, and automated therapeutic response.
- **Remote Monitoring & Early Intervention –** Enables timely alerts and pre-symptomatic treatment to reduce heart failure hospitalizations and improve patient outcomes.

USP of the technology

- **First-in-Class Implantable Device –** A novel closed-loop therapeutic system designed specifically for congestive heart failure management.
- **Real-Time Hemodynamic Monitoring –** Continuously tracks jugular venous pressure (JVP) for early detection of fluid overload.
- **Automatic Therapy Delivery –** Automatically administers pre-calibrated diuretic therapy without external clinical intervention.
- **Pre-Symptomatic Intervention –** Enables treatment before severe heart failure symptoms and acute decompensation occur.
- **Reduced Dependence on Patient Compliance –** Minimizes delays caused by missed medications or delayed hospital visits.

Implementation Review

IP Status Details

Patent Grant
Patent No. 560354 (INDIA)

TRL Status

TRL-4/5

Technology Transfer Status

No

Inventor Details

Dr. Raja Babu Panwar,
Distinguished Professor
Nirwan University, Jaipur (Rajasthan)
Email : panwarrajab@gmail.com
Mobile No. : 9672974040

Domain: Medical Device

Name of the Start-up: Intignus Biotech Pvt Ltd

PEscreen, A low cost, rapid screening Test for Preeclampsia

Overview

PEscreen is a rapid, in vitro diagnostic (IVD) test designed for early screening of preeclampsia in pregnant women. The test uses a small drop of blood to detect a biomarker associated with preeclampsia risk. It is portable, easy to use, and provides results within minutes, enabling early risk stratification and timely clinical intervention, especially in low-resource settings.

Key Features

- **Rapid results —** Provides preeclampsia risk screening results within minutes using a small drop of blood
- **Portable & easy to use —** Designed for point- of-care settings with no specialized equipment needed
- **Early risk stratification —** Enables timely clinical intervention by detecting biomarker associated with preeclampsia risk
- **Suitable for low-resource settings —** Portable design makes it accessible in rural and under-resourced healthcare facilities
- **Non-invasive & minimal sample —** Requires only a small blood sample, reducing patient discomfort

USP of the technology

- Rapid in vitro diagnostic (IVD) test specifically designed for early preeclampsia screening in pregnant women
- Detects a clinically validated biomarker associated with preeclampsia risk, enabling proactive maternal care
- Delivers results within minutes, significantly reducing diagnostic delays in time-sensitive obstetric situations
- Portable and field-deployable, making it viable in primary health centers and low-resource environments Supports early intervention strategies, potentially reducing maternal and neonatal morbidity and mortality
- Simple workflow requiring minimal training, enabling use by frontline healthcare workers

Implementation Review

IP Status Details

- 1 Indian Patent Granted (Patent: 435647)
- 2 Patents Applied
- 2 PCTs applied

TRL Status

TRL-8

Technology Transfer Status

Ongoing with Contract Manufacturer

Inventor Details

Dr. Vaishnavi Kulkarni
CEO and Founder
Institute: Intignus Biotech Pvt Ltd
Email: vaishnavi@intignusbiotech.com
Phone: 9545087830

Medical Innovations PATENT mitra Patent and Technology Transfer Enabler

I2I CONNECT INNOVATORS-TO-INDUSTRY CONNECT

Government of India
Department of Health Research

Domain: Medical Device

Name of the Organization: Scangenie Scientific Pvt Ltd.

Raksha: A Non-Invasive Handheld, Oral Cancer Detection Device

Overview

Raksha is a revolutionary, non-invasive handheld device transforming early oral cancer detection. By combining specialized white and fluorescent light with a high-definition camera, it painlessly illuminates the oral cavity—entirely eliminating the need for radiation, chemicals, or painful biopsies. Driven by advanced AI, Raksha instantly captures and analyzes images of the oral mucosa, accurately classifying them into normal, pre-malignant, or malignant categories.

Key Features

- **Instantly classifies oral lesions into normal, pre-malignant, and malignant categories.**
- **Provides painless oral cancer screening without biopsy, chemicals, or radiation.**
- **Lightweight and rechargeable design enables screening anywhere, including rural areas.**
- **Displays real-time screening results directly on the Raksha interface**
- **Advanced AI algorithms support reliable early-stage oral cancer screening.**

USP of the technology

- **AI/ML-Powered Instant Detection**
  Provides rapid classification of oral lesions into normal, pre-malignant, and malignant categories.
- **Non-Invasive & Painless Screening**
  Eliminates the need for biopsy-based primary screening procedures.
- **Real-Time Diagnostic Results**
  Generates immediate screening outcomes directly on the Raksha interface.
- **Portable Point-of-Care Device**
  Compact handheld design enables screening in clinics, camps, and rural areas.
- **Radiation-Free & Chemical-Free Technology**
  Ensures safe and repeatable screening without harmful exposure.
- **Affordable Solution for Mass Screening**
  Designed to support accessible oral cancer screening at the community level.

Implementation Overview

IP Status

Patent Grant: 573301

TRL Status

TRL-7

Technology Transfer Status

The Raksha technology has been officially transferred by IIT Kanpur to Scangenie Scientific Pvt. Ltd. for further development, manufacturing, and commercialization.

Inventor Details

Dr. Jayant K. Singh
Professor
Institute: (IIT) Kanpur
Email: jksingh@iitk.ac.in

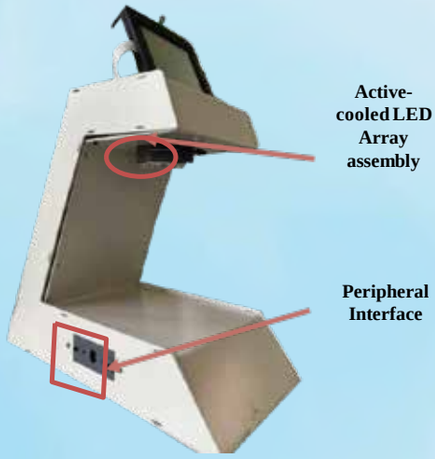
Domain: Medical Device

Name of the Institute: Macvins Research and Innovations & Vardhaman College of Engineering

IV Fluid Monitoring and Controlling of Smart Intravenous Cannulation Assisting Device Without Human Intervention

Overview

This invention focuses on designing a smart handheld device that facilitates the easy identification of suitable veins and safe insertion of an intravenous (IV) cannula. The device assists nurses and doctors in quickly locating a prominent vein using image processing technology. It also monitors the level of fluids in IV bottles and automatically alerts medical staff when the fluid reaches a critical level. An automatic clamp mechanism prevents reverse flow of blood until the new bottle is replaced, thereby improving patient safety and reducing manualmonitoring workload.



Key Features

- Smart vein detection system using advanced image processing for accurate IV cannula insertion.
- Real-time IV fluid level monitoring with automatic alerts for medical staff.
- Automatic clamp mechanism to prevent reverse blood flow during bottle replacement.
- Integrated handheld biomedical device reducing manual intervention and improving patient safety.

USP of the technology

- Combines IV cannulation assistance and fluid monitoring in a single smart device.
- Enhances accuracy and speed of vein identification, especially in difficult cases.
- Reduces dependency on continuous human monitoring in hospitals.
- Prevents blood backflow automatically, minimizing patient risk and complications.
- Supports improved workflow efficiency for nurses and healthcare professionals.
- Prototype already developed with laboratory testing and clinical validation completed, making it closer to commercialization.

Implementation Review

IP Status Details

Patents Granted

TRL Status

TRL-7

Technology Transfer Status

Currently identifying and engaging potential industry partners for technology transfer, manufacturing, and commercialization

Inventor Details

Dr. Naresh kumar M
CEO & Associate Professor
Institute: Macvins Research and Innovations & Vardhaman College of Engineering
Email: nareshece84@gmail.com
Phone number: 9994189762

Domain: Medical Device

Name of the Institutes:
All India Institute of Medical Sciences, New Delhi;
Indian Institute of Technology, Delhi

sMARSA: sensitive-Magnetic nano-particle Assisted Rapid Sandwich Assay

Overview

sMARSA is an automated, microfluidic point- of-care device that quantifies a-synuclein in serum using a magnetic nanoparticle-assisted immunoassay and integrated fluorescence detection. This enables rapid, on-site monitoring of treatment efficacy for dopamine-related disorders like Parkinson's disease and schizophrenia.

Key Features

- A compact, self-contained benchtop platform built for decentralized bedside testing.
- Integration of Microfluidics and pneumatic-controlled cartridges eliminate manual pipetting and preparation.
- Magnetic capturing and sandwich assay ensures 86% biomarker capture efficiency.
- A built-in fluorescence detector provides direct, quantifiable readouts.

USP of the technology

- Exceptional Limit of Detection of <10 pg/ml with a 10^5 dynamic range.
- Delivers full quantitative diagnostic results in under 45 minutes.
- Requires only a microscopic 2 µl of patient CSF or serum.
- >95% sensitivity and >95% sensitivity.
- First robust tool to dynamically track drug efficacy and optimize pharmacological intervention in Parkinson's disease and schizophrenia.

Implementation Review

IP Status Details

IN202511125193

TRL Status

TRL-4

Technology Transfer Status

In Process to Ayukriyam Innovations Pvt. Ltd.

Inventor Details

Dr. Gururao Hariprasad,
All India Institute of Medical Sciences, New Delhi,
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Prof. Ravikrishnan Elangovan,
Indian Institute of Technology Delhi, India,
elangovan@iitd.ac.in

Domain: Medical Device

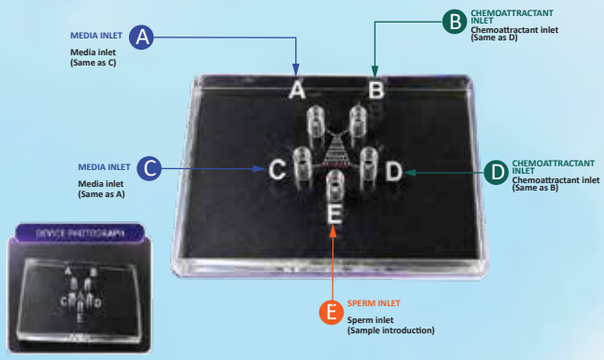
Name of the Institute: ICMR - NIRWoH (Formerly known as ICMR-NIRRCH)

Microfluidic Sperm Sorting Device for selecting good quality sperm for IVF/ICSI

Overview

1. A novel microfluidic sperm sorting device developed for selection of functionally superior sperm population based on motility and chemotaxis for IVF/ICSI
2. The platform enables gentle sperm processing under controlled microfluidic conditions while minimizing processing - induced stress associated with conventional sperm preparation methods

Technology



Key Features

- Indigenous, low cost, novel design
- Motility and Chemotaxis-guided sperm selection
- Enriches functionally superior sperm population
- Reduces processing-induced stress

USP of the technology

- Utilizes Chemoattractant gradient for sperm selection
- Selectively enriches DNA intact- and chromatin compact sperm
- Avoids centrifugation-associated oxidative and mechanical stress to sperm
- Expected to enhance success rate of IVF/ICSI procedures

Implementation Review

IP Status Details

Provisional Indian Patent Application Filed
Chemoattractant Formulation
Application no. 202511132165

TRL Status

TRL-4/5

Technology Transfer Status

Open for technology transfer / Industry Collaboration

Seeking Industry partners for translational development and commercialization

Inventor Details

ICMR - NIRWoH

- Dr. Priyanka Parte (Lead)
- Mrs. Shraddha Gandhi
- Ms. Durva Panchal

IIT - Bombay

- Dr. Venkat Gundabala

Dr. Priyanka Parte
ICMR – Emeritus Scientist
Institute: ICMR - NIRWoH
Email: partep@nirrch.res.in
Phone number: 9975577350

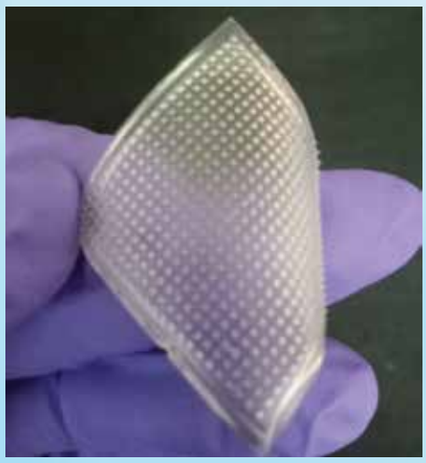
Domain: Medical Device

Name of the Institute: SCTIMST, Trivandrum

Drug-Loaded Dissolving Microneedle Patch

Overview

The technology is based on biodegradable, drug-encapsulated microneedle arrays fabricated using optimized polymer systems. Upon application, the microneedles painlessly breach the stratum corneum and dissolve rapidly in interstitial fluid, enabling direct drug deposition into the dermal microcirculation.



Key Features

- Compact High-Density Patch: 1.5 × 1.5 cm with 225 microneedles for uniform delivery
- Painless Microneedles: Optimized size (~500–800 µm length, 200–300 µm base width, <10 µm) tip enables safe, nerve-free skin penetration
- Fast & High Drug Delivery: Dissolves in ~5 min, delivering ~12 mg analgesic
- Efficient Performance: Rapid onset with improved bioavailability and consistent dosing
- Safe & User-Friendly: No sharps waste, self-administrable, stable for sensitive

USP of the technology

- **Safe & Regulatory-Friendly Platform:** Fabricated using FDA-approved polymers, supporting smoother regulatory pathways and commercialization
- **Versatile High-Capacity Drug Loading:** Compatiblewith both hydrophilic and hydrophobic drugs, enabling high-concentration loading for diverse therapeutic applications
- **Scalability:** The prototype is developed and **the process scaled up and automated.** The prototype is tested in house. TRL: PoC established, TRL-4; **Status: Prototype ready, In vivo testing ongoing as per ISO 10993**

Implementation Review

IP Status Details

1. IN202441022736
2. IN202641023518
3. IN202641052631

TRL Status

TRL-4

Technology Transfer Status

No

Inventor Details

Dr. Shiny Velayudhan
Scientist – F; SCTIMST, Trivandrum
Email:shiny@sctimst.ac.in Phone: 547357351

Mr. Pradyumna J
Scientist – D; CMTI, Bangalore
Email: pradyumana@cmti.res.in

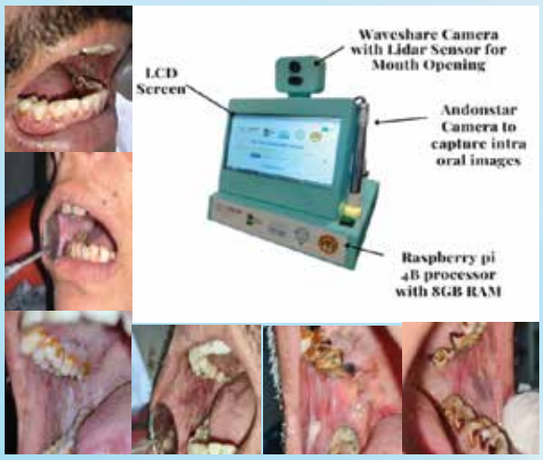
Domain: Medical Device

Name of the Institute: BETiC, G H Raisoni College of Engineering and R D Dental College & Research Center, Nagpur

Portable device for early screening of Oral Submucous Fibrosis using AI

Overview

Portable, non-invasive diagnostic device designed to assist clinicians and healthcare workers in detecting early signs of Oral Submucous Fibrosis (OSMF) using Artificial Intelligence. The system integrates a depth-sensing LIDAR camera to contactlessly measure maximum interincisal mouth opening, alongside a sterilized intraoral camera to capture high-resolution images of the oral cavity. These inputs are processed in real-time by a Raspberry Pi 4B using pre-trained deep learning models (such as DenseNet-121 and U-Net) to classify the disease, automatically grade it into Stages I - III, and localize buccal mucosa lesions.



Key Features

- Automated, contactless measurement of interincisal distance (mouth opening) with a standard deviation of just 0.68 mm compared to manual ruler methods.
- Advanced deep learning pipeline that performs multi-stage analysis: OSMF classification, ucosal segmentation, and accurate lesion localization with 96% sensitivity, 98% specificity, and 97% accuracy.
- Compact and self-contained hardware powered by a Raspberry Pi 4B processor, featuring a 7-inch LCD touchscreen for immediate visualization and user interaction.

USP of the technology

- Provides a highly accurate, objective, and hygienic alternative to traditional manual clinical measurement tools like rulers and vernier calipers.
- Exceptionally user-friendly interface designed to be operated by primary healthcare workers and community health volunteers without requiring a dental specialist.
- Directly addresses rural healthcare disparities by providing a low-cost, scalable solution for routine health camps and community outreach programs.

Implementation Review

IP Status Details

Patent Application Number: 202421006731

TRL Status

TRL-5

Technology Transfer Status

Received approval for clinical validation by ICMR-DHR CoE BETIC IIT Bombay and MD-13 Received from CDSCO (Central Drugs Standard Control Organization) for third party clinical trials.

Inventor Details

Dr. Vibha R. Bora, Professor and Incharge, BETiC-GHRCE, Raisoni College of Engineering/Shradhha AI Technologies Ltd.

Email: vibha.bora@raisoni.net, +91 - 9764176473

Domain: Medical Device

Name of the Institute: BETiC - GHRCE and S D Kalmegh Dental College and Hospital, Nagpur

Digi-Probe for Pocket Depth Measurement for Periodontists

Overview

Periodontal diseases are a major oral healthcare concern worldwide. Periodontal Pocket Depth (PPD) is commonly measured using a William's Probe, but conventional methods may lead to inaccurate diagnosis. Our proposed solution provides accurate PPD measurement with enhanced features for better periodontal assessment.

Key Features

- High Measurement Accuracy with real-time digital display of 0.00417 mm²
- Severity Indicator: 3 - 5mm → 5 - 10mm →
- Equipped with Controlled Probing Force and 360° rotatable and autoclavable Stainless Steel Tip
- Portable and lightweight with Rechargeable Batteries

USP of the technology

- Controlled Probingforce of 0.25N (recommended by clinician).
- Cost-Effective compared to existing electronic probes.
- Portable and easy to use compared to existing electronic probes that have clumsy setup and requires training.
- The device is powered by a rechargeable battery.
- Made in India

Implementation Review

IP Status Details

1. Patent Application Number: 202221018446
2. Patent Filed for Application Number: 202621042161

TRL Status

TRL-5

Technology Transfer Status

ICMR approved and MD-13 Received from CDSCO (Central Drugs Standard Control Organization) for third party clinical trials

Inventor Details

Dr. Vibha R. Bora, Professor and Incharge, BETiC-GHRCE, Raisoni College of Engineering/Shradhha AI Technologies Ltd.

Email: vibha.bora@raisoni.net, +91 - 9764176473

Domain: Medical Device

Name of the Institute: Indian Institute of Science Education and Research, Bhopal

FluoroRAD: A Point-of-Care Diagnostic Device for Quantitative Analyte Detection

Overview

FluoroRAD - A Point-of-Care Diagnostic Device for Quantitative Protein Detection: We have developed a fluorescence-based-device for rapid antigen detection targeting disease diagnosis. This is not disease specific and can be employed for diagnosis of any disease where bio-samples are tagged with their corresponding fluorophores. We have tested this device for SARS-CoV-2 spike protein.

Key Features

- The FluoroRAD is a portable and benchtop device (Footprint: 10 cm × 10 cm).
- Quick indication of disease severity indicator
- High resolution: Low antigen concentrations can be detected < 1ng/mL (for spike protein).
- Touch screen based smart design and user friendly interface for easy operation.

USP of the technology

- Rapid (2-3 minutes) and quantitative detection of protein/analytes.
- Immunofluorescence based highly sensitive measurement.
- Generic platform: Detection of any protein or antigen for which a corresponding antibody exists.
- Indigenously developed technology.
- Cost-effective, robust, reliable, and user friendly device (image processing using RGB analysis).

Implementation Review

IP Status Details

Patent application No. 202421063069

TRL Status

TRL-5

Technology Transfer Status

No

Inventor Details

Dr. Santanu Talukder
Associate Professor
Institute: IISER Bhopal
Email: santanu@iiserb.ac.in
Phone number: -9632716218

Domain: Medical Device

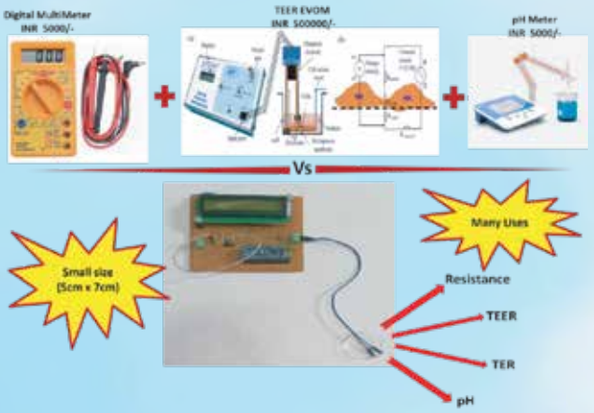
Name of the Institute: ACTREC, TMC, Kharghar, Navi Mumbai , Maharashtra, India 410210

RAMCAMM: A Compact TEER–pH–Resistance Analyzer Platform for Live Biological Monitoring and Micro-Electrical Characterization

Problem

Present techniques like flow cytommetry, MTT, fluroscent microscopy etc.

There is a critical unmet need for a compact, integrated, and non- destructive platform that enables continuous, real-time assessment of cell integrity, barrier function, and metabolic activity under sterile conditions, especially within a Biosafety Cabinet (BSC) and in multiwell plate.



RAMCAMM addresses this gap by:

- Integrating TEER, TER, and pH measurements into a single portable device
- Enabling real-time, simultaneous, and non-invasive monitoring of live cells
- Providing dynamic insights into drug–cell and drug–tissue interactions, unlike endpoint assays (IC_{50}/MTT)
- Eliminating reliance on destructive techniques like flow cytometry and microscopy for routine monitoring
- Allowing in situ measurements inside BSCs, preserving sterility and experimental integrity
- Reducing cost barriers (₹4–6.5 lakh → < ₹45,000), improving accessibility

Stage of your Innovation:

- Prototype tested.
- Ready for commerciallization

Mode 1. TEER/TER measurement

Mode 2. Resistance Measurement

Mode 3. pH Measurement

Key Features of Technology

- Single device multipurpose
- Small and handy
- USB operated
- as well as power-supply
- Ruggedness
- High sensitivity and resolution
- Customized electrodes
- Simple design

Unique Selling Points

- Range : 1Ω to 10 MΩ
- Resolution : 0.01 Ω
- Single mode
- Continuous mode
- Application dependent modes

Domain: Medical Device

Applications

- Cell culture monitoring (TEER/TER; pH; Resistance)
- Drug permeability studies
- Toxicology evaluation
- Drug–tissue interaction studies
- Barrier model validation (e.g., BBB, intestinal models)
- Organ-on-chip systems
- 3D tissue and organ printing validation

Implementation Overview

Implementab le in various indian lab oratorie working owith invtro studies and cell culture

Phase 1. The blindfold trials

Phase 2. Design optimiz ation

Phase 3. Induction in various sectors

Phase 4. Feedback

Phase 5. Customiz ation for next versions

Advantages

- Customized, low-cost, single-use electrodes
- Reduced cross-contamination risk
- Assay-specific electrode geometry
- Cost-effective scalability
- Compatibility with inserts and multiple well plates (8,12,24,96)

Customizability of Electrodes based on

i. number of uses

ii. Size of well

iii. pH

Implementation Review

IP Status Details

Patent Application No.
106/4967/2025/MUM

TRL Status

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Technology Transfer Status

Not transferred

Inventor Details

Amarsingh V. Thakur, Kavita Thaker, Vikram S. Gota
Tata Memorial Centre's ACTREC, Kharghar, Navi Mumbai
Email radheyrajput7@gmail.com,
actrecpatentcell@gmail.com
Phone number: 8956518792

Domain: Medical Device

Name of the Institute: Sanwari Bai Surgical Centre in Partnership with Virtual Sathi Pvt. Ltd.

SEQUEL AI-Adaptive 4-Chamber Intermittent Pneumatic Compression (IPC) Device for Lymphedema Management

Overview

India bears a double burden of lymphedema — historic filariasis plus rising cancer, trauma, and venous cases. IPC therapy has evolved from controversy to clinical standard; newer-generation devices are now recognized as meaningful adjuncts within Complete Decongestive Therapy (CDT).

SEQUEL emerges from 45 years of continuous lymphedema research by an AIIMS-trained lymphologist — the only domestically developed IPC device built specifically for India's clinical and economic context

<1% of patients with lymphatic filariasis in India currently receive treatment. SEQUEL is designed to close this gap — at a fraction of the cost of imported alternatives.

Key Features

112 Patients evaluated	**45%** Global LF burden — india	**63%** Local content

- **4-chamber sequential compression** —combines the safety of single-chamber systems with the efficiency of multi- chamber devices. Suitable for all ISL grades.
- **Fully programmable** — pressure, timing, and sequence customizable per patient per session for clinic and home settings.
- **AI-adaptive algorithm —** in active development; will automate customization based on individual limb profiles.
- **CDT-adjunct design —** engineered to complement therapist-led care, not replace it. Clinically validated protocol.

Technology Lineage & USP

1981 — AIIMS THESIS Demonstrated for the first time that single-chamber IPC is safe even in advanced-stage lymphedema.

This became the scientific foundation for all subsequent Indian IPC development.

1995 — FIRST INDIAN IPC DEVICE Developed India's first single-chamber IPC pump — preceding the wave of imported multi-chamber devices that followed, many of which caused complications in advanced disease.

TODAY — SEQUEL The current patented pressure and timing program preserves single-chamber safety while delivering multi-chamber efficiency. Cost: a fraction of imported alternatives (USD 2,000–8,000).

WHY SEQUEL IS DIFFERENT

1. Only Indian IPC device designed for filarial lymphedema — the dominant disease burden in India, poorly served by imported devices.
2. Proprietary embedded software (15% of BOM cost) — 100% developed in India, fully patented.
3. Certified Class-I Medical Device with 63% local content

Implementation Review

IP Status Details

India Patent Filed
App. No. 202511087379 · US, PCT in progress

TRL Status

TRL-7

Technology Transfer

Licensing-ready
Seeking manufacturing licensee & distribution partner

Co Inventor Details

Dr Shashi Bhushan Gogia
MS Surgery, AIIMS, Delhi Senior Consultant Surgeon and Lymphologist
CEO, Virtual SATHI Private Limited.

Ms Arun Rekha Gogia
Certified CDT Specialis,
Sanwari Bai Surgical Centre, India's only Centre of Excellence for Lymphedema.
Chair, LE&RN India

Domain: Medical Device

Name of Start-up: Arundhati Healthcare Pvt. Ltd.

CleverCUP

Overview

Empowering user with automatic, anatomy-aligned urine collection to eliminate diagnostic errors and combat Antimicrobial Resistance (AMR).

Key Features

- **AuraCleverCUP:** A restroom-independent version for rural PHCs, health camps, and semi-urban settings Supported by **BIRAC under BIG-'24 call**
- **UrbanCleverCUP:** A palm-sized, commode-optimized version designed for a seamless ergonomic experience in urban gnostic chains Supported by **BFI & m-Pragati** under NAMAH program at IIT Delhi
- **TriageCleverCUP (POCT):** Integrates a dipstick mechanism for 30-second real- time screening to reduce empirical antibiotic loading Supported by **IKP Knowledge Park** under Health Access Catalyst
- **OmniCleverCUP:** Inverted mechanisms focused on specialized fractions for Metabolic Markers (ACR) for effective CMDs screening & monitoring Supported by **Novo Nordisk & FITT** under Healthier India Program

USP of the technology

- The Innovation: CleverCUP is a body-aligned, single-use device that automates the entire "clean- catch" technique.
- Anatomy Aligned: Patented funnel aligns with the vulva to ensure a clean path.
- Automatic Segregation: Sequential filling chambers isolate the first 10ml of contaminated void (FVU) and lock it away, diverting only the high-quality midstream (MSU) for testing.
- Validation Evidence: In-Vitro Purity: Testing with spiked bacteria confirmed 100% segregation efficiency, with zero growth of first-void bacteria in the MSU2 culture chamber.
- User Acceptability: 80% of women expressed immediate willingness to adopt CleverCUP over traditional containers.
- Impact & Scale: Market Need: 2.5 million urine culture tests are prescribed daily in India.
- Economic Saving: By eliminating repeat tests and misdiagnosis, we aim to reduce the massive economic burden of complicated UTIs.

Implementation Review

IP Status Details

Patent: 202311085431

TRL Status

TRL-4

Technology Transfer Status

Yes; Technology developed and licensed by BRIC- THSTI under School of Diagnostic Innovation in Biodesign, a Department of Biotechnology, Govt. of India supported programme

Inventor Details

Ms. Devhuti Chetan Palan
Founder & CEO
Arundhati Healthcare Private Limited
arundhatihealthcare@gmail.com
+91-8469977244

Domain: Medical device

Name of the Institute: Indian Institute of Technology, Delhi

Hearing Screening Device-HearIT

Overview

Hearing Screening Device (HearIT) is a Digital System intended for Auditory Otoacoustic Emission (OAE) for rapid and accurate screening cum evaluation of hearing loss. It operates by inserting a probe into the external ear canal to measure Distortion Product Otoacoustic Emissions (DPOAE) from the outer hair cells of the inner ear. The results are processed through advanced algorithms via a computer software and reported either as "pass" or "refer".

Key Features

- Advanced DPOAE Technology
- Intelligent Noise Rejection System
- Instant DP-Gram Visualization
- Automated Pass/Refer Screening,
- Patient Data Management & History

USP of the technology

- Developed using indigenous technology, strengthening national healthcare self-reliance under Make in India initiative
- Demonstrates reliable diagnostic accuracy with clinically validated DPOAE-based screening platform approach
- Portable, affordable, laptop-based design
- Compatible with comprehensive audiological workflows for enhanced patient screening and longitudinal hearing monitoring
- Delivers complete screening in under 60 seconds with automated Pass/Refer decision support for high-throughput programs
- Incorporates smart probe intelligence with probe fit check, block check, and real-time ambient noise alert for field-ready reliability

Implementation Review

IP Status Details

NA

TRL Status

TRL-8

Technology Transfer Status

Under Process

Inventor Details

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Domain: Medical Device

Name of the Institute: Indian Institute of Technology, New Delhi

Ocular Chemoport

Overview

The Ocular Chemoport is an implantable, trans-scleral medical device intended to facilitate repeated intravitreal drug delivery in patients undergoing treatment for retinal diseases such as age-related macular degeneration (AMD) or diabetic macular edema (DME). The device is designed to minimize pain and tissue trauma associated with direct intravitreal injections by providing a pre-established channel for needle insertion, thereby reducing the need to puncture the sclera and choroid repeatedly.

Key Features

- Trans-scleral implantable device
- High mechanical integrity and durability against repeated needle penetration
- Leakage-free and blockage resistant inner bore design for smooth drug flow.
- Stable anatomical positioning to prevent retinal or lens damage.

USP of the technology

- Pain-free repeated ocular drug delivery
- Reduces repeated scleral puncture damage
- Implantable long-term chemoport system
- Controlled and repeatable intravitreal delivery
- Safe placement away from retina and lens
- Compatible with standard ophthalmic procedures
- Enables controlled and repeatable drug administration for chronic retinal diseases like AMD and DME.
- Supports multi-directional drug efflux for efficient intraocular drug distribution

Implementation Review

IP Status Details

NA

TRL Status

TRL-6

Technology Transfer Status

Not transferred

Inventor Details

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Domain: Medical Device

Name of the Institute: mPragati, Indian Institute of Technology, Delhi

Eccentric-pin joint total elbow prosthesis

Overview

The novel eccentric-Pin joint total elbow prosthesis is designed to minimize aseptic loosening and extend implant life by reducing metal-to-metal contact and enhancing osseointegration. Their unique design prevents stress shielding with grooves on the humeral and ulnar parts, guiding motion during flexion-extension

Key Features

- Enables biomimetic elbow motion through an eccentric variable center of rotation
- Reduces aseptic loosening using a 3D articulating rotating stem design
- Utilizes lattice structures to improve osseointegration and reduce modulus mismatch

USP of the technology

- Novel two-pin eccentric articulation mechanism allowing non-circular physiological elbow kinematics
- Variable center of rotation enhances joint stability and natural range of motion
- Screw-like 3D rotating stem geometry provides enhanced implant anchorage and fixation strength
- Optimized lattice architecture minimizes stress shielding and promotes bone in-growth
- Designed to improve implant longevity, reduce loosening, and enhance patient-specific performance

Implementation Review

IP Status Details

Patent number:
IN438849
Application No.
Indian 202511117754
(second patent)

TRL Status

TRL 4

Technology Transfer Status

No; (under Process)

Inventor Details

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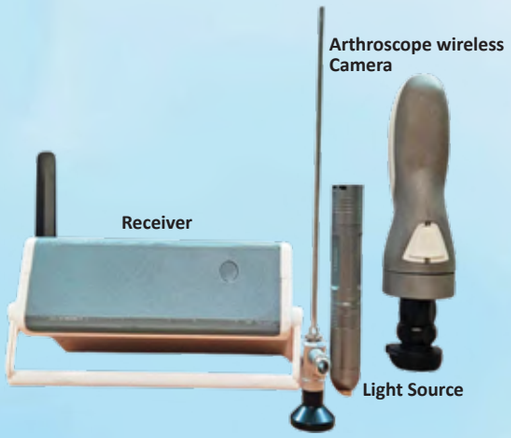
Domain: Medical Device

Name of the Institute: Indian Institute of Technology, New Delhi

Wireless Arthroscope Camera

Overview

Conventional arthroscopy relies on bulky, tower based systems with tethering cables and external light sources that clutter the sterile field and demand costly infrastructure. The wireless arthroscope addresses this with a compact, cable free unit integrating a high resolution camera and onboard LED illumination. Encoded video streams in real time with low latency, delivering clear intraoperative views while offering greater mobility, faster setup, and a portable, cost effective alternative.



Key Features

- Removes tethering cables for greater surgeon mobility and a cleaner sterile field.
- Onboard camera sensor and LED light source capture and illuminate the joint from within the device.
- Encoded video transmitted wirelessly to a display with low latency for live visualization.
- Battery-powered, self-contained design that is portable and quick to set up.

USP of the technology

- Fully cable-free design lets surgeons move freely with no cords cluttering the sterile field.
- Integrated camera, illumination, and transmission in a single compact unit, eliminating the need for external towers
- High-resolution imaging streamed live with low latency for clear, uninterrupted intraoperative views.
- Minimal hardware and fast deployment reduce OR setup time and complexity.
- Battery-powered, self-contained system suited for clinics, mobile units, and resource-limited settings.
- Lower infrastructure and equipment overhead compared to conventional tower-based arthroscopy systems.

Implementation Review

IP Status Details

NA

TRL Status

TRL 5

Technology Transfer Status

In discussion with industries

Inventor Details

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Professor
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Domain: Medical Device

Name of the Institute: ICMR - National Institute oF Vector Control Research (ICMR-NIVCR), Puducherry

A PORTABLE APPARATUS FOR SEPERATION OF BIOLOGICAL MOLECULES

Overview

This portable gel electrophoresis apparatus features a simple, compact design for separating biological molecules like proteins. Highly cost-effective and low-maintenance, this patented system is engineered for decentralized, low-resource settings and developing countries. It delivers reliable, high-efficacy separation comparable to conventional lab equipment, making it ideal for point-of-need for low resource settings.

Key Features

- **Ultra-Portable & Self-Contained:** Housed in a compact, rugged case for easy transport to field deployments and remote clinics.
- **Cost-Effective Architecture:** An affordable design that significantly cuts production and procurement costs compared to traditional lab systems.
- **Streamlined, Simple Design:** A user-friendly design that simplifies operations and requires minimal training for healthcare workers.
- Suitable for low resource settings

USP of the technology

- **Empowers Low-Resource Settings:** Tailored specifically for resource-constrained laboratories and developing countries, bridging a critical global health gap.
- **High Efficacy at Low Cost:** Delivers the exact same high-quality biomolecule separation as standard systems, but at a fraction of the size and cost.
- **Decentralized Public Health Power:** Removes infrastructure and budget barriers, enabling immediate diagnostics and research in remote or underserved communities.

Implementation Review

IP Status Details

IN202211008794

TRL Status

TRL-3-4

Technology Transfer Status

Yes

Inventor Details

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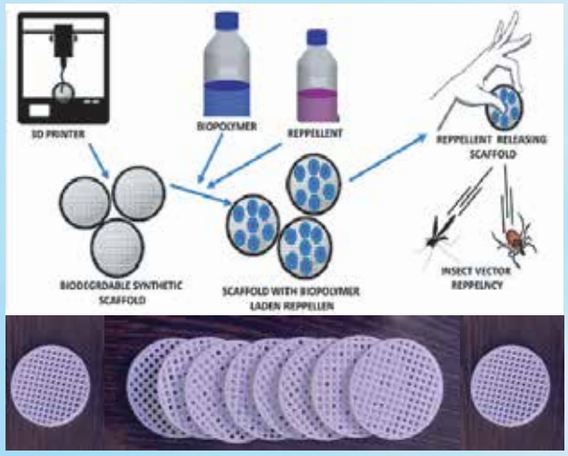
Domain: Medical Device

Name of the Institute: ICMR - National Institute oF Vector Control Research (ICMR-NIVCR), Puducherry

Biodegradable 3D-Printed Scaffold coated with Biopolymer and Insect repellent, method of preparing and uses

Overview

A biodegradable 3D-printed scaffold coated with biopolymer and mosquito repellent designed for sustained and safer mosquito protection without direct skin contact. The technology provides long-lasting repellency, eco-friendly application, and supports effective prevention of mosquito-borne diseases in public health settings.



Key Features

- **Eco-Friendly Design** Biodegradable 3D-printed scaffold with biopolymer-based mosquito epellent coating
- **Long-Lasting Protection** Provides sustained, skin-safe mosquito protection without direct skin contact
- **Enhanced Repellency Performance** emonstrated reduced mosquito attraction and improved efficacy over commercial formulations
- **Technology Readiness** Patent-filed and in-house validated technology ready for large-scale evaluation and transfer

USP of the technology

Sustainable Technology

Biodegradable 3D-printed mosquito repellent platform for eco-friendly vector protection

Non-Contact Safe Protection

Delivers long-lasting mosquito repellency without direct chemical application on skin

Advanced Performance Advantage

Provides enhanced and sustained repellency compared to conventional commercial repellents with patent-filed innovation

Implementation Review

IP Status Details

IN202511082847

TRL Status

TRL-3-4

Technology Transfer Status

Yes

Inventor Details

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Domain: Medical Device

Name of the Start-up: FLH KLEANAIR AND KLEAN ENERGY INDIA PRIVATE LIMITED

The Wearable Positive Pressure Respirator with Dual-Zone Air Quality Monitoring and Hyperlocal Cloud Mapping Ecosystem

Overview

The AERPOD X3 is a medical-grade, neck-worn positive pressure air purifier designed to protect immunocompromised and vulnerable individuals from airborne pollutants. It actively draws ambient air through a multi-stage HEPA + carbon filter and delivers clean, verified air under positive pressure to a transparent face shield—eliminating breathing resistance and creating a sealed micro-environment of purified air. Integrated IoT sensors and cloud connectivity turn each device into a mobile air quality node, feeding a public health mapping ecosystem.

Key Features

- **Neck-Worn Ergonomic Design –** Rests on the shoulders like earphones; no belts, no backpacks, all-day comfort.
- **Powered Positive Pressure –** Miniature centrifugal fan delivers clean air without any inhalation effort, preventing inward leakage even with an imperfect seal.
- **Suitable for diverse populations with proven Multi-Stage Medical-Grade Filtration –** HEPA (99.97% at 0.3 µm), activated carbon, and antimicrobial layer remove particulates, gases, and pathogens. **and efficacy profiles**
- **Dual-Zone Air Quality Monitoring –** Sensors measure ambient air before filtration and filtered air just before inhalation for real-time efficacy verification.

USP of the technology

- **Real-Time Verified Inhalation Air Quality –** First-ever dual-zone sensor system that continuously checks the air before and after the filter, guaranteeing every breath is safe.
- **Zero Breathing Resistance –** Positive pressure delivery eliminates inhalation effort, making it ideal for prolonged wear by vulnerable lungs.
- **Uncompromised Seal –** Positive pressure ensures any mask leak pushes clean air out, not contaminants in.
- **All-Day Wearable Ergonomics –** Neck-shoulder mounted design (like earphones) discreet, lightweight, and comfortable for up to 12 hours.
- **Your Personal Air Quality Map –** Turns every user into a mobile sensor node, crowdsourcing hyperlocal pollution data with unmatched granularity.

Implementation Review

IP Status Details

IN202641058927

TRL Status

TRL-6

Technology Transfer Status

NA

Inventor Details

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Domain: Medical Device

Name of the Start-up: Curexel Technologies Private Limited

Painless Injection Device

Overview

Millions of patients suffer from trypanophobia (fear of needles), leading to pain, anxiety, and avoidance of essential medical procedures such as vaccinations, IV cannulation, chemotherapy, dialysis, and blood collection.

We have conceptualized and prototyped a microneedle based painless injection device that retrofits a standard syringe. We have initiated batch scale manufacturing and begun regulatory submissions in India

Key Features

- Painless injection with accurate and reliable shallow depth penetration
- Entirely leakage free, Targeted Intradermal Delivery
- Compatible with standard luer-lock/luer-slip syringes, minimizing adoption barrier and training requirements
- Applications – Vaccinations, Allergy Tests, Local anesthesia administration before IV puncturing

USP of the technology

- Unique Device skin interface that enables accurate and reliable shallow depth injection.
- Entirely indigenous development with novel IPs
- Technology platform with pipeline products for next phase development
- Mass producible in Indian Manufacturing Ecosystem.
- Improved patient comfort and compliance during repeated injections
- Low-cost scalable architecture suitable for mass vaccination programs
- Backed by multiple startup schemes from ICMR, Birac, central and Karnataka state Govt schemes

Implementation Review

IP Status Details

IN202441039388

TRL Status

TRL-6

Technology Transfer Status

Not Transferred

Inventor Details

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Domain: Medical Device

Name of the Start-up: Silifarm Technologies Private Limited

Matri Pro – The Off Switch of Menstural Pain

Overview

Matri Pro is a portable, non-invasive pain relief device designed to help women manage period cramps and muscle pain without medicines. The technology uses clinically proven TENS (Transcutaneous Electrical Nerve Stimulation) therapy to provide instant and drug-free relief.

The device is compact, rechargeable, wireless, and easy to use in daily life. It is also effective for lower back pain, abdominal discomfort, and muscle soreness.

Key Features

- Drug-free and non-invasive pain relief Uses clinically proven TENS technology
- Compact, portable, and rechargeable design
- Wireee operation with reusable gel pads
- Multiple intensity modes for personalized therapy

USP of the technology

- Specially designed for women-centric pain management
- Provides instant relief without dependency on painkillers
- Combines medical-grade TENS therapy with modern compact design
- Reusable ecosystem reducing recurring healthcare costs
- Affordable and accessible alternative to traditional pain therapies
- Trusted by thousands of users across India
- Supports women's wellness and preventive healthcare
- Scalable for institutional wellness and healthcare programs
- Built as a modern consumer health-tech ecosystem

Implementation Review

IP Status Details

IN202431099599

TRL Status

TRL-9

Technology Transfer Status

Not transferred

Inventor Details

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Phone Number: +918276829613

Domain: Medical Device

Name of the Start-up: SP4 Ameya Innovation Labs Pvt Ltd

Smart Physiotherapy Device for Palm Pressure Management

Overview

An innovative solution for individuals with hand deficits. Assists patients with challenges in hand movement or grip strength caused by medical conditions like hand deformities, paresis, or musculoskeletal disorders.

Based on principles of biomechanics, neuroplasticity, and signal processing. Smart cloud based connected device that track patient progress in real-time, ensuring better recovery outcomes. Uses proven sensor tech and therapeutic feedback apps

Device + App

Package

Device

Key Features

- Physiotherapy devices, wireless tools for accessibility, and pressure sensing technologies.
- Robust IT services enhancing product efficiency and user experience
- Empowering individuals for better mobility and independence.
- Committed to the Make in India initiative, delivering sustainable and tailored solutions.

USP of the technology

- Captures and analyzes hand pressure data in real-time
- Mobile app for progress tracking with visual analytics
- Reports sharing using WhatsApp.
- Designed for both clinical & home use
- Real-time feedback & personalization, remote monitoring to improve outcomes
- Dual modes -Patient mode & Specialist mode

Implementation Review

IP Status Details

Patent application number :Approved
Design No. : 420250-001, Utility patent Application Number: 202541080320

TRL Status

Concept & Prototype validated
Clinical need identified
Commercialization & regulatory mapped

Technology Transfer Status

Not transferred

Inventor Details

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Institute: SP4 Ameya Innovation Labs Pvt Ltd

Domain: Medical Device

Name of the Institute: IIT Guwahati, Meta Samadhan Pvt. Ltd.

Metamaterial Flexi-Wraps for Faster and Efficient MRI Scans

Overview

Sharper Images. Faster Scans. Smarter MRI

Metamaterial Flexi-Wraps are next-generation flexible MRI accessories that passively amplify MR signals to enhance imaging performance. The result: accelerated scan times,

improved image clarity, and higher diagnostic precision — all without additional power, hardware upgrades, or changes to existing MRI systems.

Key Features

- Flexible wraps that can be comfortably placed around the body part being scanned, needs no external power
- Helps MRI scanners capture stronger and clearer signals, improving image quality by more than 3 times
- Reduces MRI scan time by around 33%, making usual scans 1.5 times quicker for patients
- Works easily with existing MRI machines without any modification, helping hospitals improve efficiency and patient throughput

USP of the technology

- Indigenous "Made in India" metamaterial-enabled MRI technology developed for advanced and accessible medical imaging applications
- Enables shorter MRI scans while preserving high-quality diagnostic imaging and improving patient comfort
- Easy-to-use wearable MRI accessory designed for seamless clinical integration across existing MRI systems
- Allows seamless compatibility with MRI scanners from multiple vendors without any complex installation requirements
- Requires minimal training for MRI technicians and radiologists for routine clinical implementation
- Supplements existing MRI image-enhancement approaches for improved signal quality and high-resolution imaging
- Supports cost-effective and scalable deployment, strengthening India's self-reliance in advanced MRI technologies and healthcare innovation

Implementation Review

IP Status Details

IN583980,IN579702

TRL Status

TRL-7

Technology Transfer Status

In process

Inventor Details

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Domain: Medical Device

Name of the Start-up: NeoDocs

NeoDocs Hemoglobin Test

Overview

The NeoDocs Hb Test is a rapid, smartphone-based diagnostic tool designed for instant hemoglobin quantification, enabling immediate screening for anemia and overall blood health.

By delivering clinically accurate results in just 10 seconds, it allows healthcare professionals to monitor patient health and guide nutritional interventions directly during an OPD visit.

Key Features

- Provides instant results (within 10 seconds) with 99.7% lab-comparable accuracy
- Requires a small blood sample (10 µL), making it suitable for all age groups including pediatric and neonatal patients.
- Portable
- Validated for use in clinical workflows from primary care to ICU and public health screening programs.

USP of the technology

- Point of care solution, with a fully digital system enabling automatic data capture and report generation. It seamlessly integrates with ABHA for connected health records while eliminating manual entry, reducing errors, and saving time.

Implementation Review

IP Status Details

NA

TRL Status

TRL-9

Technology Transfer Status

NA

Inventor Details

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Phone number: 7738710597

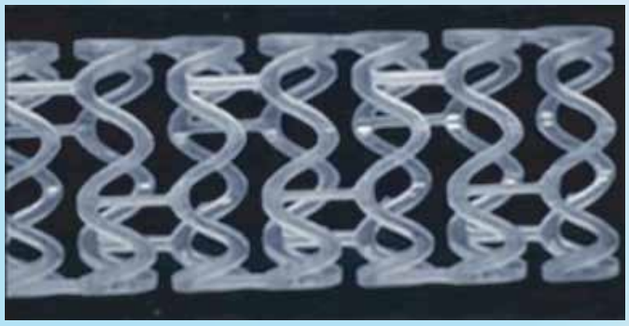
Domain: Medical Device

Name of the Institute: Indian Institute of Technology, Delhi

Drug eluting bioresorbable vascular stent

Overview

Drug eluting bioresorbable vascular stent made primarily of PLA/PCL copolymer.intended to treat plaque of coronary lumen in patients suffering from atherosclerotic plaque (symptomatic ischemic heart disease) caused by de novo lesions in native coronary arteries. It is designed for use in patients eligible for Percutaneous Transluminal Coronary Angioplasty (PTCA) and scaffold-assisted procedures. Over time of 1-2 years, the scaffold is expected to get resorbed, which may aid in restoring normal vessel function



Key Features

- Bioresorbable polymeric vascular stent designed to provide temporary vessel scaffolding followed by gradual degradation.
- Optimized stent geometry offering improved radial strength, flexibility, and low recoil characteristics.
- Drug-loading capability enabling controlled local drug delivery to the vessel wall.
- Designed to restore natural vascular physiology and vasomotion after bioresorption.

USP of the technology

- Eliminates long-term complications associated with permanent metallic stents.
- Reduced risk of late stent thrombosis and chronic inflammatory response.
- Indigenous next-generation cardiovascular implant technology with strong translational potential

Implementation Review

IP Status Details

WO2014091438A2

TRL Status

TRL - 3

Technology Transfer Status

Not transferred

Inventor Details

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Domain: Medical Device

Name of the Start-up: Fabiosys Innovations Pvt. Ltd.

Fabium®: Anti-Infective fabric to prevent Surgical Site Infections

Overview

Fabium® is a high-performance and biocompatible antimicrobial fabric that kills >99.9% pathogens (bacteria, viruses, fungi, and antibiotic-resistant bacteria) within 30 minutes only. The fabric can be manufactured in bulk by infusing our novel antimicrobial formulation into the fabric. Fabium® is washable throughout its lifespan and has been proven non-toxic and biocompatible in in-vitro and in-vivo animal studies. Presently, the technology is being used to manufacture anti-infective surgical consumables, and can be diversified to manufacture anti-odour garments (innerwear, sportswear, uniforms, etc.)

Fabium Surgical Drapes

Key Features

Antibacterial, Antiviral, Antifungal

The surgical drape fabric starts acting on pathogens within seconds and destroys >99.9% pathogens (incl. AMR bacteria) within 30 mins only.

Skin safe

The fabric has been tested and proven safe for skin via in-vitro & in-vivo studies.

Breathable & Comfortable

The drape fabric is breathable and comfortable on the skin.

USP of the technology

- Our antimicrobial fabric has 48X higher antimicrobial efficacy and is 50% cheaper than ordinary antimicrobial fabrics.
- Only antimicrobial fabric technology proven to be biocompatible, broad-spectrum, and anti-AMR.
- Retains high-performance antimicrobial functionality even after washing and autoclaving.
- Washable, Reusable, and Autoclavable for the lifespan of the fabric.
- 100% Made in India.

Implementation Review

IP Status Details

IN202411080451

TRL Status

TRL-9

Technology Transfer Status

No

Inventor Details

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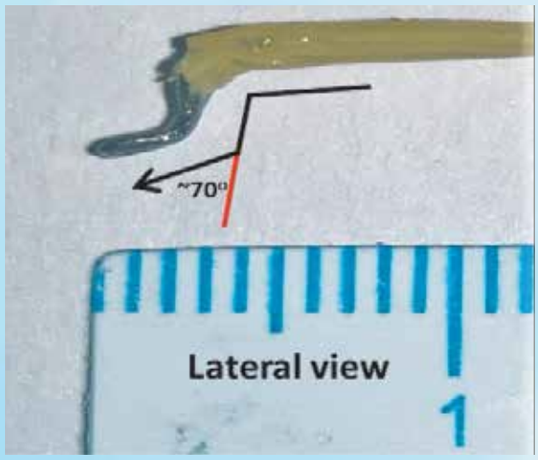
Domain: Medical Device

Name of the Institute: Tata Memorial Centre

An Electrosurgical Instrument for En-Bloc Resection of Bladder Tumors

Overview

An Electrosurgical Instrument for an En-Bloc Resection of Bladder Tumors It is a specialized electrosurgical tool (uses high-frequency electrical energy) used during endoscopic bladder surgery to cut and remove tumors in one single piece (en-bloc) instead of removing them in fragments which reduces tumor cell scattering and implantation on bladder mucosa.



Key Features

- Enables en-bloc resection of bladder tumours in a single piece, improving pathological assessment.
- Provides precise electrosurgical cutting with controlled energy delivery to minimize tissue damage.
- Reduces risk of tumour fragmentation and cell dissemination during surgery.
- Enhances hemostasis (bleeding control) for a clearer surgical field and safer procedure.
- Designed for minimally invasive endoscopic use, improving surgical efficiency and patient recovery.
- Helps obtain intact tissue specimens, supporting accurate staging and diagnosis.
- May reduce chances of tumour recurrence compared to conventional TURBT techniques.
- Ergonomic and surgeon-friendly design for improved maneuverability inside the bladder.

USP of the technology

- Designed for minimally invasive endoscopic use
- Cost effective
- Fits in all existing instruments used in TURBT / TURP.

Implementation Review

IP Status Details

Application number: 2026210036146,
design number: 496072-001

TRL Status

TRL - 4

Technology Transfer Status

No

Inventor Details

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Domain: Medical Device

Name of the Institute: Postgraduate Institute of Medical Education and Research, Chandigarh

Closed Loop Anaesthesia Delivery System (CLADS) integrated in Clarity Spectra Gold+ Patient Monitor

Overview

Closed Loop Anaesthesia Delivery System (CLADS) is an indigenous intelligent **medical device** developed to automate and optimise anaesthesia drug administration during surgery. The system uses a validated rule-based artificial intelligence algorithm to continuously analyse patient physiological parameters—such as **Bispectral Index (EEG-derived depth of anaesthesia), heart rate, and blood pressure—and automatically titrates Propofol infusion** in real time. CLADS delivers personalised anaesthesia with high precision, minimises manual intervention, and incorporates built-in safety mechanisms to support clinicians and improve patient outcomes.

Key Features

- **Automated drug titration:** Real-time adjustment of anaesthetic drug delivery based on patient physiological responses.
- **Personalised medicine approach:** Tailors drug delivery according to individual patient needs.
- **Built-in safety systems:** Includes alarms, cut-offs, and clinician override mechanisms.
- **Single integrated platform:** Combines monitoring, intelligence, and automated delivery into a unified system.

USP of the technology

- Demonstrated performance superior to manual human control in maintaining anaesthesia targets.
- First clinically used indigenous closed-loop anaesthesia system in India, and among the few clinically implemented systems globally.
- Clinically validated across multiple hospitals and high-risk surgical populations.
- Transforms conventional anaesthesia delivery into an intelligent robotic-assisted process.
- Enables anaesthetists to focus on critical intraoperative tasks such as airway management, transfusion decisions, and echocardiography.
- Commercial-ready technology with granted Indian, US, and European patents.

Implementation Review

IP Status Details

Patent Granted: India, USA and Europe
US Patent: US 9,108, 013 B2 European Patent: EP2205298A1

TRL Status

TRL-8–9

Technology Transfer Status

Commercial-ready technology with completed clinical validation and successful technology transfer to Clarity Medical Pvt. Ltd..

Inventor Details

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Phone number: -9815199717

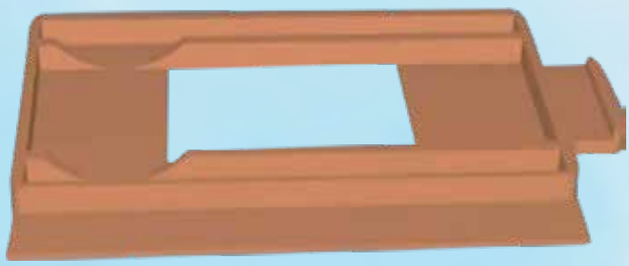
Domain: Medical Device

Name of Institute: ICMR - Regional Medical Research Centre, Port Blair

MUNISH:Microscopic utility Noval Image Stabilizing Holder

Overview

The present design relates to a microscopic viewing holder configured for stabilized positioning and guided displacement of a specimen during microscopic observation.



Key Features

- Provides firm structural support to minimize vibration and hand-induced movement during microscopic examination.
- Enables smooth and controlled linear movement of the specimen while restricting unwanted lateral displacement.
- Facilitates accurate relocation of the same microscopic field when changing objective lenses or magnification levels.
- Minimizes manual handling inaccuracies and improves reproducibility during microscopy procedures.

USP of the technology

- Enables users to relocate the same microscopic field accurately after changing objective lenses, which is difficult with conventional manual slide handling.
- The opposed guide rail system permits controlled longitudinal movement while preventing unwanted lateral drift, ensuring consistent specimen alignment.
- Allows insertion and removal of slides while preserving positional orientation, increasing workflow efficiency in laboratories.
- Supports standardized and repeatable observations between users, improving reliability in diagnostics and research.

Implementation Review

IP Status Details

Patent/ Design
Grant : 416769-001

TRL Status

The technology is currently at the prototype development stage, where the conceptual design and structural prototype have been completed.

Technology Transfer Status

No

Inventor Details

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Domain: Medical Device

Name of Institute: ICMR - Regional Medical Research Centre, Port Blair

MUNISVR: Microscopic utility novel image stabilized viewing rack

Overview

A structured slide viewing rack developed for stable, organized, and sequential microscopic observation of multiple specimens with improved alignment consistency and reduced handling disturbance.

Key Features

- Provides stable support for microscopic specimen viewing with reduced vibration and motion artifacts.
- Incorporates alignment pathways that maintain consistent orientation of slides during observation.
- Assists in maintaining the same field reference across repeated examinations and magnification changes.
- Reduces the need for direct handling of slides, thereby preserving specimen positioning accuracy.

USP of the technology

- Offers practical stabilization and alignment benefits without requiring electronic or motorized components.
- Facilitates rapid specimen exchange and comparative viewing, making it suitable for screening and teaching applications
- Minimizes direct manual manipulation of slides, preserving specimen positioning and improving observational consistency.
- Enables systematic observation of several slides while maintaining uniform alignment and viewing orientation.
- Provides organized and vibration-reduced viewing of multiple specimens under consistent microscopic conditions.

Implementation Review

IP Status Details

Patent Design/
Grant No.: 406768-001

TRL Status

The technology is currently at the prototype development stage, where the conceptual design and structural prototype have been completed.

Technology Transfer Status

No

Inventor Details

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Domain: Medical Device

Name of the Start-up: Diagno Intelligent Systems Private Limited

Proprietary AI-enabled SaMD for Autonomous, Dual-Site Osteoporosis Triage & FRAX Prediction from Routine Chest X-Ray

Overview

iOsteoporos ScreenTM. First-of-its-kind, ZERO-input AI-SaMD enables PACS-integrated opportunistic Osteoporosis & Fracture Risk screening for asymptomatic patients over fifty age. Proprietary AI-engine extracts invisible skeletal signals from routine chest X-rays. It executes both qualitative and quantitative analysis via Maximum-Risk Sentinel Dual-Engine Hybrid Veridiction. It instantly delivers estimated BMD-DXA/ WHO-Classification, predicted FRAX-India Fracture Probabilities/ ISBMR's grading & five actionable triage ALERTS to Clinician.

Key Features

- Global PACS Integration: Infrastructure-Free Mass Screening for Osteoporosis & Fracture Risk
- Estimation of BMD T-scores (dual hip & spine) + Prediction of Hip- & Major bones- Fracture Probability
- Multi-Standard Risk Calibration (DXA/WHO/ICMR/FRAX-India/ISBMR)
- Proprietary Hybrid AI Engine & Automated clinically workable 5 Triage Alert to Clinician

USP of the technology

- World's First Single-CXR Multi-Site BMD & Dual Osteoporotic Fracture Predictor
- World's First Zero-Input Chest X-Ray Osteoporotic Fracture Triage Tool
- Infrastructure-Free Global Digital Proxy for DXA
- Patented Automated Bilateral Clavicle Radiogrammetry Architecture
- Proprietary Humanly-Invisible Biophysical Bone Signal Extraction
- Maximum-Risk Sentinel Arbitration via Dual-Analytical Engine Hybrid Veridiction
- Novel Five-Scenario Automated Clinical Alert Triage Engine
- Modular Global AI Engine Calibrated for 75+ Countries

Implementation Review

IP Status Details

India GRANTED
PCT PUBLISHED
ACTIVE USPTO
Pre-Examination
Scrutiny
3 Software Copyrights in Scrutiny

TRL Status

TRL-5-6

Technology Transfer Status

No

Inventor Details

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THERAPEUTICS

Domain: Therapeutic

Name of Institute: Indian Institute of Technology, Bombay (NanoBios Lab)

LiquiHeal

Overview

LiquiHeal is a sprayable, film-forming wound-care technology that rapidly forms a transparent, flexible, and wash-resistant protective layer over the wound. It is designed to improve everyday wound protection, infection control, and healing support.

Key Features

- Wash-resistant protection for longer coverage
- Designed for antibacterial wound-care support
- Forms a transparent, flexible wound film
- Sprayable, fast-drying, and easy to apply

USP of the technology

- Comparative testing showed stronger antibacterial performance than the evaluated commercial liquid bandage products.
- LiquiHeal combines physical protection with functional wound-care benefits in one sprayable platform.

Implementation Review

IP Status Details

IN202621009439

TRL Status

TRL-4–5

Technology Transfer Status

Not Transferred

Inventor Details

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Domain: Therapeutic

Name of the Institute: Birla Institute of Technology and Sciences (BITS), Pilani, Hyderabad Campus

Light-responsive in situ hydrogel for intraocular drug delivery

Overview

The light responsive hydrogel platform technology is an injectable in-situ gelling depot system, where the clinically acceptable light allows for sol-gel transition at the site of dministration. This resultant depot demonstrated increased residence and sustained release of therapeutics.

Key Features

- Patient-friendly therapy
- Vision-saving alternative therapy for VEGF-non responders
- Reduced visit to hospitals

USP of the technology

- Reduces dose frequency of intravitreal injections.
- Sustained release of the drug for 90 days.
- Safe and biocompatible for intravitreal administration
- Developed using indigenous technology, strengthening nations' self-reliance

Implementation Review

IP Status Details

IN202411053400

TRL Status

TRL-4

Technology Transfer Status

Available for transfer

Inventor Details

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Domain: Therapeutic

Name of the Institute: Birla Institute of Technology and Sciences (BITS), Pilani, Hyderabad Campus

Natamycin-loaded peptide conjugated nanomicelles (PeNatcel)

Overview

PeNatcel is a next-generation nanomicellar eye drop formulation of Natamycin (0.6% w/v), designed to enhance the corneal permeation and bioavailability. PeNatcel delivers superior efficacy in treating fungal eye infections at reduced dose and reduced number of eye drop instillations.

Key Features

- Patient-friendly therapy
- Reduced dose of antimicrobial to combat Antimicrobial Resistance (AMR)
- Improved ocular pharmacokinetic profile

USP of the technology

- Reduces dose (5%→0.6%) of antimicrobial
- Reduce dosing frequency (12×/day →4×/day
- Achieves 13× higher transcorneal permeation
- 2× longer pre-corneal residence
- Improved bioavailability
- Safe and biocompatible with the ocular surface

Implementation Review

IP Status Details

IN202311023962

TRL Status

TRL-4

Technology Transfer Status

Looking for transfer

Inventor Details

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9748723401

Domain: Therapeutic

Name of the Institute: All India Institute of Medical Sciences (AIIMS), New Delhi

Development of an encapsulated cocktail of gut microbiota-derived metabolites as a potential therapeutic modality for Ulcerative Colitis

Overview

The innovation relates to the field of therapeutics, wherein a defined combination of gut microbiota- erived metabolite cocktails is used to recapitulate the anti-inflammatory effects of Faecal Microbiota Transplantation (FMT), while overcoming the risks and safety concerns associated with the transplantation of crude faecal material. The core functionality of this invention rests on the principle of multi-pathway microbiome modulation. Rather than targeting a single inflammatory mechanism, it combines multiple metabolites in a synergistic formulation designed to simultaneously intervene across several pathological axes of IBD.

Key Features

- Addresses a critical unmet medical need for patients who fail or develop resistance to first-line IBD therapies
- Utilises a defined combination of gut microbiota-derived metabolite cocktails to recapitulate the anti-inflammatory effects of FMT
- A rationally designed, defined metabolite combination with demonstrated efficacy against IBD

USP of the technology

- Targeted Combination Therapy – A rationally designed cocktail of gut microbiota-derived metabolites that simultaneously targets multiple inflammatory pathways, offering superior efficacyover single-metabolite approaches.
- Safer Alternative to FMT – Eliminates the risks associated with faecal transplantation, including pathogen transmission, donor variability, and lack of standardisation, making it a clinically safer option.
- Broad Therapeutic Potential – Individual metabolites have demonstrated benefits across multiple diseases; their defined combination not only targeted towards IBD but also promotes overall gut and systemic health

Implementation Review

IP Status Details

IN202511124871

TRL Status

TRL-4

Technology Transfer Status

No

Inventor Details

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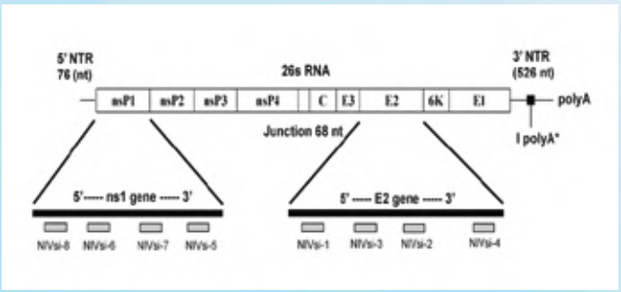
Domain: Therapeutic

Name of the Institute: ICMR-National Institute of Virology, Pune

RNAi agent for inhibition of Chikungunya virus

Overview

The present invention relates to the promising efficacy of siRNA in silencing sequence-specific genes of CHIKV and might constitute a new therapeutic strategy for controlling the CHIKV infection and transmission. More particularly, invention relates to the efficient use of novel siRNAs targeted against E2 and nsP1 genes individually and in combination in inhibiting the replication of CHIKV in-vitro and in-vivo.



Key Features

- RNAi-based therapeutic using siRNAs targeting conserved CHIKV E2 and ns1 genes.
- Demonstrated strong antiviral efficacywith complete viral suppression in infected mouse models.
- Leakage-free and blockage resistant inner bore design for smooth drug flow.
- Solid lipid nanoparticle (SLN) delivery system enabling safe and efficient siRNA delivery.

USP of the technology

- First in vivo proof of complete CHIKV inhibition using siRNA targeting conserved E2 and ns1 genes.
- Delivery system: Solid lipid nanoparticles – safe, nonviral, high siRNA encapsulation, improved uptake
- Patent-protected globally; scalable and clinically translatable with low immunogenicity

Implementation Review

IP Status Details

Patent granted

TRL Status

TRL-4

Technology Transfer Status

No

Inventor Details

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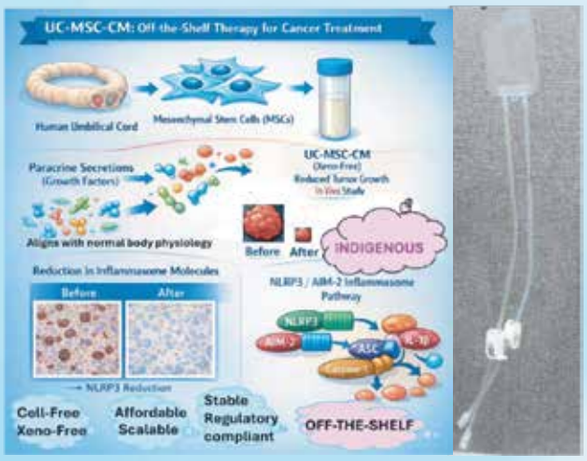
Domain: Therapeutic

Name of the Institute: ACTREC, Tata Memorial Center, and OCT Therapies & Research Pvt Ltd., Mumbai

UC-MSC-CM: India's Indigenous Cancer Immunotherapy Solution

Overview

The present invention generally relates to the technical field of immunomodulating therapy using UC-MSC-CM. Particularly, the present disclosure provides the composition of MSC-CM which inhibits the tumor growth and causes immunomodulation by decreasing the inflammasome pathway activation, consequently decreasing the levels of innate immune inflamma some pathway molecules and pro- inflammatory cytokines.



Key Features

- Supports large-scale requirements through stable storage and standard cold- chain requirements
- Enables domestic product manufacturing, reducing dependency on global product supply chains
- Suitable for diverse populations with proven safety and efficacy profiles in preclinical models
- Provides protection against hematological and few solid cancer models with unmet clinical need.

USP of the technology

- MSC-CM we have developed is xeno-free and devoid of any animal derived components making it completely biocompatible, inhibits tumor growth andcauses immunomodulation by regulating the innate immuneinflammasome pathway, consequently decreasing the levels of pro-inflammatory cytokines.
- The cell-free approach for anti-cancer immune therapy would make therapy scalable, accessible andaffordable while mitigating the side effects associated with conventional chemotherapy.
- Repeated Toxicity Experiment in GLP Lab for safety by oral route is complete and found to be safe for UC-MSC-CM. Intravenous route testing is yet awaited.

Implementation Review

IP Status Details

Patent Grant # 570565 / PCT application # 202521091215

TRL Status

TRL-3/4

Technology Transfer Status

No

Inventor Details

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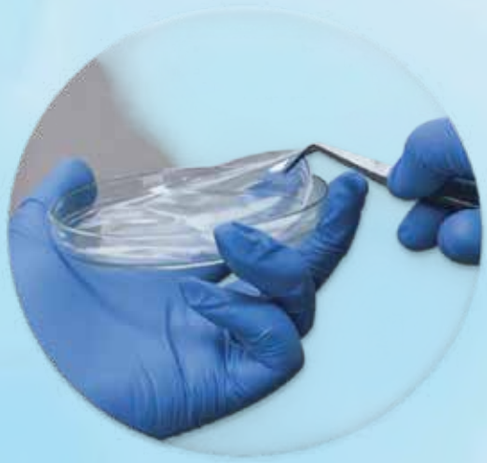
Domain: Therapeutic

Name of the Institute: Indian Institute of Technology (BHU), Varanasi, Uttar Pradesh (AlcoMatrix Pharma Pvt.Ltd.)

Prolonged Action Hydrogel Transdermal Patch for Chronic Wound Management

Overview

AlcoMatrix Pharma Pvt. Ltd. has developed an innovative 3-day bioabsorbable hydrogel patch for chronic and on-healing wounds, designed to deliver sustained therapy, provide superior microbial protection, and reduce dressing frequency compared to conventional wound care solutions. Built on patented hydrogel technology and validated early-stage research, the product aims to deliver affordable, clinically effective, and patient-friendly wound management for diabetic ulcers, trauma injuries, and chronic wounds, while enabling scalable, accessible healthcare solutions for hospitals, clinics, and home-care patients.



Key Features

- Provides enhanced microbial protection and maintains an optimized wound environment
- Cost-effective alternative to expensive biologics and advanced dressings
- Bioabsorbable & Biocompatible Technology
- Prolonged Therapeutic Delivery

USP of the technology

- Polymer-based formulation enables batch-to-batch consistency, faster scale-up, and easier commercial manufacturing adoption.
- Delivers clinical-grade wound healing performance at a significantly lower cost compared to cell-based wound therapies.
- Minimal dependence on cold-chain storage and transportation, enabling easy rural and last-mile healthcare delivery.
- Self-administrable and patient-compliant
- Provides prolonged therapeutic action with reduced dressing replacement frequency, improving convenience and adherence.

Implementation Review

IP Status Details

IN581653

TRL Status

TRL 4

Technology Transfer Status

No

Inventor Details

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Domain: Therapeutic

Name of the Institute: FITT, Indian Institute of Technology, Delhi

Tzaar nicotine-free transdermal patches

Overview

Tzaar nicotine-free transdermal patches with gaba modulating biochemicals for smokers/vape users, to stabilize dopamine receptors through your gaba receptors and ease the withdrawal anxiety by resetting the brain's reward system so that you dont feel like smoking again.

Key Features

- Nicotine-free and Non addictive
- Plant derived GABA Modulating Biochemicals
- Nano-enhanced permeation delivery
- Ultra Thin, Skin Blending, Aesthetic

USP of the technology

- Targets withdrawal anxiety at the BIOLOGICAL SOURCE in brain based on Neuro Modulation Therapy.
- Stabilizes Dopamine receptor which allows brain to reset its reward system.
- Freedom from Nicotine addiction for smokers and vape users.
- Can be used in conjunction with herbal smokes for higher quit success rate.
- Researched at Indian Institute of Technology Delhi and incubated at Foundation for Innovation and Technology Transfer.

Implementation Review

IP Status Details

IN202641054782

TRL Status

TRL-5

Technology Transfer Status

No

Inventor Details

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Domain: Therapeutic

Name of the Institute: Padmaveda LLP and ACTREC

MRasa : India's Indigenous Traditional Ayurvedic cure for Integrative Cancer Immunotherapy

Overview

A standardized, orally administered Ayurvedic herbo-mineral formulation developed through optimized classical processing and modern quality validation, designed to deliver consistent physicochemical characteristics and improved bioavailability. Preclinical studies demonstrate a strong safety profile with no observed toxicity and significant antitumor activity in validated models, supported by evidence of targeted biological action rather than nonspecific cytotoxicity

Key Features

- Reproducible and quality-controlled formulation. Enhanced absorption due to micronization
- Supports large-scale treatment through stable storage and standard cold- chain requirements
- Oral, patient-friendly, and cost-effective
- Preclinically validated (in vivo cervical cancer model) with mechanistic insights
- Suitable for diverse populations with proven safety and efficacy profiles

USP of the technology

This technology is a standardized Ayurvedic herbo-mineral oral formulation processed through classical methods. It results in a thermally processed, micronized, multiphasic mineral–organic system with controlled particle size and reproducible physicochemical characteristics.

USP:

- Scientifically standardized formulation (XRF, FTIR validated)
- Micronized particles (~1–3 µm) for improved bioavailability
- Safe, non-toxic, bio-assimilable bhasma
- Demonstrated in vivo efficacy in cervical cancer xenograft model (tumor suppression)
- Shows targeted antitumor and immunomodulatory activity with minimal systemic toxicityt

Implementation Review

IP Status Details	TRL Status	Technology Transfer Status
Applied #202621016505	TRL-3/4	No

Inventor Details

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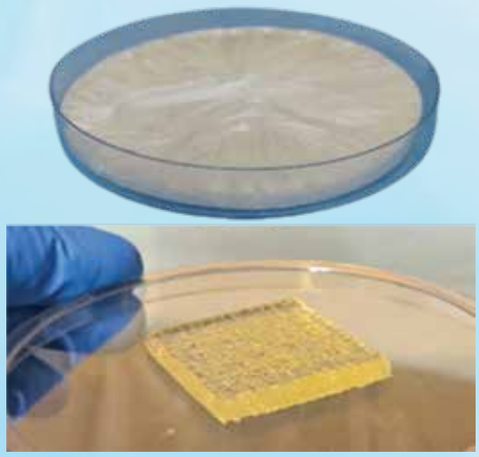
Domain: Therapeutic

Name of the Institute: Sree Chitra Tirunal Institute for medical Sciences and Technology, Trivandrum

Wound Dressing Matrix: Gelatin Methacrylamide doped with Free Radical Scavenging Biomolecules

Overview

Wound Dressing Matrix: GelMA with Free Radical Scavenging Biomolecules is a photocrosslinkable hydrogel-based wound dressing designed for acute and chronic wound management. The biodegradable, highly porous, and tunable GelMA matrix reduces oxidative stress, supports tissue regeneration, and enables localized drug delivery. Available in injectable, wet, dry, or sponge forms, the platform is ISO 10993 validated, biocompatible and tested in vivo for tissue integration and vascularization.



Key Features

- Wound dressing from photocrosslinked GelMA Hydrogel with Embedded Radical Scavengers
- 3D hydrogel network with tunable Mechanical strength, Highly Porous, controlled Swelling, Biodegradable wound dressing, that can be used in Injectable, Wet or Dry form
- ISO-Validated: Non-hemolytic, Non-cytotoxic, Biocompatible on implantation (ISO 10993-6) and Enzymatically Biodegradable System

USP of the technology

- Adaptable Multi-Format (Injectable, Wet, Dry) Biomaterial System
- On-Demand Therapeutic Loading
- Pre-fabricated Drug Delivery System

Implementation Review

IP Status Details	TRL Status	Technology Transfer Status	
		As Bioink for 3D Bioprinting	**As Wound Dressing Matrix**
Indian Patent Granted	TRL-3	Commercialized	Not transferred

Inventor Details

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Domain: Therapeutic

Name of the Institute: ICMR - National Institute of Nutrition

A prophylactic composition for diabetes-associated complications

Overview

Diabetes is associated with various complications such as renal, ocular, and neurological. Exclusive management of blood glucose levels is no longer be viewed as sufficient for the control of long-term complications. Among the many, aldose reductase inhibition (ARI) and prevention of accumulation of advanced glycation end-products (AGEs) have been extensively targeted for front-line means to prevent and/or halt the progression complications. Many synthetic AR inhibitors (ARI) and variety of anti-AGE compounds have been investigated but most were met with limited success in clinical trials.

Key Features

- Based on our extensive, we identified novel ARIs and anti-AGEs molecules from functional foods.
- We have developed a poly-herbal mix that contain five natural ingredients in a specific proportion and provided proof-of-concept for its preventive and therapeutic effects against diabetes and associated complications in preclinical models.
- Preclinical studies on diabetic rat models were conducted with respect to diabetic cataract, retinopathy and nephropathy.

USP of the technology

A molecular target-based functional food composition for ameliorating diabetes/ hyperglycemia associated complications wad developed. The composition comprises powders of Emblica officinalis (amla); Curcuma longa (turmeric); Piper nigrum (black pepper); Cinnamomum zeylanicum(cinnamon); Zingiber officinale (ginger); Trigonella foenum-graecum (fenugreek) in a specific proportion.

Implementation Review

IP Status Details	TRL Status	Technology Transfer Status
IPR Application No: 202311067322	TRL-3	In-house validation complete

Inventor Details

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Domain: Therapeutic

Name of the Institute: ICMR - National Institute of Nutrition

Anti-obesogenic functional food and method of preparation thereof

Overview

Obesity is a significant risk factor for many non-communicable diseases such as diabetes, cardiovascular diseases, hypertension, renal failure, and cerebrovascular and hormonal disorders. Obesity also impacts vision. Due to adverse side effects, many anti-obesogenic medicines have been withdrawn from the market. Obesity and its complications require multiple factors to be addressed simultaneously. Phytochemicals and bioactives modulate diverse cellular and physiological pathways by suppressing appetite and improving insulin sensitivity, and thermogenesis. Therefore, polyherbal combinations can offer a safe and more effective therapeutic option.

Key Features

- Multi-targeted action for obesity management
- Supports long-term, sustainable control of obesity and related complications
- The invention relates to a functional food composition aimed at weight loss and obesity-associated complications

USP of the technology

Based on in vitro assays, that assessed the potential anti-inflammatory, antiglycation, antioxidant, and immunomodulatory aldose reductase inhibition, we have developed a functional foods mix that contain five natural ingredients in a specific proportion. Provided proof-of-concept for its preventive and therapeutic effects against obeisty and associated complications in preclinical models which showed not only weight reduction but also prevented obesity associated complications such renal problems, retinopathy and nephropathy.

Implementation Review

IP Status Details	TRL Status	Technology Transfer Status
IPR Application No: 202411045411	TRL-3	In-house validation complete

Inventor Details

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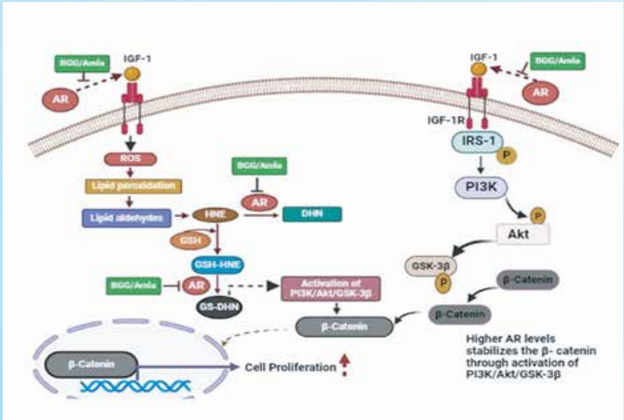
Domain: Therapeutic

Name of the Institute: ICMR - National Institute of Nutrition

β-glucogallin from Emblica officinalis as a chemopreventive agent against breast cancer

Overview

Breast cancer risk increases with obesity and diabetes due to overexpression of aldose reductase (AR), a key metabolic enzyme linked to tumor progression and hence it could be a potential target for intervention to improve the efficacy of chemo drugs. Hence, AR has emerged as a promising metabolic link between these diseases and a potential target for intervention. However, conventional treatments do not inhibit aldose reductase (AR) and thus fail to prevent tumor initiation and progression driven by metabolic dysregulation.



Key Features

- The invention is based on the principle that β-glucogallin (BGG), a natural polyphenol from Amla
- Acts as a potent inhibitor of aldose reductase (AR)-a key enzyme linking obesity, diabetes, and cancer
- By blocking AR-driven oncogenic signaling pathways, in preclinical rat models using DMBA-induced breast cancer, BGG prevented breast tumor initiation and progression, offering a safe, dietary-grade chemopreventive strategy.

USP of the technology

Present invention is to provide chemo-preventive effect of beta-glucogallin (BGG) extracted from Emblica officinalis against breast tumour development and progression and its use as a chemopreventive agent, either alone or in combination with standard chemo drugs in breast cancer treatment.

Implementation Review

IP Status Details

IPR Application No: 202411073461

TRL Status

TRL-3

Technology Transfer Status

In-house validation complete

Inventor Details

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Phone number: -9704756699

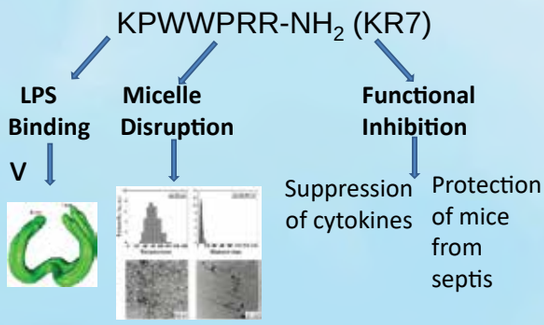
Domain: Therapeutic

Name of the Institute: ICMR - National Institute of Bacterial Infections (ICMR-NIRBI), Kolkata.

A peptide to neutralize lipopolysaccharide molecule

Overview

The drug formulation contains a 7 amino acids long peptide consisting of both hydrophobic and positively charged residues that bind lipid A component of lipopolysaccharide (LPS), developed jointly by ICMR-National Institute of Research in Bacterial Infections. And Bose Institute, Kolkata. The formulation efficiently neutralizes LPS, resulting in the suppression of pro-inflammatory cytokine response and sepsis in mice. If commercially available, it will constitute a targeted therapeutic against Gram negative sepsis.



Key Features

- A 7 amino acids long peptide containing hydrophobic and charged residues
- Efficiently binds and disintegrate LPS micelle
- Intraperitoneal injection into the mice suppress pro-inflammatory cytokines
- Efficiently protects against LPS-induced sepsis and death

USP of the technology

- Anti-endotoxin activity is comparable to polymyxin-B
- Dual interactions: positive charge residues added to both termini of the sequence may interact with the phosphate groups of LPS, while the central PWWP motif interacts with the acyl chain
- Smaller length than the comparable products available ensures significantly less susceptibility to cleavage by proteases
- Easy and cheap to synthesize in the pure form

Implementation Review

IP Status Details

IN431100

TRL Status

TRL-4

Technology Transfer Status

No

Inventor Details

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Inventor Details

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VACCINES

Domain: Vaccine

Name of the Institute: ICMR - National Institute of Bacterial Infections (ICMR-NIRBI), Kolkata

A Multi-Serotype Outer Membrane Vesicles (MOMV) of Shigellae as a Novel Candidate Vaccine

Overview

This technology is a novel hexavalent vaccine formulation designed to provide broad-spectrum protection against Shigellosis (bacillary dysentery). It utilizes Outer Membrane Vesicles (OMVs) isolated from six specific serotypes of Shigella—representing all four serogroups. Unlike live-attenuated vaccines, this is a non-living subunit formulation that is easy to prepare and cost-effective

Key Features

- Broad-Spectrum Protection: Hexavalent formulation covering S. dysenteriae 1, S. flexneri 2a, 3a, 6, S. boydii 4, and S. sonnei.
- Non-Living Platform: Eliminates risks associated with live vaccines, such as reversion to virulence or severe side effects.
- Strong Immune Response: Induces high titers of serum IgG and mucosal IgA, providing both systemic and local immunity.
- High Efficacy: Demonstrates 83-100% protective efficacy against diverse Shigella challenges in neonatal mouse models.

USP of the technology

- Overcomes Serotype Limitation: While single-serotype vaccines fail to provide cross-protection, this MOMV cocktail provides comprehensive coverage against the most prevalent global strains.
- Conserved Protein Target: Leverages highly conserved proteins (like Ipa proteins) and O-antigens for enhanced immunogenicity.
- Simple Manufacturing: Utilizes a straightforward isolation process (ultracentrifugation) that is scalable and cost-efficient.
- Safety Profile: MOMV is non-reactogenic andinduces significantly lower inflammatory markers (like IL-8) compared to live or heat-killed bacteria.

Implementation Review

IP Status Details

Application No. 1652/DEL/2013; Indian Patent No: 502420; PCT No: PCT/IN2014/000369

TRL Status

TRL-4

Technology Transfer Status

Yes; Technology Transfer to Biological E Limited, Hyderabad, India

Inventor Details

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Co-Inventors: Soma Mitra, Santasabuj Das, Manoj Kumar Chakrabarti.

Inventor Details

Institute: National Institute of Cholera and Enteric Diseases (NICED), ICMR.
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Domain: Vaccine

Name of the Institute: ICMR-NIHR, Bhubaneswar

Producing chimeric recombinant multi-stage vaccine for preventing *Plasmodium falciparum* infection and its community transmission (AdFalciVax)

Overview

AdFalciVax is a fully indigenous advanced novel recombinant multistage malaria vaccine designed to provide protection against Plasmodium falciparum infection in humans as well as reducing its community transmission. Produced in Lactococcus lactis, and upon formulation with Alum (a widely used adjuvant in humans), AdFalciVax provides high levels of protection (>90%) against a heavy dose of parasite challenge in pre-clinical mouse model. ICMR has licensed this technology to five Indian biotech companies for further development.

AdFalciVax Vaccine

Key Features

- AdFalciVax is a chimeric vaccine designed to target most vulnerable stages of Plasmodium falciparum development.
- AdFalciVax aims to prevent P. falciparum infection as well as reducing its community transmission.
- Produced in Lactococcus lactis as a stable chimeric recombinant protein, AdFalciVax promises to be cost-effective.
- Successful deployment of AdFalciVax, with other existing malaria-control measures, could contribute to P. falciparum eradication.

USP of the technology

- Dual advantage including protection against malaria infections and reducing community transmission.
- Lower risk of immune evasion and potential long-term immunity
- Pre-clinical studies show >90% protection 3 months after 3rd shot.
- Extended stability of active formulation at room temperature (>12 months).

Implementation Review

IP Status Details

NA

TRL Status

TRL-5

Technology Transfer Status

Technology transferred

Inventor Details

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Mobile: +91-6370400680

Domain: Vaccine

Name of the Institute: ICMR - National Institute of Virology, Pune

Covaxin: India's Indigenous COVID-19 vaccine

Overview

Covaxin is an inactivated whole-virion COVID-19 vaccine developed by Indian Council of Medical Research in collaboration with Bharat Biotech. It uses an inactivated SARS-CoV-2 virus to safely trigger an immune response. The vaccine strengthened India's pandemic response by enabling domestic production, improving vaccine access, and supporting large-scale immunization, particularly in low-resource settings.

Key Features

- Supports large-scale immunization through stable storage and standard cold- chain requirements
- Enables domestic vaccine manufacturing, reducing dependency on global vaccine supply chains
- Suitable for diverse populations with proven safety and efficacy profiles
- Provides protection against COVID-19 by generating neutralizing antibodies

USP of the technology

- Whole-virion inactivated platform enabling broad antigenic immune response
- Developed using indigenous technology, strengthening national vaccine self-reliance
- Demonstrates favorable safety pro le with conventional vaccine platform approach
- Enables rapid deployment in resource-limited and rural healthcare settings
- Compatible with heterologous booster strategies for enhanced immunity
- Leverages traditional vaccine platform with well-established safety record

Implementation Review

IP Status Details

NA

TRL Status

TRL-9
(Technology is Commercialized)

Technology Transfer Status

Yes

Inventor Details

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Scientist F, Maximum Containment Facility
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Phone number: - 020-25906911

Domain: Vaccine

Name of the Institute: ICMR - National Institute of Virology, Pune

Inactivated Japanese encephalitis disease vaccine

Overview

An inactivated viral vaccine, JENVAC was developed under a public-private partnership between ICMR- National Institute of Virology and M/s Bharat Biotech India Ltd., based on the indigenous Kolar strain of JEV. The vaccine achieves >98% seroprotection in a single dose, reducing the cost of vaccination and removing the risks associated with missed doses for vaccination of susceptible population. The vaccine is stable at room temperature, and reduces risk of cold-chain failure.

Key Features

- Improved compliance and affordability
- Drastically cuts the "cost-to-deliver" due to thermostability
- High yield process to meet demand faster

USP of the technology

- Single dose vaccine (reduced cost of multi-dose schedule, no missed doses/ partial vaccination)
- Stable at 25ºC to 37ºC, reducing functional challenges due to cold-chain failure
- Single-dose vaccine allows for faster mass-vaccination, and herd immunity in susceptible populations

Implementation Review

IP Status Details

NA

TRL Status

TRL-9
(Technology is Commercialized)

Technology Transfer Status

Yes

Inventor Details

Dr. Dr.Gajanan Sapkal
Scientist 'F'
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Phone number: -020-25906835

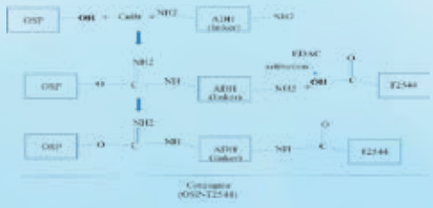
Domain: Vaccine

Name of the Institute: ICMR - National Institute of Bacterial Infections (ICMR-NIRBI), Kolkata

A glycoconjugate vaccine composition against *Salmonella sp.*

Overview

The candidate vaccine (OSP-T2544) contains O-specific polysaccharide (OSP) from Salmonella Typhimurium chemically conjugated to the recombinant outer membrane protein (T2544) of Salmonella Typhi/ Paratyphi. The vaccine elicits robust systemic and mucosal antibodies and memory response. If commercially available, this will be the first glycoconjugate vaccine that is also effective against Salmonella Typhi, Paratyphi, Typhimurium and Enteritidis infections.



Serum bactericidal antibody titer

Ab dil (38d)	Ab dil (120d)	SBA titer
1600	3200	*STy*
12800	25600	*SPty*
6400	12800	*STm*
1600	3200	*SEtd*

Key Features

- Supports large-scale immunization through stable storage and standard cold- chain maintenance
- Widely used vaccine platform enables domestic manufacturing
- Suitable for different age groups with proven safety and efficacy profiles
- Provides long term protection against typhoidal and non-typhoidal Salmonella strains by generating serum and mucosal antibodies and immunological memory.

USP of the technology

- First subunit vaccine against Salmonella Typhi, Paratyphi and non-typhoidal Salmonella
- Demonstrates favorable safety profile with conventional vaccine platform approach
- Large scale manufacturing using indigenous technology feasible
- Long term protection expected due to memory B and T cell response
- Enables rapid deployment in resource-limited and rural healthcare settings
- Leverages standard vaccine platform with well-established safety record

Implementation Review

IP Status Details

IN202311070211

TRL Status

TRL-4

Technology Transfer Status

Yes, to Biological E Ltd and Panacea Biotech

Inventor Details

Lead inventor: Dr. Santasabuj Das

Scientist G and Director Co-inventor: Risha Haldar, Suparna Chakraborty Institute: ICMR-NIRBI, Kolkata Email: santasabujdas@yahoo.com Phone number: -9875353737 Co-inventor: Dr. Amlanjyoti Dhar International Institute of Innovation and Technology Kolkata

Government of India
Department of Health Research

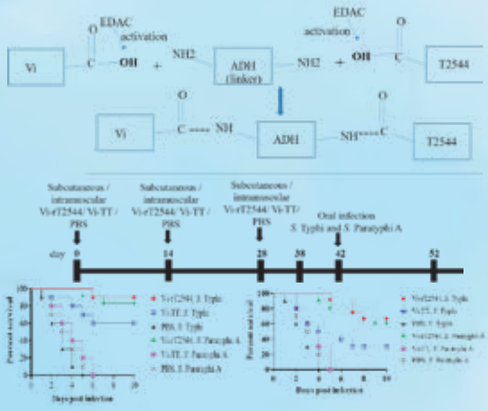
Domain: Vaccine

Name of the Institute: ICMR - National Institute of Bacterial Infections (ICMR-NIRBI), Kolkata

A glycoconjugate vaccine composition against *Salmonella typhi* and *Salmonella paratyphi*

Overview

The candidate vaccine (Vi-T2544) contains Vi polysaccharide purified from Citrobacter freundii chemically conjugated to the recombinant outer membrane protein (T2544) of Salmonella Typhi/ Paratyphi. The vaccine elicits robust systemic and mucosal immune responses. If commercially available, this will be the first typhoid conjugate vaccine that is also effective against Salmonella Paratyphi.



Key Features

- Supports large-scale immunization through stable storage and standard cold- chain maintenance
- Widely used vaccine platform enables domestic manufacturing
- Suitable for different age groups with proven safety and efficacy profiles
- Provides long term protection against Salmonella Typhi and Paratyphi by generating serum and mucosal antibodies and immunological memory.

USP of the technology

- First subunit vaccine against Salmonella Typhi and Paratyphi
- Demonstrates favorable safety profile with conventional vaccine platform approach
- Large scale manufacturing using indigenous technology feasible
- Long term protection expected due to memory B and T cell response
- Enables rapid deployment in resource-limited and rural healthcare settings
- Leverages standard vaccine platform with well-established safety record

Implementation Review

IP Status Details

IN202411074276

TRL Status

TRL-4

Technology Transfer Status

No

Inventor Details

Lead inventor: Dr. Santasabuj Das
Scientist G and Director Co-inventor: Risha Haldar, Sayan Das
Institute: ICMR-NIRBI, Kolkata Email: santasabujdas@yahoo.com
Phone number: -9875353737

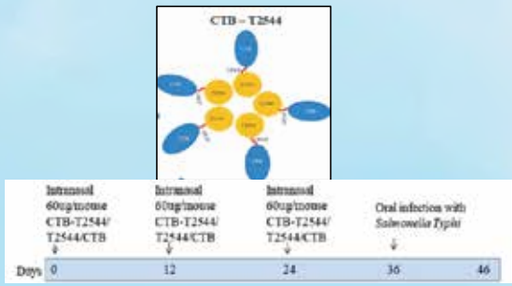
Domain: Vaccine

Name of the Institute: ICMR - National Institute of Bacterial Infections (ICMR-NIRBI), Kolkata

A fusion construct containing *Salmonella typhi* outer membrane protein as a candidate vaccine

Overview

Intranasal CTB-T2544 candidate vaccine contains a fusion protein of Cholera toxin B subunit and Salmonella Typhi/ Paratyphi outer membrane protein T2544, developed by ICMR-National Institute of Research in Bacterial Infections. The vaccine elicits robust systemic and mucosal immune responses. If commercially available, this will be the first typhoid subunit vaccine that is also effective against Salmonella Paratyphi and cheaper than the available typhoid conjugate vaccine (TCV).



Protection	
S. Typhi	70%
S. Paratyphi A	80%

Key Features

- Supports large-scale immunization through stable storage and standard cold- chain maintenance of the lyophilized powder
- Widely used vaccine platform enables domestic manufacturing
- Non-injectable, easy to administer vaccine, suitable for different age groups
- Provides long term protection against Salmonella Typhi and Paratyphi A and B by generating serum and mucosal antibodies and memory B and T cells.

USP of the technology

- First subunit vaccine against Salmonella Typhi and Paratyphi
- Intranasal vaccination eliminates he requirement of trained personnel for vaccine administration.
- No injection related adverse effects
- Large scale manufacturing using indigenous technology feasible
- Long term protection expected due to memory T cell response
- Enables rapid deployment as a lyophilized powder in resource-limited and rural healthcare settings
- Leverages traditional vaccine platform with well-established safety record

Implementation Review

IP Status Details

IN202211039222

TRL Status

TRL-4

Technology Transfer Status

No

Inventor Details

Lead inventor: Dr. Santasabuj Das
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Phone number: -9875353737

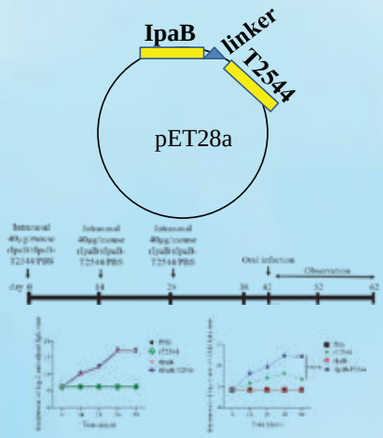
Domain: Vaccine

Name of the Institute: ICMR - National Institute of Bacterial Infections (ICMR-NIRBI), Kolkata

A recombinant vaccine composition against *Salmonella typhi/paratyphi* and Shigella infections

Overview

Intranasal IpaB-T2544 candidate vaccine contains a fusion protein construct of two outer membrane proteins, IpaB from Shigella, developed by ICMR-National Institute of Research in Bacterial Infections. The vaccine elicits robust systemic and mucosal immune responses. If commercially available, this will be the first intranasal subunit vaccine simultaneously effective against Salmonella Typhi, Paratyphi and Shigella spp.



Key Features

- Supports large-scale immunization through stable storage and standard cold- chain maintenance of the lyophilized powder
- Widely used vaccine platform enables domestic manufacturing
- Non-injectable, easy to administer vaccine, suitable for different age groups
- Provides long term protection against Salmonella Typhi and Paratyphi as well as Shigella spp. by generating serum and mucosal antibodies.

USP of the technology

- First subunit vaccine effective against Salmonella Typhi, Paratyphi and Shigella spp
- Intranasal vaccination eliminates he requirement of trained personnel for vaccine administration.
- No injection related adverse effects
- Large scale manufacturing using indigenous technology feasible
- Enables rapid deployment as a lyophilized powder in resource-limited and rural healthcare settings
- Leverages traditional vaccine platform with well-established safety record

Implementation Review

IP Status Details

NA

TRL Status

TRL-3

Technology Transfer Status

No

Inventor Details

Lead inventor: Dr. Santasabuj Das
DasScientist G and Director Co-inventor: Risha Haldar
Institute: ICMR-NIRBI, Kolkata Email: santasabujdas@yahoo.com
Phone number: -9875353737

OTHER BIOMEDICAL TECHNOLOGIES (Software, Cell Engineering and Vector Control)

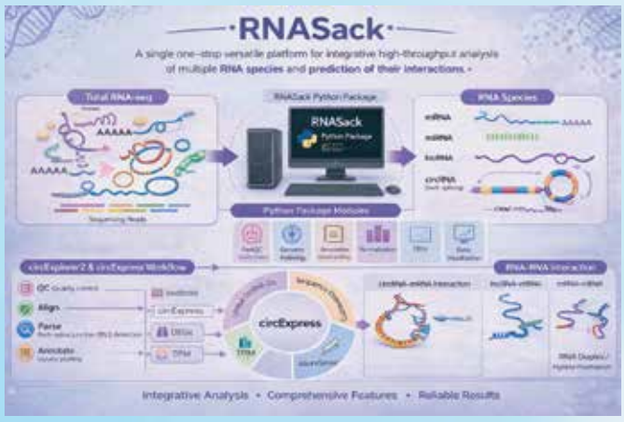
Domain: Other

Name of the Institute: ICMR - National Institute for Research on Women's Health (NIRWoH)

"RNASack: A Computer-Implemented Method and System for Integrated Multi-RNA Transcriptomic Data Processing and RNA-RNA Interaction Inference"

Overview

RNASack is a next-generation computational platform designed to simplify and accelerate the analysis of complex RNA sequencing data. It enables simultaneous identification and quantification of multiple RNA types including coding and non-coding RNAs from a single dataset. By integrating the entire workflow from raw data processing to advanced analysis. RNASack provides standardized, reproducible, and scalable outputs, eliminating the need for multiple tools and manual data handling. A key innovation of RNASack is its ability to predict RNA-RNA interactions, offering deeper insights into gene regulation and disease mechanisms. This makes it highly valuable for biomarker discovery, precision medicine, drug target identification, and large-scale genomic research. RNASack linearizes complex transcriptomic data enabling faster, smarter, and more integrated decision-making in research, healthcare, and industry.



Key Features

- Comprehensive Transcriptome Analysis: Enables simultaneous profiling of coding and non-coding RNAs (mRNA, lncRNA, circRNA, miRNA) from a single dataset.
- RNA–RNA Interaction Mapping: Identifies regulatory RNA interaction networks (e.g., lncRNA–mRNA, circRNA–mRNA), supporting deeper understanding of gene regulation.
- Accelerated Research Workflows: Reduces analysis time and manual effort through an automated, end-to-end pipeline.
- Standardized and Reproducible Analytics: Generates unified, machine-readable outputs suitable for AI/ML, regulatory reporting, and large-scale studies.

USP of the technology

- Multiple command line languages (Unix, R, Python) into one Package.
- Comprehensive RNA analysis package.
- Aggregates Multi-Format Data into Unified Master Sheets.
- Integrates coding and non-coding RNA analysis into a single package.
- Detect RNA-RNA interactions.

Implementation Review

IP Status Details

Patent Provisional Patent -IPO on 15/04/2026, Patent Application Number 202611047990

TRL Status

TRL-5/6

Technology Transfer Status

No

Inventor Details

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Phone number: -9987176249

Dr Sharmishtha Shyamal
Designation: DBT BioCARe Scientist
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Email: modid@nirrch.res.in
Phone number: -9987176249

Domain: Other

Name of the Institute: ICMR - National Institute for Vector Control Research (ICMR-NIVCR)

A microcontroller-based device for artificial diet/blood feeding for mosquito rearing in the laboratory

Overview

This invention is the success story of an artificial mosquito feeding device which is commercially viable and technically sound and has great potential in rearing mosquitoes for research purposes and for mass production of mosquitoes for control based on sterile insect technology, population replacement and Wolbachia endosymbiont bacteria-based control operations. There is no requirement for hot water circulation for feeding. The current feeding device is portable, compact with microcontroller based adjustable temperature controller in the feeding chamber without a lighting source or melted wax.

Key Features

- A novel mosquito feeding device for regular blood/artificial diet feeding of Aedes aegypti and other mosquito vectors
- The device is adapted to have a feed chamber that is adapted to hold a heating component to heat the feed chamber and a temperature sensor that senses the temperature inside the feed chamber .
- The device includes a control unit comprising a microcontroller adapted for controlling the temperature inside the feeding chamber . The heart of the device is the temperature control unit that consists of an 8-bit microcontroller that controls the entire operations of the feeder.
- Provides a device for feeding mosquito artificial diet/blood feeding for mosquito rearing in the laboratory

USP of the technology

- There is no requirement for hot water circulation for feeding.
- The unit is compact, rugged, and portable It can be set up at any place with ease and it uses less expensive, efficient and durable materials for its assembly
- The heating component uses a simple, highly stable, and economical technology.
- The device uses only air and no paraffin wax, water, heating surface or strip heater etc. Hence the unit is very compact. The heated-up air circulates evenly throughout the chamber, and therefore the temperature remains uniform inside the blood meal chamber, keeping the blood meal warm.

Implementation Review

IP Status Details

Patent application number: Indian Patent Application No 202211016261

TRL Status

Prototype developed and In-house validation in a separate project and the data published on Pest Management Science Journal

Technology Transfer Status

No

Inventor Details

Dr. Nisha Mathew

Designation: Former Scientist G
Institute: ICMR - National Institute for Vector Control Research (ICMR-NIVCR)
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Phone number: 9444935790

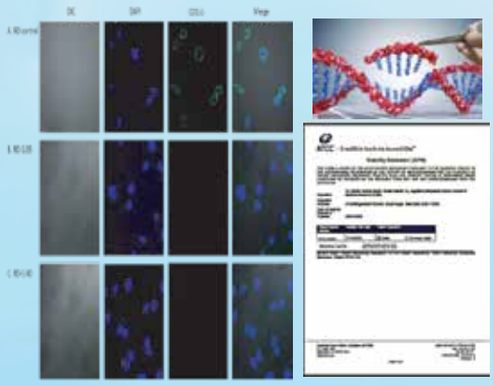
Domain: Other

Name of the Institute: National Institute of Virology, Mumbai

CRISPR Cas9 based development of poliovirus receptor gene (CD155) knockout RD cell line

Overview

Technology describes CD155 (poliovirus receptor) gene knockout RD cell line by dysfunction CD155 gene using CRISPR/ Cas9 technology. Poliovirus do not infect the cells as there is no receptor on the cell surface. Non-polio enteroviruses don't use CD155 as cellular receptor therefore they are not affected by absence of CD155. The new cells will be useful in all laboratories handling poliovirus potentially infectious materials and complying with the WHO-GAP III requirements.



Key Features

- CRISPR-Cas9 edited CD155 gene of RD cells does support the growth of polio viruses and render them poliovirus non- permissive.
- Susceptibility to NPEV RD-CD155-knock out cells remained unchanged.
- RD-CD155-knock out cells are safe for NPEV isolation from poliovirus PIM without derogating GAPIII/IV containment requirements.
- Laboratories can work with PIM in BSL-II without requiring the mandate of Polio Essential Facility.

USP of the technology

- The poliovirus non-permissive RD-CD155-knock out cells may become a preferred cell line to safely work with poliovirus potentially infectious materials (PIM) in non-poliovirus research laboratories.
- WHO GAP IV refers to use of Poliovirus non-permissive cell development and potential use.
- Helps poliovirus containment as per WHO guide lines when the country has been eradicated poliovirus after lots of struggle.
- The new cells have immediate applications to assist global polio eradication initiative efforts for poliovirus containment.

Implementation Review

IP Status Details

Indian Patent No: 201811034727. PCT application No. PCT/IN2019/050671. Indian patent granted on 21/02/2024 &patent number - 513045

TRL Status

TRL-9

Technology Transfer Status

Deposited the cell line to ATCC, USA for International Patent Purpose and for commercialization.

Inventor Details

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National Institute of Virology Mumbai Unit,
Haffkine Institute compound, AD Marg,
Parel-400012,Mumbai, Maharashtra, India
Email: nandibiotech@gmail.com
Mob no. 9082553865

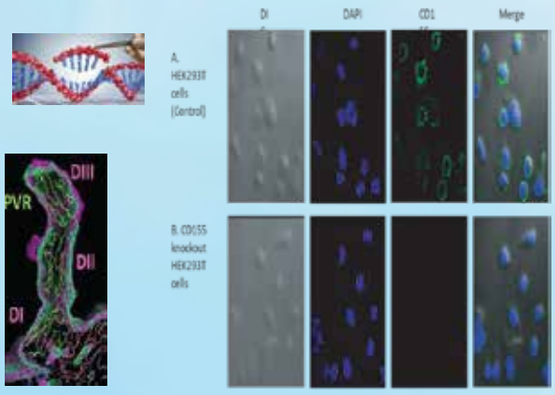
Domain: Other

Name of the Institute: National Institute of Virology, Mumbai

CRISPR Cas9 based development of poliovirus receptor gene (CD155) knockout HEK293T cell line

Overview

Technology describes CD155 (poliovirus receptor) gene knockout HEK293T cell line by dysfunction CD155 gene using CRISPR/ Cas9 technology. Poliovirus do not infect the cells as there is no receptor on the cell surface. Other Enteric viruses don't use CD155 as cellular receptor therefore they are not affected by absence of CD155. This HEK-293T-CD155 knock-out cell line allows researcher to work without the fear of poliovirus growth as inadvertent contamination.



Key Features

- CRISPR-Cas9 edited CD155 gene of HEK293T cells does support the growth of polio viruses and render them poliovirus non- permissive.
- HEK-293T-CD155 knock-out cell line can be used in BSL-II without the necessity to comply with Polio Essential Facility criteria without jeopardizing IV containment.
- Helps poliovirus containment as per WHO CD155-KO cells for various purposes. guide lines when the country has been eradicated poliovirus after lots of struggle.

USP of the technology

- The novel cells can help with worldwide polio eradication efforts by containing the poliovirus.
- HEK293T-CD155-KO cells can therefore be applied broadly across various scientific fields such as biotechnology and biopharmaceutical applications, Gene therapy research,Virology, proteomics and genome engineering studies.
- There will be immediate cost savings for both national and international research and industries looking to use HEK293T-KO cell for various purposes.

Implementation Review

IP Status Details

Indian Patent No: 202511008862.

TRL Status

TRL-5

Technology Transfer Status

Deposition of the cell line to ATCC, USA is in the process.

Inventor Details

Dr. Shyam Sundar Nandi, Scientist E
National Institute of Virology Mumbai Unit,
Haffkine Institute compound, AD Marg,
Parel-400012,Mumbai, Maharashtra, India
Email: nandibiotech@gmail.com
Mob no. 9082553865

Domain: Other

Name of the Institute: ICMR-National Institute for Research in Bacterial Infections, Kolkata

Frailty Management Model for Community Dwelling Older Adults aged ≥ 60 years of India

Overview

Gradually, the number of older adults is increasing globally. Frailty is one of the common geriatric syndromes and presents a major challenge for the healthcare system. Frailty affects 25-38% of community-dwelling older adults in India. There is currently no frailty management model for older adults aged ≥ 60 years in India. The present invention addresses frailty management in three domains - nutritional guidelines, physical exercise, and mental health guidelines. The model has been developed and customized for Indian settings. This model will be easily applicable in both urban and rural community settings. It will enable the early identification of frailty, targeted interventions, and holistic care to promote healthy aging and improve overall well-being among Indian older adults.

Key Features

- Multisensor module incorporating frailty assessment and nutritional assessment
- Automated risk stratification engine categorizing individuals into robust, pre-frail, or frail phenotypes using validated indices
- Personalized intervention recommendation system generating individualized components
- Easily applicable in both urban and rural community settings. It can be adapted, scalable, and sustainable

USP of the technology

- A novel integrated device system for frailty screening, stratification, and personalized management in older adults aged 60 years and above
- Frailty management model has been developed across three domains: nutritional intervention, physical exercise, and mental health promotion
- Customized for Indian settings
- Enables rapid stratification and customized management for three different groups viz. Robust, Pre-frail, and Frail ntegrated, portable, low-cost device specifically designed for community-based frailty screening and management in resource-limited settings with offline functionality
- Easily applicable in both urban and rural community settings. It will provide targeted care based on the frailty status of older adults

Implementation Review

IP Status Details	TRL Status	Technology Transfer Status
NA	Mid level	No

Inventor Details

Dr. Indranil Saha
Designation: Scientist E (Medical)
Institute: ICMR-National Institute for Research in Bacterial Infections, Kolkata
Email: drsahaindranil@gmail.com
Phone number: 98300 19016

Domain: Other

Name of the Institute: ICMR - National Institute for Vector Control Research

Biolarvicide for mosquito control *Bacillus thuringiensis* var. israelensis Indian Standard (VCRC B-17)

Overview

Biolarvicide Bacillus thuringiensis var israelensis VCRC B17 is an indigenous product used for the control of mosquito larvae. Technology was commercialized and being an eco friendly product it exhibits safety to aquatic non target organisms, agriculturally important insects and mammals.

Key Features

- Highly effective against larvae of Culex, Anopheles and Aedes mosquitoes. It exhibits safety to aquatic non-target organisms
- It performs effectively in a wide range of breeding habitats such as stagnant water, drains, and urban water collections.
- Bti offers a smart, targeted, and eco-friendly approach to control disease-carrying mosquitoes in protecting public health.

USP of the technology

Make-in-India, patented technology for Bti Mosquito Larvicide using indigenous strain Bacillus thuringiensis var.israelensis (Strain VCRC B17; MTCC 5596;Patent). Indian Patent granted # 192055 dated 12.2.1999 Technology Licensed to 21 companies 10 companies have CIB & RC registration; ready for update in national public health programme

Implementation Review

IP Status Details

IN192055

TRL Status

TRL-9

Technology Transfer Status

Transferred to 21 firms and commercialized by 1 firm

Inventor Details

Late Dr. K. Balaraman
Scientist- G (Retd),
ICMR-NIVCR

Dr. S. L. Hoti
Scientist G (Retd)
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Phone number: -8105536970

Dr. A.M .Manonmani,
Scientist-G (Retd),
ICMR-NIVCR

Domain: Other

Name of the Institute: ICMR-National Institute of Malaria Research

Nano-Emulsion Based Insecticidal Paint

Overview

Nano-emulsion insecticidal paint is an innovative technique that enhances the retention of mosquitocidal activity for a longer duration (~2 years). For urban systems, there is no indoor residual spray in the program. This technology can be useful for urban systems for controlling indoor resting and biting mosquitoes for a longer period. Through microencapsulation, the active ingredients (AIs) remain in the matrix for a longer timem, are gradually released, and act for a longer period .

Key Features

- Effective for more than one year and do not alter the wall texture,
- Can be used in rural and urban houses on all the surfaces
- User friendly application same as the normal paint application

USP of the technology

- The insecticide is embedded in a nano-sized capsules to keep the integrity for longer period
- Developed using indigenous technology, strengthening national capacity and self-reliance
- Demonstrates cost-effective. long-lasting & safe approach for vector control
- Helpful for the National Vector Control Program for reducing the burden of Mosquito borne disease
- Can be coupled with other active ingredients as per need

Implementation Review

IP Status Details	TRL Status	Technology Transfer Status
IN202411054306	-	No

Inventor Details

Dr. Himmat Singh
Designation: Scientist E
Institute: ICMR-National Institute of Malaria Research
Email: hspawar@rediffmail.com
Phone number: -8860349351

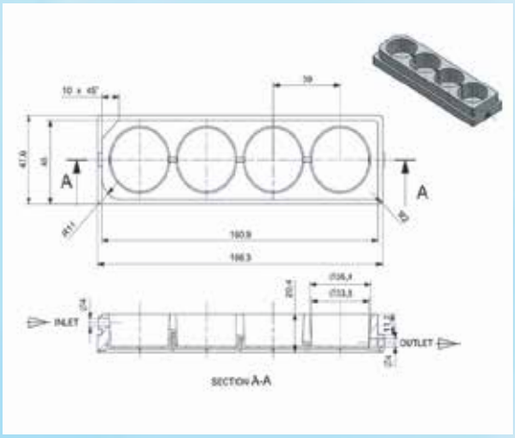
Domain: Other

Name of the Institute: ICMR - National Institute for Research in Environmental Health, Bhopal

Mammalian cell culture

Overview

Mammalian cell culture has revolutionized the field of drugs and toxicant screening. Downside of cell culture models is that they can be a model system for a single viable animal cell but human bodies are much more complex than that. There is always a crosstalk going on between different organs and organ systems and hence it becomes necessary to find an ethical as well as scientifically relevant model system to better understand the effect of drugs or toxins on human bodies in the preliminary screening. The prototype described in the figure can simulate an organ microenvironment without sacrificing a living organism.



Key Features

- Polycarbonate based design for sturdiness and autoclavability.
- More relevant results for drug screening on a single platform.
- Does not require the expertise related to microfluidic engineering. It is easy to operate.
- More ethical method for drug screening and validation.

USP of the technology

- Can be used to study cellular crosstalk.
- Endocrine and paracrine signaling can be studied.
- No need of microfluidic setup.
- Can culture up to 4 cell lines.
- No special training required to operate.

Implementation Review

IP Status Details	TRL Status	Technology Transfer Status
Granted (400143-001)	TRL-5	No

Inventor Details

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Name of the Institute: Krishna Vishwa Vidyapeeth (Deemed to be University)

Nano-Herbal Kavach

Overview

Nano-Herbal Kavach is a patented nano-enabled smart surface sanitization technology that provides continuous antimicrobial protection for up to 5 hours on high-touch public surfaces. It combines an eco-friendly broad- spectrum nano-herbal disinfectant formulation with a specialized Cleaning Pod applicator for uniform and effective sanitization of stair railings, escalator handrails, trolley handles, grills, and other hard-to-clean surfaces. Unlike conventional disinfectants that offer only temporary cleaning, Nano-Herbal Kavach forms a durable antimicrobial coating that continuously inhibits bacteria, fungi, and viruses. The system is non-toxic, aromatic, biocompatible, and manpower-efficient, making it an ideal solution for hospitals, malls, airports, railway stations, schools, and other high-footfall public spaces.

Key Features

- Nano-herbal formulation provides Broad-spectrum Antimicrobial Protection through sustained contact inhibition.
- Ergonomically engineered flexible “Cleaning Pod” Applicator fits for uniform, accurate, and smooth coating application.
- Long-Lasting Surface Protection for up to 5 hours, reducing repeated contamination.
- Non-toxic, pleasant aromatic formulation with Safe, Eco-Friendly & User-Friendly Design

USP of the technology

- Nano-Herbal Kavach provides continuous 5-Hour Surface Protection by residual antimicrobial action.
- Nanomaterial-enabled direct surface interaction ensures effective Contact-Based Germ Inhibition.
- Reduces manpower dependency, cleaning frequency, operational downtime, and maintenance costs in public spaces.
- Non-carbon nano-active system significantly reduces risk of recurrent microbial resistance development.
- Specialized pod enables uniform thin-film application even on curved, narrow, or hard-to-reach railings and grills.
- Scalable for Multi-Sector Deployment

Implementation Review

IP Status Details

IN57922

TRL Status

TRL-6-7

Technology Transfer Status

Open for strategic industry partnerships for technology transfer, scale-up, and national deployment.

Inventor Details

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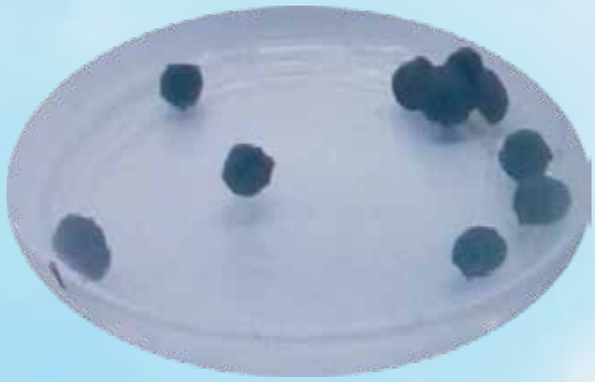
Domain: Other

Name of the Institute: ICMR - Rajendra Memorial National Institute of Health Research, Patna

AN ADSORBENT FOR WASTEWATER TREATMENT AND A METHOD OF PREPARATION THEREOF

Overview

This Invention developed an eco-friendly granular adsorbent for wastewater treatment using waste biomass (Citrus limetta peels and discarded green tea leaves) functionalized with chitosan biopolymer. The approach involved material synthesis, physicochemical characterization and batch adsorption experiments under varying pH, temperature, and concentration conditions. A key innovation is the low-cost, reusable biopolymer-functionalized adsorbent capable of removing multiple heavy metals including Cr (VI). The product achieved up to 99.96% removal of Cr (VI) and demonstrated regeneration over multiple cycles. Key outputs include a patent application, experimental datasets, and a scalable methodology for sustainable wastewater remediation.



Key Features

- Eco-friendly adsorbent from waste biomass
- Chitosan-functionalized material enhances metal adsorption
- High chromium removal with regeneration capability
- Scalable methodology for sustainable wastewater remediation

USP of the technology

- Converts waste biomass into valuable adsorbent
- Cost-effective and eco-friendly treatment solution
- Achieves exceptionally high chromium removal efficiency
- Reusable adsorbent supporting sustainable water purification

Implementation Review

IP Status Details

IN202431075307

TRL Status

TRL-4

Technology Transfer Status

No

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BIOMATERIALS: VIRAL ISOLATES

Viral isolates available with ICMR

1. Adenovirus (Mastadenovirus)
2. CCHF Virus
3. Chandipura Virus
4. Enterovirus
5. Influenza A
6. Influenza B
7. Kyasanur Forest Disease virus (KFD)
8. Measles Virus
9. Mpox virus
10. Mumps Virus
11. Nipah Virus
12. Rhino Virus
13. Rubella Virus
14. SARS CoV 2 virus
15. Zika Virus

1. **Adenovirus (Mastadenovirus)**

   The adenovirus isolate, obtained from a fecal sample in Mumbai and maintained at ICMR-NIV, is identified as Human Adenovirus type 1 (HAdV-1), a serotype within the *Mastadenovirus* genus of the Adenoviridae family. It is chiefly linked to respiratory infections in children, with occasional cases of conjunctivitis and gastrointestinal illness, and its characterization is confirmed through RT-PCR and whole-genome sequencing.

2. **CCHF (Crimean-Congo Hemorrhagic Fever) Virus Isolate**

   The Crimean-Congo Haemorrhagic Fever virus isolate, sourced from a clinical serum sample collected in Gujarat, is maintained at ICMR-NIV. Molecular confirmation through RT-PCR and full-genome sequencing supports accurate characterization. This isolate can enable research on disease mechanisms, antiviral assessment, diagnostic refinement, and preparedness efforts for regions experiencing recurring CCHF activity.

3. **Chandipura Virus Isolate**

   The Chandipura virus isolate, obtained from clinical material collected from Gujrat in India and preserved at ICMR-NIV. It has been characterized through genome sequencing and molecular assays targeting a conserved viral gene. As part of the national viral collection, it supports studies on neurotropic viral infections, diagnostic development, vector-borne disease surveillance, and preparedness programs.

4. **Enterovirus (Enterovirus A, B and Enterovirus 71)**

   Enterovirus A includes Coxsackievirus isolates, derived from clinical samples collected in Pune and preserved at ICMR-NIV, include four distinct serotypes: A6, A16, A24, and B4. Each serotype represents a genetically unique strain with characteristic disease associations A6 with Hand, Foot, and Mouth Disease (HFMD) marked by severe rashes, A16 with mild HFMD sometimes linked to meningitis, A24 with acute hemorrhagic conjunctivitis outbreaks, and B4 with myocarditis, pancreatitis, Type 1 diabetes, and systemic illness. Their identity and diversity have been confirmed through genome sequencing and molecular assays targeting conserved viral genes.

   The **Enterovirus B isolates**, derived from clinical samples collected in Pune and preserved at ICMR-NIV, include two distinct serotypes 29 and 30. Their identity and diversity have been confirmed through genome sequencing and molecular assays targeting conserved viral genes.

The **Enterovirus 71 isolates**, derived from clinical samples collected from Cerebrospinal fluid (CSF) of infected patients from Jaunpur, Uttar Pradesh and Faridabad, Haryana preserved at ICMR-NIV. Isolate was confirmed by RT-PCR and WGS. The Sub- genotypes available are sub-genotype- C1 and sub- genotype-D

5. **Influenza A (H1N1 and H3N2)**

The Influenza A (H1N1 pdm09) isolate collected in Bangalore is maintained at ICMR-NIV. Characterization includes full-genome sequencing and real-time PCR confirmation. This isolate supports genomic surveillance, resistance profiling, and refinement of national vaccine-strain selection strategies for seasonal influenza.

The Influenza A H3N2 isolate from Puducherry is preserved at ICMR-NIV and confirmed through genome sequencing and real-time PCR. As part of national influenza monitoring, the isolate may be helpful in antigenic analysis, antiviral-resistance tracking, and seasonal vaccine-strain recommendations.

6. **Influenza B (Victoria Lineage) Isolate**

The Influenza B Victoria-lineage isolate obtained in Pune is preserved at ICMR-NIV. Characterization includes full-genome sequencing and real-time PCR confirmation. The isolate can contribute to national influenza surveillance by supporting strain monitoring, antigenic evaluation, and vaccine-formulation development.

7. **Kyasanur Forest Disease virus (KFD)**

The Kyasanur Forest Disease (KFD) virus isolate, obtained from Shivamogga, Karnataka, India, is preserved at ICMR-National Institute of Virology (NIV), Pune. Characterization includes full-genome sequencing and real-time PCR confirmation. The isolate can contribute to research on viral pathogenesis, diagnostic assay development, vaccine studies, and public health preparedness against tick-borne viral outbreaks

8. **Measles Virus Isolate**

The measles virus isolate, collected from a throat swab in Gujarat, is maintained in the national reference collection at ICMR-NIV. Characterization includes genome-based typing and standard molecular assays focused on key viral genes.

This isolate can support measles elimination efforts through molecular surveillance, vaccine monitoring, and understanding lineage circulation.

9. Mpox virus

The Mpox virus isolate has been obtained from Kollam, Kerala and is preserved at ICMR-National Institute of Virology (NIV), Pune. Characterization includes full-genome sequencing and real-time PCR confirmation. The isolate can contribute to diagnostic assay development, antiviral and vaccine research, and strengthening public health preparedness against Mpox outbreaks.

10. Mumps Virus Isolate

The mumps virus isolate, obtained from an oral swab in Maharashtra, is preserved at ICMR-NIV. It is characterized through genetic analysis and RT-PCR targeting a routinely assessed viral region. This isolate can serve as a valuable tool for mumps surveillance efforts, supporting outbreak investigation, lineage mapping, vaccine-effectiveness assessments, and diagnostic improvements.

11. Nipah Virus Isolate

The Nipah virus isolate, obtained from human oropharyngeal samples during an outbreak in Kerala, is preserved at ICMR-NIV. Characterization includes complete genome sequencing and RT-PCR using Nipah-specific targets. This isolate can aid studies on pathogen evolution, diagnostic strengthening, antiviral research, and outbreak preparedness, given Nipah's high public-health relevance.

12. Rhino Virus

The Rhino virus isolate, obtained from Idukki, Kerala, India, is preserved at ICMR-National Institute of Virology (NIV), Pune. It was obtained from nasopharyngeal swab (NPS) samples of humans. The isolate can contribute to respiratory virus research, diagnostic assay validation, antiviral screening, and public health preparedness for common cold and related respiratory infections.

13. Rubella Virus Isolate

The rubella virus isolate, collected in the early years of national surveillance from a suspected case in Maharashtra, is maintained at ICMR-NIV. As a historic genotype reference with a detailed sequencing record, it is vital for understanding rubella evolution, supporting congenital rubella syndrome tracking, evaluating vaccine performance, and strengthening national elimination initiatives.

14. SARS CoV 2 viral isolates

The SARS-CoV-2 virus variants (Beta Coronavirus, Delta Variant, Omicron), originating from a clinical respiratory specimen collected in India, is preserved at ICMR-NIV, Pune and ICMR - NIRBI. It is characterized through real-time RT-PCR targeting a conserved viral gene, ensuring accurate identification. As part of the national repository, this isolate can support research on diagnostics, therapeutic evaluation, vaccine-related studies, and preparedness initiatives.

15. Zika Virus Isolate

The Zika virus isolate was obtained from Pune, Maharashtra, India, is preserved at ICMR-National Institute of Virology (NIV), Pune. The isolate can contribute to diagnostic assay development, vaccine and antiviral research, molecular epidemiology, and public health preparedness against Zika virus outbreaks, alongside additional reference isolates from Jaipur, Rajasthan (human serum) and Uganda (Rhesus monkey serum) that strengthen comparative genomic studies and evolutionary research

BIOMATERIALS: BACTERIAL ISOLATES

Bacterial isolates available with ICMR

1. Acinetobacter pittii
2. Bordetella pertussis
3. Campylobacter species
4. Escherichia albertii
5. Escherichia coli
6. Klebsiella pneumoniae
7. Ochrobactrum intermedium
8. Orientia tsutsugamushi
9. Pseudomonas aeruginosa
10. Shigella species
11. Vibrio cholerae
12. Vibrio fluvialis

1. **Acinetobacter pittii**
   The isolates were obtained from blood samples of human (neonates) in Kolkata and maintained by ICMR-NIRBI, Kolkata. Two isolates, A 156 and A 157, were found to be resistant to several antibiotics, including carbapenems. The strains were characterized using VITEK-2 analysis and whole genome sequencing (WGS). These isolates are valuable for advancing research on hospital-acquired bloodstream and respiratory infections and for the development of vaccines and diagnostic tools.

2. **Bordetella pertussis**
   The isolates were obtained from nasopharyngeal swab samples of patients in Pune, Maharashtra, in 2022 and maintained by ICMR-NIRBI, Kolkata. They were confirmed by real-time PCR using IS481 and ptxS1 targets following WHO protocol. Bordetella pertussis represents a significant respiratory pathogen linked to whooping cough outbreaks, making these isolates valuable for research on diagnostics, surveillance, and vaccine development.

3. **Campylobacter spp.**
   The isolates were obtained from human stool samples of diarrhea patients patients collected in Kolkata and maintained by ICMR-NIRBI, Kolkata. In total these are 122 strains. These strains would be important for studying foodborne gastroenteritis and Guillain-Barré syndrome.

4. **Escherichia coli**
   This isolate was collected from human stool of infected patients in Noida and maintained by ICMR-NICPR, Noida. The strains were characterized using VITEK-2 analysis and WGS. The isolates can be relevant for research on urinary tract infections, gastroenteritis, and neonatal meningitis, as well as for diagnostic kit development.

5. **Escherichia albertii**
   The isolates were obtained from human stool samples of infected patients in Kolkata and maintained by ICMR-NIRBI, Kolkata. They represent an emerging pathogen linked to diarrheal disease. The isolates can be relevant for research useful for differentiating from pathogenic E. coli.

6. **Klebsiella pneumoniae**
   The isolates were derived from blood samples of patients in Kolkata and maintained by ICMR-NIRBI, Kolkata. They are critical for research on pneumonia, bloodstream infections, and carbapenem resistance.

7. **Ochrobactrum intermedium**

   The isolates were collected from conjunctival swabs of diseased patients in Gorakhpur and maintained by ICMR-NIRBI, Kolkata. The isolate was characterized by Sanger sequencing. These isolates represent a rare opportunistic pathogen causing ocular and systemic infections.

8. **Orientia tsutsugamushi**

   The isolates were obtained from whole blood of scrub typhus patients in Gorakhpur and maintained by ICMR-NIRBI, Kolkata. The isolate was characterized by Sanger sequencing. The isolates may be vital for scrub typhus diagnostics and vaccine development.

9. **Pseudomonas aeruginosa**

   This isolate was collected from human stool in Kolkata and maintained by ICMR-NIRBI, Kolkata. It is important for research on multidrug-resistant hospital infections, pneumonia, and wound infections.

10. **Shigella spp.**

    The isolates were derived from human stool samples of diarrheal patients in Kolkata and maintained by ICMR-NIRBI, Kolkata. In total these are 122 strains. They were confirmed by PCR and are critical for research on shigellosis (bloody diarrhea and dysentery) and for developing diagnostics and vaccines to reduce child mortality.

11. **Vibrio cholerae**

    The isolate belongs to the O1 serogroup of Vibrio cholerae, a major pathogen responsible for cholera outbreaks. These O1 strains were obtained from human stool samples of cholera patients in endemic regions such as Kolkata and maintained by ICMR-NIRBI, Kolkata. The isolate is useful for research on cholera outbreaks, the development of rapid diagnostic tools, and vaccines to prevent severe dehydration and death.

12. **Vibrio fluvialis**

    The isolates were collected from human stool or wound samples of infected patients in India and maintained by ICMR-NIRBI, Kolkata. They were confirmed by molecular methods and are important for research on cholera-like gastroenteritis, wound infections, and septicemia, especially in seafood-associated outbreaks.

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