



Office of the Principal Scientific Adviser
to the Government of India

Compendium of **IAIH INNOVATIONS** anchored by C-CAMP



India AMR Innovation Hub (IAIH)

An initiative on AMR-focused research and innovation supported by the Office of Principal Scientific Adviser (PSA) to the Government of India



Foreword from Principal Scientific Adviser (PSA) to the Government of India



Prof. Ajay Kumar Sood,
Principal Scientific Adviser to
the Government of India, and
Chair, IAIH Advisory Council

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If we want to solve the huge global threat posed by AMR, India will have to play a central role. We are one of the first countries globally to initiate a National Action Plan on AMR. But we need more cohesion and direction in our efforts. India AMR Innovation Hub, anchored by C-CAMP is a platform for convergence of mandates across the ecosystem to enable collective action.

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About IAIH

The India AMR Innovation Hub, IAIH is conceptualised and anchored by C-CAMP guided by the Office of the PSA. It is a unique convergent platform bringing together key Indian and global stakeholders from Government, Academia, Industry, Philanthropies, Startups, and Not-for-Profit Organisations.

IAIH aims to support and fast-track breakthrough AMR solutions that reduce the huge AMR burden in India and beyond.

IAIH has been officially declared as the "Innovation Arm" of India's National Action Plan NAP 2.0 on AMR.

Focus areas of IAIH are –

- Human Health
- Human-Animal-Agri Ecosystem Interface (One Health)
- AMR in Environment
- AMR Stewardship
- AMR Surveillance and Public Health Preparedness



Message from Centre for Cellular and Molecular Platforms (C-CAMP) Director and CEO



Dr. Taslimarif Saiyed,
Director and CEO,
C-CAMP and Vice Chair,
IAIH Advisory Council

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The global threat of AMR required that all stakeholders working in the field come together and fight it collectively. The C-CAMP anchored IAIH is a converging platform that brings academia, industry, start-ups, government, philanthropy, hospitals, start-ups, together, enabling exchange and synergy in the fight against the global challenge of AMR. In recognition of these efforts IAIH has been identified as the technology innovation arm of India's NAP2.0

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Human Health



GYROX series of antibiotics: Novel Bacterial Topoisomerase Inhibitor (NBTI) based, broad-spectrum antibiotic to combat Multi-Drug Resistant (MDR) bacterial infections



Bugworks Research India Pvt. Ltd.
Co-founder and CEO - Dr. Anand Anandkumar
Human Health - Therapeutics

Bugworks is a clinical-stage biopharmaceutical company developing novel therapeutic assets in the space of antibacterial agents and immunotherapies to treat patients with critical care needs in infection and cancer. It was established in 2014 and incubated at C-CAMP, Bengaluru. It is supported by funding from national and global collaborations such as Combating Antibiotic-Resistant Bacteria Biopharmaceutical Accelerator (CARB-X), Global Antibiotic Research and Development Partnership (GARDP), and a syndicate of private investors.

Bugworks is developing a novel class of broad-spectrum potential best-in-class, novel class of small molecule antibiotics, to address the global unmet need for antimicrobial resistance (AMR). Its lead molecule, BWC0977, is a Novel Bacterial Topoisomerase Inhibitor (NBTI) exhibiting a broad-spectrum coverage against critical priority pathogens such as Carbapenem-resistant *Enterobacteriaceae*, *Acinetobacter baumannii* and *Pseudomonas aeruginosa* and high-priority pathogens like *Enterococcus faecium*, *Staphylococcus aureus*, *Campylobacter sp.*, *Streptococcus pneumoniae*. The clinical candidate is undergoing clinical trials with healthy volunteers and has received approval from the Therapeutic Goods Administration (TGA) to support the Phase 1 human trial in Australia.

Novel treatments for MDR bacteria using endolysin-deficient bacteriophage, Ectolysin, and Bacteriocin platform technology



Gangagen

Founder - Dr. T. S. Balganes

Human Health - Therapeutics

GangaGen, India, is a biologics company specialised in discovering, designing, and developing novel non-traditional antibacterial therapies for treating severe bacterial infections caused by drug-resistant gram-positive and gram-negative pathogenic bacteria. Some of their ground-breaking technologies involved in the development of engineered novel treatments for multidrug-resistant bacteria include Endolysin-deficient bacteriophage, Ectolysin and Bacteriocin platform technology. In 2015, GangaGen advanced its candidate compound into human clinical trials for the decolonisation of Methicillin-Resistant *Staphylococcus aureus* from human nares. Although registered in India, GangaGen is a fully owned subsidiary of Bactoclear Holdings Pvt. Ltd. Singapore. They are among the few proud recipients of the prestigious CARB-X grant to develop Klebicins for treating lung infections caused by *Klebsiella pneumoniae*.

A first in class broad spectrum antibiotic working against Gram negative bacteria



Foundation for Neglected Diseases Research (FNDP)

Founder - Dr. Shridhar Narayanan

Human Health - Therapeutics

Gram-negative bacteria are a leading cause of morbidity and mortality due to community-acquired and hospital-acquired infections. Current treatment options for gram-negative infections, including last resort Carbapenems and Polymyxins, are becoming ineffective due to growing antimicrobial resistance. With the current pipeline of novel antibiotics against drug-resistant gram-negative pathogens being inadequate, there is an urgent unmet need for renewed global efforts in this direction. At FNDP has initiated a focused programme for the discovery of a novel antibiotics that are active against gram-negative bacterial pathogens of concern. This programme involves medicinal chemistry efforts for rational design and synthesis of novel compounds, guided by extensive *in vitro* and *in vivo* biological assays for evaluation and optimisation them towards a preclinical candidate.



<https://www.fndp.in/>

A novel topical antibiotic for *Staphylococcus aureus* skin infections



Foundation for Neglected Diseases Research (FNDP)

Founder - Dr. Naveen Kumar

Human Health - Therapeutics

FNDR-20364 is a novel thiopeptide antibiotic potent against *S. aureus*, including drug-resistant strains like MRSA and VRSA. It is a natural product produced by a *Streptomyces spp.* originally isolated from Antarctic soil. Its purification is scalable by fermentation to >100 g quantities. FNDR-20364 is a potent protein synthesis inhibitor that binds to the 23S rRNA in the 50S subunit of prokaryotic ribosomes and inhibits ribosome-dependent GTPase activity of Elongation Factor G (EF-G). FNDR-20364 has a novel mechanism of action (MoA) distinct from other protein synthesis inhibitors (Streptomycin, Amikacin, Kanamycin and Vancomycin) and hence is a viable solution for infections caused by *S. aureus* resistant to current SoC drugs. *In vivo* proof-of-concept studies in a rat burn wound infection model have demonstrated that topical application of FNDR-20364 is more efficacious than Soframycin and leads to epithelialisation and better wound healing and resolution against skin infections caused by MRSA.



<https://www.fndr.in/>

Point of care diagnostic device (sensopath) for detection of early stage neonatal sepsis



AbGenics Lifesciences Pvt. Ltd.
Founder - Dr. Sanjiban Banerjee
Human Health - Therapeutics

AbGenics LifeSciences has developed Sensopath, a rapid, point-of-care (POC) diagnostic device using highly stable camelid (VHH) antibodies for the early detection of neonatal sepsis. This ultra-sensitive biosensor platform detects six common bacterial pathogens from as little as 100–250 μ L of blood and delivers clear yes/no results within an hour-eliminating delays and enabling immediate treatment. The portable device uses interchangeable antibody-embedded cassettes and does not require trained personnel or cold chain storage, making it highly adaptable for low-resource clinical settings.

Sepsis is a leading cause of neonatal mortality, especially in developing countries where delayed diagnosis costs lives. Sensopath can transform early diagnosis and ensure timely treatment of neonatal sepsis, significantly reducing mortality and antibiotic misuse impacting both number of lives saved and the fight against AMR.



<https://www.abgenics.in/>

Novel conjugates for specific targeting of known antibiotics to macrophages



Tranalab Pvt. Ltd.

Founder - Dr. Nitin Deshpande

Human Health - Therapeutics (Peptide drug conjugates)

This innovation introduces a peptide-antibiotic conjugate platform designed to deliver antibiotics directly to macrophage phagosomes, where many persistent bacterial infections thrive. By identifying and using novel peptides that selectively bind macrophage receptors, the technology enables targeted delivery of existing antibiotics into the intracellular environment, addressing a key limitation of conventional therapies.

The platform shows particular promise against ESKAPE pathogens, offering a powerful strategy to overcome antibiotic resistance by ensuring the drug reaches its site of action. This targeted delivery method has the potential to significantly enhance treatment outcomes for chronic and drug-resistant infections, opening a new frontier in precision antimicrobial therapy.



BacNo Gel: antibacterial and osteoinductive, drug induced hydro-Gel formulation for post tooth extraction wound management



Aasya Healthcare Pvt. Ltd.
Founder - Dr. Vikas Sahu
Human Health - Wound Management

Aasya Healthcare's BacNo Gel is an innovative, localised hydrogel formulation designed to manage post-tooth extraction wounds by delivering antibiotics directly into the extraction socket. This easy-to-place gel provides sustained drug release for 3-5 days, reducing the need for systemic antibiotics and preventing secondary infections at the wound site—an important step in combating antimicrobial resistance.

With promising efficacy and safety results from preclinical animal studies, BacNo Gel also supports alveolar bone regeneration through its osteoinductive properties. The gel adapts to the unique anatomy of the alveolar socket, creating an ideal microenvironment for healing. By offering a dual benefit of infection control and bone regeneration, this solution holds strong potential to transform dental care while reducing antibiotic overuse.

A topical protein-based therapeutic formulation to tackle antimicrobial resistant pathogens



VriVida Pvt. Ltd.
Founder - Dr. Anupam Dutta
Human Health - Therapeutics

VriVida has developed a novel protein-based topical therapy aimed at combating infections caused by antimicrobial-resistant (AMR) pathogens. Their innovation, VIDA-1, is a recombinant protein that stimulates epithelial cells like keratinocytes to produce endogenous antimicrobial peptides (AMPs) such as beta-defensin and LL37. These AMPs, key components of innate immunity, offer a non-antibiotic approach to infection control and are less likely to contribute to resistance. Delivered via a carboxymethylcellulose (CMC)-based gel with FDA-approved excipients, the formulation is designed for safe topical use across a range of microbial threats including bacteria, fungi, and viruses.

With applications spanning from recurrent urinary tract infections in women to neonatal skin infections, this breakthrough provides a powerful new tool in the fight against AMR, minimising reliance on conventional antibiotics and reducing the risk of neonatal sepsis.



RNAi based topical therapy for non-healing wounds and recurrent skin infections in diabetic patients



KoshKey Sciences Pvt. Ltd.
Founder - Dr. Tanay Bhatt
Human Health - Therapeutics

Chronic, non-healing diabetic ulcers complicated by antimicrobial resistance (AMR) pose a severe clinical challenge with limited effective therapies. This innovation by Koshkey of RNAi therapy leverages RNA interference (RNAi) technology to address both impaired wound healing and infection control. The team has identified key molecular pathways responsible for the failure of diabetic skin to mount effective healing and antimicrobial responses. By targeting these mechanisms, their RNAi-based therapy activates skin keratinocytes to restart the natural wound-healing cascade while enhancing their antimicrobial defenses.

The therapy involves three core components: a diabetic wound infection mouse model, novel antisense oligonucleotide drugs, and a specialised drug delivery system. This targeted dual-action approach offers a transformative solution for a high burden problem, with the potential to significantly reduce healing time and antibiotic use in diabetic patients suffering from infected chronic wounds.



<https://koshkey.com/>

A novel therapeutic alternative to conventional antibiotics using the science of glycobiology



Indian Institute of Science Education and Research (IISER), Pune
Founder - Prof. H. N. Gopi
Human Health - Therapeutics

Prof. Gopi has designed the hybrid peptide AMP-1, which has shown broad-spectrum antibacterial activity with extended longevity. Addressing the urgent need for novel antimicrobials, this innovation introduces a next-generation hybrid peptide P8 composed of α - and γ -amino acids. P8 exhibits potent, broad-spectrum activity against both gram-positive and gram-negative bacteria, including highly drug-resistant ESKAPE pathogens, MRSA, VRSA, and polymyxin B-resistant strains. Its mechanism of action involves disrupting bacterial membranes, offering a novel, non-conventional approach to combat AMR.

Notably, P8 demonstrated superior efficacy over standard antibiotics like vancomycin and daptomycin, with enhanced selectivity and resistance to protease degradation. *In vivo* studies using murine models confirmed its safety and effectiveness in clearing skin and thigh infections. With no observed interaction with existing antibiotics, P8 holds promise for combination therapies. This innovation could significantly impact the fight against AMR by offering a resilient and versatile therapeutic alternative where current treatments fail.



Akshaisarathi-Vig, a rapid point of care therapeutic drug monitoring (TDM) device



Akshaisarathi Health Care Solutions Pvt. Ltd.
Founder - Dr. Pratibha Nadig
Human Health - Therapeutics

Akshaisarathi-Vig is a rapid point of care therapeutic drug monitoring (TDM) device, an aid for precision medicine for preventing AMR and Multidrug Resistant (MDR) tuberculosis (A Platform technology). It has been designed to revolutionise TDM by making it rapid, cost-effective, and accessible at the point of care. Tailored for diseases like Multidrug Resistant tuberculosis (MDR-TB), it enables individualised dosing by assessing drug levels in real time, addressing a critical gap in current healthcare where TDM remains largely inaccessible.

By incorporating artificial intelligence, Akshaisarathi-Vig not only supports precision medicine but also predicts the potential development of AMR based on host and clinical factors an aspect often overlooked. Its ease of use, customisability across multiple drugs, and quick result delivery make it a valuable asset for both physicians and diagnostic labs. This innovation has the potential to significantly improve treatment outcomes, reduce drug resistance, and enhance patient satisfaction, making precision care a reality.



Programmable small peptides targeting bacterial cell membranes



Pepthera Laboratories Pvt. Ltd.
Founder - Dr. Aparna Rai
Human Health- Therapeutics

Pepthera Laboratories is a pioneering startup developing peptide-based drugs to combat drug resistance in treatment of infectious diseases and cancers. They are developing small programmable peptides with broad spectrum activity that target bacterial cell membranes.

With its groundbreaking technology, Pepthera Laboratories offers a game-changing approach to drug development and treatment. By harnessing the power of advanced analytics and machine learning, this cutting-edge platform enables the development of novel peptide constructs with tailored bioactivity. This level of precision not only expedites the drug discovery process but also enhances the efficacy and safety of treatments.



<https://pepthera.com/>

Nitric Oxide (NO) based approaches to counter infections and metabolic disorders

Byonox Pvt. Ltd.
Founder - Prof. Balachandran Ravindran
Human Health - Therapeutics



The company holds patents for two small molecules — CC6 and CC11 — that induce endogenous production of Nitric Oxide and bind to Nitric Oxide Synthase Interacting Protein (NOSIP), a negative regulator of Nitric Oxide Synthase, which increases levels of Nitric Oxide in the host blood. They enhance host immunity through nitric oxide and inhibit both drug sensitive as well as drug-resistant *Klebsiella pneumoniae* infections *in vitro* as well as *in vivo* in mice models of challenge infections. By virtue of enhancing host anti-bacterial immunity, they could be a potential combination or support treatment for management of antimicrobial resistance (AMR).



<https://byonox.com/>

GenX-S™ – A non-antibiotic probiotic hydrogel for diabetic foot ulcers

Rhogenites Biotech India Pvt. Ltd.
Founder - Dr. Sundaram Ramasamy
Human Health - Therapeutic



GenX-S™ is a non-antibiotic, biofilm-targeted hydrogel dressing under development for chronic diabetic foot ulcers (DFUs). DFU infections are frequently sustained by structured bacterial biofilms that shield pathogens from antibiotics and host immunity, leading to prolonged inflammation, delayed closure, and higher amputation risk. GenX-S™ is applied topically to the wound bed and is designed to locally disrupt biofilm structure and reduce microbial persistence without systemic exposure. By targeting biofilm architecture rather than conventional antibiotic killing, the platform aims to lower antibiotic dependence and support standard DFU care (debridement, off-loading, and dressing changes). The formulation is intended to be scalable and suitable for clinic and home-care use. This AMR-sparing approach supports stewardship by reducing repeated topical antibiotic cycles.



A rapid molecular diagnostic platform for UTI related infections



Achira Labs Pvt Ltd.
Founder - Dr. Dhananjay Dendukuri
Human Health - Diagnostics

BugCheckUTI is an advanced point-of-care microfluidic platform designed to rapidly identify six major bacterial species and 11 AMR genes directly from urine samples. Integrating Q-bead-based DNA extraction, 17-plex PCR amplification using SAMRS/AEGIS chemistry, and microarray-based hybridisation readout, the test delivers comprehensive and quantitative results within a compact cartridge. The system requires no moving parts, minimal sample handling, and enables high-throughput, sensitive detection with no need for complex lab infrastructure. With support for convective PCR and multiplexed detection, BugCheckUTI is tailored for clinics and decentralised healthcare settings. This innovation can significantly reduce time-to-diagnosis and inappropriate antibiotic usage in both community and hospital-acquired UTI cases - an impactful step toward curbing antimicrobial resistance.



Rapid Point-of-Care test to distinguish bacterial from viral infections in Humans



Achira Labs Pvt Ltd.
Founder - Dr. Dhananjay Dendukuri
Human Health - Diagnostics

The proposed system is a rapid, multiplexed point-of-care diagnostic that combines a dual-biomarker lateral flow immunoassay (LFA) with Achira's CDSCO-approved portable calorimetric reader. The test simultaneously measures Myxovirus Resistance Protein A (MxA), a specific marker for viral infections, and C-Reactive Protein (CRP), a marker for bacterial infections, from a small blood sample. Gold conjugated nanoparticles enable quantitative detection, with results available in 12–15 minutes. Data is transmitted to a smartphone via Bluetooth for immediate interpretation and cloud integration. Designed for ease of use, affordability, and scalability, the system supports rational antibiotic prescribing in both rural and urban healthcare settings.



Trueamp-Pneumonia: A multiplexed, reverse transcription (RT)-PCR diagnostic solution that addresses antibiotic resistance in lower respiratory tract infections



Bigtec Labs Pvt. Ltd.

Founder - Dr. Ravikumar Banda and Dr. Chandrasekhar Nair

Human Health - Diagnostics

To combat the widespread issue of unnecessary antibiotic use in lower respiratory infections, Bigtec Labs and XCyton Diagnostics, both based in Bengaluru, have jointly developed the Trueamp-Pneumonia Solution. This innovative diagnostic platform combines XCyton's advanced multiplex RT-PCR assays for respiratory pathogens with Bigtec's Trueamp - a compact, battery-operated Real-Time PCR device capable of detecting up to 16 gene targets per run across four fluorescent channels. The system offers rapid, comprehensive detection of 26 pathogens and 15 resistance markers, including 12 RNA viruses, 1 DNA virus, 2 atypical bacteria, 10 bacterial pathogens, 1 fungal pathogen, and 15 antimicrobial resistance markers. The test delivers results in less than 90 minutes, enabling faster clinical decision-making. Multiple types of respiratory specimens such as throat swabs, BAL, tracheal, empyemic and pleural aspirates can be used for this assay. The extracted material is processed through 12 multiplex RT-PCR tubes, grouped for viral, bacterial, and resistance marker detection. Results are displayed clearly with positive or negative status along with CT values and can be saved or printed for records. Designed for point-of-care use, the system is user-friendly, space-efficient, and requires minimal training. Its modular testing capability allows clinicians to select relevant panels based on clinical presentation, improving diagnostic efficiency.

Development of CRISPR-based point-of-care testing for rapid diagnosis of Carbapenem resistance in hospital settings



CrisprBits Pvt. Ltd.
Founder - Dr. Vijay Chandru
Human Health - Diagnostics

CrisprBits is developing a CRISPR-based point-of-care (POC) testing for rapid diagnosis of Carbapenem resistance in hospital settings. This innovation introduces a CRISPR-based lateral flow assay for the rapid and precise detection of Carbapenem resistance genes (KPC, NDM, IMP, VIM, and OXA-48). The test uses isothermal amplification combined with CRISPR's highly specific targeting to offer results with minimal false positives or negatives. Packaged in a user-friendly kit with lyophilised reagents, it requires only basic handling adding buffer and DNA template, making it ideal for bedside or lab use. The final readout is delivered visually on a lateral flow strip, enabling swift, actionable insights.

Carbapenem resistance is a critical threat in hospital-acquired infections, often leading to treatment delays and poor outcomes due to lack of rapid diagnostics. Current methods like PCR are equipment-intensive and time-consuming. By enabling early, accurate detection at the point of care, this test empowers clinicians to initiate targeted antibiotic therapy faster, helping combat AMR and improving patient care in critical care settings.



<https://crisprbits.com/>

PathCrisp – A CRISPR-based diagnostic platform



CrisprBits Pvt. Ltd.
Founder - Dr. Vijay Chandru
Human Health - Diagnostics

PathCrisp is a CRISPR-based molecular diagnostic technology designed for rapid and highly specific detection of pathogens and antimicrobial resistance markers. It leverages CRISPR technology to recognise target nucleic acid sequences with exceptional precision, enabling sensitive detection even at low copy numbers. The platform integrates simplified sample processing with PCR-based amplification and CRISPR-mediated fluorescence readout to deliver fast, accurate results without requiring complex laboratory infrastructure. Its modular design allows easy customisation for different pathogens and resistance genes. Overall, PathCrisp provides a robust, scalable solution for decentralised and clinically relevant molecular testing.



<https://crisprbits.com/>



Ultra-rapid detection of bacteria causing UTI and its antibiotic resistance profile



Module Innovations Pvt. Ltd.
Founder - Mr. Sachin Dubey
Human Health - Diagnostics

Module Innovations is leveraging the power of nanotechnology and biotechnology to create powerful solutions for ultra-rapid diagnosis of Urinary Tract Infection (UTI) and Antimicrobial Susceptibility of the uropathogen. Their proprietary Size Dependent Signal Amplification of Nanoparticles (SDSAN) technology for: Ultra rapid phenotypic detection of bacterial resistance enables them to deliver UTI positive/negative results in just 15 minutes using USENSE and the AST profile in as short as 2 hours using ASTSENSe. They are revolutionising the UTI management and treatment clinical pathway with solutions that work at all levels of healthcare settings. As part of technology demonstration and validation, a total of 3500 assays have been performed, which also involve clinical samples received from 6 hospitals across two Indian states, Rajasthan and Maharashtra. Their technology development has been supported in part by BIRAC- jointly with the Gates Foundation (Sentinels Award). They are the only Asian diagnostic company funded by CARB-X and recognised with the prestigious Design Impact Award from Tata Trusts and Titan. They are also identified among the top 4 companies in MedTech Innovator Asia Pacific.



<https://moduleinnovations.com/>

Genome sequencing-based test for diagnosis of neonatal sepsis



HaystackAnalytics Pvt. Ltd.
Founder - Dr. Anirvan Chatterjee
Human Health - Diagnostics

HaystackAnalytics is a health tech company creating clinical genomics products which enable diagnostic labs and hospitals to offer accurate and personalised diagnostics. Supported by India's most respected science agencies, Haystack created and launched a portfolio of products to offer genomics in infectious diseases. The Universal Infectious Diseases Test (InFexn UID) has made diagnostic and detection impactful and efficient. InFexn UID has been deployed in 6-sites across Indian states, namely Maharashtra, Delhi, Kerala, Jharkhand, West Bengal, and Uttar Pradesh and supported more than 6000 tests. Haystack has received funding support from various bodies like BIRAC, DBT, DST, Govt. of Maharashtra and NOC clearance from CDSCO for marketing. Their innovations are well recognised on multiple platforms, such as the Business World Disrupt TechTors Awards in the category - Innovative Technology/Product 2023 and 11 Elets Healthcare Innovation Summit & Awards 2023, in the category of Excellence in Healthcare.

A disposable paper-based analytical platform for rapid differentiation of childhood diarrhoea



Babycue Pvt. Ltd.
Founder - Mr. Manish Kumar Swain
Human Health - Diagnostics

Babycue is developing a disposable microfluidic paper-based analytical device (μ PAD) that can rapidly differentiate between bacterial and viral diarrhoea in children under 5 years. Designed as a point-of-care test with results in just 5–7 minutes, this platform offers a fast, affordable, and user-friendly immuno-diagnostic tool. It eliminates the need for high-end lab equipment, enabling early diagnosis in clinics, community health centres, and even in the hands of frontline workers like ASHAs and Anganwadi staff in rural settings.

Conventional methods are time-consuming (24–48 hours), expensive, and inaccessible in remote areas. By guiding appropriate therapy - ORS for viral cases, antibiotics for bacterial cases - this innovation can reduce medication misuse, improve treatment outcomes, and empower frontline healthcare providers in low resource settings.



R-PASA - a rapid Antimicrobial Susceptibility Test (AST) platform



RapidDX Technologies Pvt. Ltd.

Founder - Dr. Satish Kalme

Human Health - Diagnostics

RapidDX Technologies is a young start-up working in the field of diagnostics in AMR. Their innovative approach involves developing a rapid Antimicrobial Susceptibility Test (AST) platform, which significantly reduces the time gap between sample collection and susceptibility detection. RapidDX employs a multidisciplinary approach using mechatronics, microfluidics, and data analytics to provide cutting-edge solutions for AST. Their vision is to provide high-quality, affordable healthcare solutions to combat AMR. RapidDx has received the licence for the tunable DNA origami pH sensor technology and also owns a patent for a microfluidic cartridge, kit, and assay. Their research and innovation are supported by funding from Startup Karnataka (Elevate - 2023) and SAMRIDH (Rockefeller Funds).



<https://www.rapiddxtech.com/>

RetroPCR: High throughput to Point of Care (POC) qPCR solution for pathogen ID



Retrobiotech Pvt. Ltd.
Founder - Mr. Aditya Sharma
Human Health - Diagnostics

RetroPCR is a novel qPCR platform developed by Retrobiotech that enables direct detection of infectious pathogens and associated resistance genes from clinical samples, without requiring prior DNA extraction. With its robust assay inventory and simplified workflow, RetroPCR can detect bacterial, viral, fungal, or parasitic infections rapidly at the point-of-care. Its high sensitivity, broad pathogen range, and quick turnaround make it suitable for both high-throughput labs and bedside use.



Fever of unknown origin (FUO) and complex infectious conditions often lack accurate or timely diagnosis due to the limitations of traditional testing methods. Current diagnostics can be time-consuming and non-specific, leading to empirical treatments that risk antibiotic misuse. By delivering rapid, accurate, and actionable results, RetroPCR empowers clinicians to make timely, targeted treatment decisions, ultimately improving outcomes and helping curb antimicrobial resistance.

Hybrid microfluidic chip for detecting neonatal sepsis



Papersens Pvt. Ltd.
Founder - Dr. Sudhakar Prasad
Human Health - Diagnostics

The innovative diagnostic kit by Papersens integrates a microfluidic PDMS-paper chip platform with triple biomarker detection for rapid and cost-effective identification of neonatal sepsis. Developed under the DST-SYST initiative (2020–2023), the technology is designed for bedside, point-of-care use, enabling real-time results with minimal infrastructure. Its paper-based microfluidic format makes it affordable, portable, and suitable for resource-limited settings, while ensuring timely, targeted intervention for neonates.

Neonatal sepsis remains a major global health challenge, with India reporting the highest number of cases annually. Traditional diagnostic methods, such as blood culture, are slow (48 hours), often unreliable after antibiotic exposure, and delay treatment decisions. This technology addresses the urgent need for early detection, helping reduce newborn mortality and limiting unnecessary antibiotic use that drives antimicrobial resistance.



<https://www.papersens.com/>

One step real time PCR AMR test panel



AmpliGene Diagnostics Pvt. Ltd.
Co-Founder - Dr. Chirag Pandya
Human Health - Diagnostics

AmpliGene is revolutionising molecular diagnostics through its portable, bench-to-bedside AmpEZ platform that brings laboratory grade testing to point-of-care settings. The system features engineered LF DNA polymerases that work on crude samples, freeze-dried reagents that eliminate cold chain dependency, and devices with integrated GPS, WiFi, and touchscreen interfaces. With formats from 8 to 96 wells and ultra-rapid isothermal amplification, AmpliGene is simplifying workflows and accelerating diagnoses.

The innovation's strength lies in its high sensitivity, affordability, and ability to function without complex infrastructure or skilled personnel. This platform has the potential to drastically improve diagnostic access in remote or under-resourced settings, making timely, life-saving molecular testing more equitable.

MicroAST: Paper-based microfluidics for rapid Antibiotic Susceptibility Testing and AMR detection



BioSouk Life Sciences LLP
Co-Founder - Ms. Kauser Banu
Human Health - Diagnostics

MicroAST is a paper-based microfluidic platforms for rapid Antibiotic Susceptibility testing (AST) and AMR Detection. It is an affordable, eco-friendly, and paper-based microfluidic device designed to revolutionise Antibiotic Susceptibility Testing (AST). It enables rapid detection of antibiotic resistance in just 2–3 hours using a minimal sample and eliminates the need for bulky lab equipment. By visually indicating bacterial susceptibility through colour changes, MicroAST simplifies diagnosis and supports timely, targeted treatment especially in low-resource and decentralised healthcare settings.

This technology has the potential to transform infection management in rural clinics and primary care centres by enabling faster decisions and reducing misuse of antibiotics, directly addressing AMR. Its portability, low cost, and user-friendly design make it a gamechanger in expanding access to reliable AST at the point-of-care.



<https://biosouk.co.in/>

Rapid phenotypic device using autofluorescence and machine learning for AST



Adiuvo Diagnostics Pvt. Ltd.
Founder - Ms. Geetanjali Radhakrishnan
Human Health - Diagnostics

Adiuvo has created a novel diagnostic platform, which harnesses native autofluorescence of bacterial metabolic biomarkers such as NADH, porphyrins, flavins, and pyoverdine to perform rapid phenotypic antibiotic susceptibility testing (AST). Using a microfluidic chip pre-coated with different antibiotics, the system detects fluorescence intensity and lifetime changes under 1 hour, enabling real-time analysis of bacterial response. Integrated with AI-driven algorithms, it accurately distinguishes between resistant and sensitive strains without the need for labels or culture.

This innovation has the potential to revolutionise infectious disease management by drastically reducing diagnosis time by over 100-fold compared to traditional culture methods, thus guiding timely and effective antibiotic therapy.



<https://www.adiuvodiagnostics.com/>

Portable AST for urinary tract infections for actionable diagnostic insight to clinicians



Papyrus Diagnostics Pvt. Ltd.
Founder - Dr. Bhushan Toley
Human Health - Diagnostics

Papyrus Diagnostics has developed a paper-based microfluidic phenotypic AST device for urinary tract infections (UTIs), delivering rapid, actionable results in under 2 hours at a cost of less than \$2 per test. This portable, instrument - light platform uses reliable formazan-based chemistry and a modular design to ensure future scalability. Its low capital requirement (<\$100 setup) and ease of use make it ideal for deployment in primary care settings and rural health centres. Unlike conventional culture methods or dipstick tests, Papyrus' solution balances speed, accuracy, and affordability - making it suitable for front-line health workers and small diagnostic labs.

Current UTI diagnostic practices rely on slow and expensive lab-based urine cultures, often outsourced to urban centres. This leads to delayed treatment, inappropriate antibiotic use, and poor patient compliance. By enabling same-day, point-of-care AMR testing, this innovation can significantly improve treatment accuracy and reduce the misuse of antibiotics - directly contributing to the fight against AMR and improving health outcomes, particularly in low-resource settings.



<https://www.papyrusdx.com/>

Tapestry platform, AI-enabled large-scale molecular diagnostic tools



Algorithmic Biologics Pvt. Ltd.
Founder - Dr. Manoj Gopalkrishnan
Human Health - Diagnostics

This start-up ingeniously applies the power of Machine Learning (ML) to biotechnology-based industries by building the information processing layer for biological data. These solutions are offered in the form of software as a service (SAAS). Their diagnostic solution which is qPCR-based 5-assay panel that can detect 200 targets, is an affordable and fast alternative to culture-based antibiotic susceptibility screens.

Affordable, comprehensive, modular, semi-quantitative respiratory pathogens and AMR detection panel for open PCR platforms



Genepath Diagnostics Pvt. Ltd.
Founder - Dr Nikhil Phadke
Human Health - Diagnostics

The proposed technology is an affordable, comprehensive, semi-quantitative, and modular respiratory pathogen and AMR detection panel designed for open PCR platforms for use in India and other LMIC markets. It is compatible with diverse sample preparation and enrichment methods and incorporates both endogenous and external controls for robust quality verification. Semi-quantitative outputs enable distinction between colonisation and active infection, improving clinical relevance. The modular architecture allows flexible panel design tailored to local epidemiology, enhancing adaptability for clinical diagnostics, environmental monitoring, and One Health surveillance.



<https://www.genepathdx.com/>

TreBle Respire: AI-driven screening platform for early detection of respiratory infections and antimicrobial stewardship

Muse Diagnostics Pvt. Ltd.
Founder - Mr. Sumukh Mysore
Human Health - Diagnostics



TreBle Respire is a multimodal AI platform designed for first-contact triage of respiratory tract infections (RTIs) and pneumonia, with secondary capacity for COPD/asthma risk profiling and early TB suspicion. It combines a digital stethoscope and spirometer with an offline clinical decision support system that runs fully on Android smartphones. The system uses acoustic AI trained on >250,000 clinically annotated patient recordings, one of the largest datasets globally. It reliably detects key adventitious sounds such as:

- Crepitations: sensitivity ~87%, specificity ~84%
- Wheezes: sensitivity ~89%, specificity ~86%

These markers, together with spirometry indices (FEV1, FVC, PEFR), are processed by proprietary decision-support algorithms that classify phenotypes into bacterial vs viral RTIs, obstructive disease, and TB-suspect categories. Results are available in under 2 minutes at <₹20 per test, with no dependence on internet or cloud services. TreBle Respire has already been piloted in senior care and TB settings, deployed in >1,500 devices, and used to collect >250,000 patient recordings. Within a One Health framing, the system also has potential to detect respiratory outbreak signatures in poultry, supporting prudent antibiotic use in livestock, though this is secondary to the present human health focus.

Next-generation serological diagnosis of typhoid using pathogen-specific biomarkers CdtB and HlyE



Samik Diagnostics Pvt. Ltd.
Founder - Dr Javed Akhtar
Human Health - Diagnostics

The proposed diagnostic kit overcomes current limitations in enteric fever detection by incorporating two highly specific virulence-associated biomarkers of *Salmonella enterica* serovar *Typhi*-Cytolethal Distending Toxin B (CdtB) and Hemolysin E (HlyE). These antigens are characteristically expressed by *S. Typhi* and *S. Paratyphi A*, but are largely absent in other enteric pathogens, providing markedly improved diagnostic specificity.

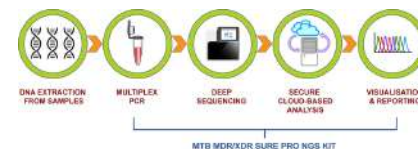


MTB (*Mycobacterium tuberculosis*) Genome Sure Pro NGS kit for identification of MTB and mutations



Trivitron Healthcare Pvt. Ltd.
Founder - Dr. GSK Velu
Human Health - Diagnostics

MTB (*Mycobacterium tuberculosis*) Genome Sure Pro NGS kit is intended to be used for the identification of MTB and mutation/s associated with 18 drug resistance genes of MTB in DNA extracted from sputum sample by next-generation sequencing (NGS). Multiple samples after library preparation can be pooled and analysed by sequencing in a single run. This kit contains all the necessary reagents for the one-step amplification and library preparation of the 166 amplicons containing regions specific for the identification of species MTB/NTM and 18 drug resistance genes of MTB. By utilising deep sequencing of a single 166-plex amplicon mix, the kit enables fast and reliable identification of drug-resistant (DR) strains. Pooled amplicons can be analysed through various Illumina-based NGS platforms. This high coverage ensures that each sequence position is well represented by numerous reads, enabling confident identification of mutations.



Droolie: A first non-invasive diagnostic tool for newborn sepsis screening



Spotsense Pvt. Ltd.
Founder - Amrita Sukrity
Human Health - Diagnostics

SpotSense is a rapid diagnostics company which specialises in high accuracy bedside diagnostic solutions. Their flagship product - Droolie is the first non-invasive diagnostic tool for newborn sepsis screening worldwide. Droolie utilises a small salivary sample from a baby to look for the presence of host-response biomarkers that indicate systemic inflammatory response. The product is augmented with the proprietary sepsis scoring system - SepScore which can utilise clinical symptoms, lab data and biomarker levels to accurately predict the risk of morbidity and mortality.

SpotSense also has a range of other tests for clinical applications varying from infectious diseases, respiratory or metabolic disorders, anaemia, coagulopathies and other non-communicable diseases. The product - VIEWDx, by SpotSense enables easy integration of multiple test formats in a single device.

VIEWDx is a portable, universal point-of-care (POC) diagnostic analyser that reads various test formats (lateral flow, colorimetric, turbidimetric, etc.) for quick, accurate results in clinics, emergency rooms, and labs. It reduces the need for multiple devices by integrating qualitative and quantitative testing into one compact system with cloud support and AI-driven decision support.



<https://spotsense.in/>



VapCare: automated, intelligent secretion management system and oral hygiene system for ventilated ICU patients to prevent ventilated acquired pneumonia

INNACCEL

InnAccel Technologies Pvt. Ltd.
Founder - Mr. Nitish Jahangir
Human Health - Preventatives

The innovations at InnAccel use a US-FDA registered and EU CE certified sensor-based secretion detection technology, designed to address the criticalities of Ventilator-Associated Pneumonia (VAP) in healthcare set-ups. Their innovations like VAPCare and SAANS, which are deployed in some of the leading hospitals like AIIMS Delhi, PGI Chandigarh, Narayana Health, Bengaluru, and NIMHANS, Bengaluru have benefitted over 60,000 patients so far.

They are also working closely with global partners in USA and UK, as their local partner for evaluation of their innovations in those geographies. InnAccel is supported by multiple national and global funding agencies and is awarded with multiple recognitions.





Animal Health

Improving growth and survivability in aquaculture through insect feed

UltraNutri Pvt. Ltd.

Founder - Dr. Nitish Sathyanarayanan

Animal Health - Preventatives



UltraNutri is at the forefront of developing novel solutions to tackle the challenges of sustainable protein production. Their core focus lies in developing an affordable feed for rearing black soldier fly (BSF) larvae utilising noncompeting agricultural waste, such as sugarcane bagasse, rice and wheat stem, corncobs, etc.

Their proprietary processes convert this agri waste, which cannot be eaten by any animal because of its complex cellular structure, into a product that is digestible by the BSF larvae in a cost-effective and sustainable manner. UltraNutri envisions the development of sustainable insect proteins that have both growth and antimicrobial properties, thereby reducing the need for antibiotic usage to protect shrimps. Their novel technology of using Antimicrobial Peptides (AMP)/Defense peptide-enriched insects as immunomodulatory ingredients, significantly reduces the abrupt usage of antibiotics in fish farming. They are working closely in collaboration with the ICAR-Central Institute for Brackish Water Aquaculture (ICAR-CIBA).



Quadmastest: reagent-free device for measuring SCC for dairy animals



Chimertech Pvt. Ltd.

Founder - Dr. Ragul Paramasivan

Animal Health - Therapeutic, Diagnostics, Preventatives

QUADMASTEST, developed by Chimertech, is a portable, reagent-free diagnostic device designed for the early detection of subclinical mastitis in cattle, the second-leading cause of mortality in the dairy industry. By measuring the electrical conductivity of milk, the device identifies infections before clinical symptoms appear, enabling targeted treatment that can prevent up to 80% of milk loss. Validated against the somatic cell count (SCC), which is a gold standard, QUADMASTEST delivers nearly 100% sensitivity and specificity in just 10 seconds. The hardware is built for the field: it is battery-operated, waterproof, auto-calibrating, and requires no technical expertise or recurring consumable costs. A key differentiator of the technology is its digital ecosystem; it utilises RFID-based animal identification and integrates with the iHerd mobile app for seamless data storage, visualisation, and traceability. This provides farmers and para-veterinarians with a clear, data-driven indication of herd health, supporting antimicrobial stewardship and enhancing the long-term productivity and sustainability of livestock management.



<https://www.chimertech.com/>

Fauna platform: A smart detection of bovine mastitis to prevent antibiotic misuse



FaunaTech Solutions Pvt. Ltd.
Founder - Dr. Rajat Pandya
Animal Health - Diagnostics

FaunaTech has developed Fauna, a next-generation, smartphone-connected diagnostic platform that enables rapid, quantitative, and affordable testing of biological markers in milk. Built around a portable reflectance spectrophotometer, the system uses dry chemistry and lateral flow-based test strips to deliver accurate results within minutes.

Fauna offers competitive advantages with its affordability and portability, eliminating the dependency on expensive lab-based testing, while providing real-time, on-site quantitative results within five minutes via a smartphone app. Its scalability allows seamless adaptation across dairy, seafood, meat, poultry, and grains, and its cloud-enabled data analytics empower stakeholders to track contamination trends and make informed decisions.



<https://www.faunatechsolutions.com/>

Masti Gold-H, an antibiotic free alternative for effective and affordable treatment of bovine clinical mastitis



Vitulomics Pvt. Ltd.

Founder - Dr. Karthikeya Krothapalli

Animal Health - Preventatives

Vitulomics is one of the C-CAMP supported startups founded in 2018, working extensively on AMR and animal health. Bovine clinical mastitis is the most burdensome disease for the global dairy industry. Their product, Masti Gold-H, a game changer and an antibiotic-free alternative, making the treatment more effective and affordable and helping over 3000 farmers so far. It is a unique blend of herbs and their extracts that demonstrates consistent efficacy in treating bovine clinical mastitis without the use of antibiotics. It has been successfully field-tested on 78 clinical mastitis-affected animals by the Andhra Pradesh Department of Animal Husbandry and is currently under trial at the Indian Veterinary Research Institute.



Currently, Vitulomics has received funding support from both Indian partners, such as Rashtriya Krishi Vikas Yojana - Remunerative Approaches for Agriculture and Allied Sectors Rejuvenation (RKVY RAFTAAR) and Indian Veterinary Research Institute, and global funding agencies like India Agritech Incubation Network (IAIN), a collaborative effort between the Gates Foundation and Social Alpha.

Naturally derived innovative post milking teat-dip solution for prevention of mastitis



Ariviya Deeptech Pvt. Ltd.
Founder - Dr. Sivakumar Muthusamy
Animal Health - Preventatives

Ariviya has developed the MammaryO - a naturally derived, innovative post-milking teat-dip solution for the prevention of mastitis. It is based on its Natural Udder Care technology, providing a safe and effective approach for the prevention of mastitis in dairy cattle. Made from naturally derived collagen and fortified biopolymers, this nano-bio spray forms a protective coating on cow teats after milking, killing mastitis-causing pathogens within 15 seconds. It also helps heal cracks and lesions while maintaining the skin's integrity. The formulation ensures long-lasting protection until the next milking, offering superior efficacy with a 6-log bacterial reduction and compliance with global safety standards.

The solution is eco-friendly, biodegradable, and completely safe for animals, handlers, and consumers making it a sustainable alternative to chemical disinfectants. By reducing the risk of mastitis without antibiotics, this innovation promotes cleaner milk production and supports global One Health efforts.



SOLAQ disease management solutions: FishGuard and ShrimpGuard for pathogenic bacteria in Aquaculture



Teora Lifesciences Pvt. Ltd.
Founder - Dr. Rishita Changede
Animal Health - Preventatives

TeOra's SOLAQ platform represents a transformative leap in aquaculture disease management shifting from reactive antibiotic reliance to proactive, targeted biological protection. A critical innovation lies in SOLAQ's oral delivery format. Unlike injection-based vaccines which are expensive, laborious, and largely impractical oral administration via feed ensures low-stress, high-coverage protection.

At its core, SOLAQ harnesses AI-powered bioinformatics, machine learning, and advanced protein-folding technologies to design oral antimicrobial peptides (AMPs) that mimic nature's own immune defense. These peptides are specifically tailored to combat high-impact pathogens such as *Streptococcus iniae*, *Streptococcus agalactiae*, and *Vibrio spp*, which are responsible for major aquaculture losses. SOLAQ-designed solutions like FishGuard and ShrimpGuard have demonstrated 88–100% efficacy in controlling pathogenic bacteria validating their potential as non-antibiotic, resistance-free alternatives.

Environment



A device to deplete antimicrobial residues from wastewater to counteract antimicrobial resistance



Foundation for Neglected Diseases Research (FNDR)

Founder - Dr. Shridhar Narayanan

Environmental AMR - Treatment

FNDR has developed a patented cartridge system, which is a deployment-ready product capable of adsorbing diverse classes of antimicrobials, including antibiotics, antimycobacterial, antifungals, antimalarials, and antivirals. The aforesaid product has a wide operational range, including diverse Active Pharmaceutical Ingredients (APIs), contaminants like heavy metals, textile dyes (Trypan Blue and Brilliant Blue), fluorides, and microorganisms (including pathogens). The innovation is a low-cost, environment-friendly cartridge made from a biodegradable adsorbent mixture derived from plant waste materials. It is easily scalable and customisable for field deployment and commercialisation. The product deployment is aimed towards multiple end-users such as domestic/municipal sewage treatment plants (STPs), pharma and animal husbandry industries with in-house effluent treatment plants (ETPs), hospitals with in-house ETPs, and large residential and commercial complexes with in-house ETPs. Using a novel complementary approach, the innovation aims towards addressing the ultimate goal of removal of the drivers of AMR in the environment and development of AMR, and achieving the One Health goals.



<https://www.fndr.in/>

MONzymes - Metal-organic enzyme mimetics, designed to degrade harmful substances in wastewater



Indian Institute of Science (IISc)
Founder - Dr. Subinoy Rana
Environmental AMR - Treatment

The Functional Biomimetic Materials (FunBioMats) group, based in the Materials Research Centre (MRC) at the Indian Institute of Science, is working towards developing a novel innovation that focuses on the validation and prototype development of a catalytic material, metal-organic enzyme mimetics (MONzymes), designed to degrade residual antibiotics, APIs, and microbes efficiently from wastewater. The technology is based on photo-oxidative catalysis, which involves the generation of reactive oxygen species, and can effectively degrade antibiotic residues and resistant bacterial strains. This project has widespread implications for ETPs in hospitals and the pharmaceutical industry. It is crucial for mitigating the emergence and spread of AMR pathogens, ultimately safeguarding public health and preserving the efficacy of existing antibiotics.



<https://mrc.iisc.ac.in/subinoy-rana/>

Novel product to remove antibiotic residue and antibiotic-resistant bacteria from hospital wastewater



Vividew Innovations Pvt. Ltd.
Founder - Mr. Rinu Thomas
Environmental AMR - Treatment

Vividew is developing a novel plug-in innovation for effluent treatment plants in hospitals and healthcare set-ups that reduces the burden of residual antibiotics and microbes in effluent wastewater. The technology includes a nanofiltration-based multistage treatment approach to significantly reduce wastewater volume by concentrating pollutants into a smaller, more controllable stream. This concentrated stream then undergoes chemical oxidation under controlled dosing of hydrogen peroxide or ozone, starting the breakdown of complicated antibiotic compounds. The last stage comprises a novel photocatalytic reactor that uses an optimised combination of multiple treatment mechanisms, including UV irradiation, thermal treatment (60–80°C), and optional microwave irradiation, thereby, significantly reducing the load of antibiotics and microbes in the wastewater. This integrated technique also ensures the total safety and environmental compliance, as per the guidelines of the Pollution Control Board (PCB) for the treated wastewater, by efficiently neutralising antibiotic residues and eliminating microorganisms. The scalable, energy-efficient, IoT-enabled, sustainably built technology provides hospitals with a strong weapon to ethically and holistically address antibiotic resistance.

Development of a Carbon Nanotube (CNT)-based Magneto-Adsorptive System for the simultaneous removal of pathogenic microorganisms and extracellular DNA/ARGs from healthcare wastewater



BioNEST, BHU

Founder - Dr. Durgesh Narain Singh

Environmental AMR - Treatment

Conventional wastewater treatment systems used in healthcare settings are largely ineffective at removing free eDNA and ARGs, allowing genetic contaminants to enter municipal sewage systems and natural water bodies, thereby accelerating the environmental dissemination of AMR.

To address this critical gap, the team at BHU BioNEST is working towards the development of a Carbon Nanotube (CNT)-based Magneto-Adsorptive System for the simultaneous removal of pathogenic microorganisms and extracellular DNA/ARGs from healthcare wastewater. The system leverages the high surface area and tunable surface chemistry of functionalised carbon nanotubes to adsorb bacterial cells as well as free nucleic acids through electrostatic, hydrophobic, and π - π interactions. Integration of magnetic nanoparticles (e.g., Fe_3O_4) enables rapid magnetic separation, recovery, and regeneration of CNTs, ensuring operational efficiency, reusability, and cost-effectiveness. The technology can be deployed as a pre-treatment or polishing unit and can be integrated with existing Hospital Wastewater (HWW) infrastructure, with optional UV or mild oxidation to further degrade captured DNA.



<https://bionestbhu.org/>

Vortex diode-induced cavitation integrated with Advanced Oxidation Processes (AOPs), for the removal of antibiotic APIs and AMR (bacteria & genes) from wastewater



CSIR-NCL

Founder - Dr. Sanjay Kamble

Environmental AMR - Treatment

The team at CSIR-National Chemical Laboratory (CSIR-NCL) is working towards developing an advanced AOP technology, which involves the application of vortex diode-induced cavitation integrated with multiple AOPs (aeration, ozonation, and the Fenton process), leading to the simultaneous removal of antibiotic APIs and Drivers of AMR (bacteria & genes) from hospital wastewater and domestic sewage water. The technology offers distinguishing advantages, such as a smaller footprint, higher degradation efficiency, less maintenance, and lower capital and operating costs compared to conventional devices, making it ideal for resource-limited regions (LMICs). The vortex diode reactor with surface metal coating (single and bimetallic) using electrochemical or spray-coating techniques provides active sites for the degradation of antibiotics and AMR bacteria.

Surface-coated cavitation devices can also be optimised to achieve complete removal efficiencies, as cavitation and catalytic activity will have a synergetic effect on the removal of antibiotics and AMR bacteria. A key advantage of the proposed technology is its adaptability and ease, which can be integrated with other technologies.



<http://academic.ncl.res.in/sp.kamble>

Electrochemical advanced oxidation for mitigation of Antimicrobial Resistance in wastewater



IIT-Madras

Founder - Ms. Thara M V

Environmental AMR - Treatment

The team at Indian Institute of Technology-Madras (IIT-Madras) is developing a project to develop and validate an electrochemical advanced oxidation process (EAOP) as a robust, scalable solution for mitigating antimicrobial resistance in wastewater. The innovation focuses on optimised electrochemical reactor operation using dimensionally stable anodes under controlled current density and electrolyte conditions. The technology leverages non-selective reactive oxygen species, such as hydroxyl and sulfate radicals, to induce oxidative damage to microbial membranes, nucleic acids, and resistance determinants. The approach directly addresses the growing concern of antimicrobial resistance (AMR) in environmental reservoirs, where untreated or partially treated wastewater acts as a hotspot for resistant pathogens and resistance genes. By effectively degrading microbial contaminants and resistance determinants, the EAOP technology reduces the environmental dissemination of AMR, thereby lowering the risk of transmission across human, animal, and ecological interfaces and aligning with the goals of the One Health framework.



<https://acr.iitm.ac.in/>

AmpEZ® AMR next-generation molecular POCT for detection of ARGs and ARB in environmental samples



AmpliGene Diagnostics Pvt. Ltd.
Founder - Dr. Chirag Pandya
Environmental AMR - Detection

AmpliGene is working towards the deployment and field validation of AmpEZ, a portable, isothermal molecular diagnostic platform developed by AmpliGene India Biotech Pvt. Ltd., for environmental AMR surveillance across diverse wastewater systems. The project builds on Phase-I development and optimisation of ARG/ARB detection panels and focuses on advancing the platform through multi-site validation and real-world implementation. The evaluation of the AmpEZ across hospital sewage treatment plants, municipal wastewater treatment facilities, industrial effluent treatment plants, and agricultural runoff systems, representing key environmental interfaces within a One Health framework.

An affordable microfluidic based POT technology for monitoring of resistance bacteria in environmental samples



Amrita Vishwa Vidyapeetham
Founder- Dr. Bipin Nair
Environmental AMR - Detection

An affordable Point Of Testing (POT) technology for the detection of microbes in environmental samples, by utilising the specific interaction of lytic bacteriophages with their respective hosts is been developed. The detection methodology is based on a specific fluorescence-based method involving resazurin for the detection of the target-specific amplification of phages against their drug-resistant hosts, and an impedance-based PoT microfluidic device, which involves the integration of micromixers, microvalves, biosensors, and electronics into a point-of-care testing device. The real-time data captured using both the fluorescence and impedimetric approaches will be integrated for analysis through an AI and cloud-based data management system hosted by their industry partner, LifeSigns. The system, once developed, would be effectively utilised by the local sewage treatment plants, hospital effluent treatment plants, aquaculture, animal husbandry, and poultry units.



<https://www.amrita.edu/>

D-NOME'S pocket PCR device: Rapid and accurate on-field surveillance of AMR bacteria and ARGs in aquaculture ponds/wastewater



D-NOME Pvt. Ltd.

Founder - Dr. Divya Sriram

Environmental AMR - Detection

D-NOME is developing an innovative solution designed for the rapid and accurate on-field surveillance of antimicrobial resistant bacteria (ARB) and AMR genes (ARGs) in shrimp aquaculture ponds, wastewater from sewage, pharmaceutical wastewater, and hospital wastewater. The proposed technology operates on a proprietary synthetic biology-based molecular platform, running at low temperatures while maintaining accuracy at par with gold-standard qPCR/RT-PCR. Given that India is the second-largest exporter of shrimp globally, the environmental contamination caused by shrimp aquaculture wastewater significantly contributes to the spread of AMR bacteria and genes. Additionally, wastewater from sewage, pharmaceutical industries, and hospitals serves as a major reservoir for resistant pathogens, exacerbating the AMR crisis. The device addresses the urgent need for a cost-effective, portable, and efficient diagnostic tool that enables early detection and monitoring, thus mitigating risks in the shrimp supply chain and other critical wastewater sources.



<https://www.dnome.in/>

ESKAPE kit: Understanding of resistance profile of bacteria in aquaculture water



Diagopreutic Pvt. Ltd.

Rapid Diagnosis for One Health

Diagopreutic Pvt. Ltd.

Founder - Dr. Roshan Naik

Environmental AMR - Detection

Diagopreutic is a Goa-based startup led by Dr. Roshan, leveraging over a decade of international research expertise to combat antimicrobial resistance (AMR). The company has developed the ESKAPE kit, a novel colorimetric diagnostic platform designed for rapid antimicrobial susceptibility testing (AST) and pathogen identification in aquaculture settings. Utilising a unique detection method based on the differential nitro-reductase activity of bacteria, the kit identifies pathogens and detects residual antibiotics in farm effluents by monitoring bacterial growth in the presence of specific treatments.



This field-deployable technology delivers accurate results within 4–6 hours, a significant advancement over conventional methods that typically require 24–72 hours. By providing farmers with near-real-time data on pathogen susceptibility, Diagopreutic enables precise, targeted interventions. This rapid turnaround not only prevents the use of ineffective antimicrobials but also ensures regulatory compliance and actively mitigates the development of AMR, securing the health and sustainability of aquaculture ecosystems.



<https://diagopreutic.co.in/>

An affordable, modular, open-platform molecular detection panel for quantitative monitoring of common ARGs in environmental samples



Genepath Diagnostics India Pvt. Ltd.
Founder - Dr. Nikhil Phadke
Environmental AMR - Detection

Wastewater and environmental matrices serve as key convergence points for resistant organisms and resistance genes. AMR surveillance in these settings remains limited due to the lack of affordable, standardised, and scalable molecular tools. Existing approaches are often expensive, technically complex, or poorly suited for deployment in resource-constrained public health and environmental monitoring programs.



GenePath is developing an affordable, modular, and open-platform quantitative molecular detection panel for the monitoring of priority Antimicrobial Resistance Genes (ARGs) in environmental and wastewater samples. The technology integrates multiplexed quantitative PCR (qPCR) assays with optimised sample-preparation reagents and standardised protocols designed specifically for complex environmental matrices.



<https://www.genepathdx.com/>

The Quantiplus® Environmental Surveillance Kit

Huwel LifeSciences Pvt. Ltd.
Founder - Dr. Rachana Tripathi
Environmental AMR - Detection



An affordable technology for the detection of microbes and resistant markers in environmental samples, such as wastewater, hospital effluents, and pharmaceutical discharge, which are key reservoirs of AMR, and facilitate the spread of multidrug-resistant (MDR) pathogens. In LMICs, the lack of high-resolution surveillance enables resistance genes, such as those conferring carbapenem resistance (CRE), extended-spectrum beta-lactamase (ESBL) production, and methicillin resistance (MRSA), as well as typhoid and TB, to spread undetected. This challenge is further compounded by ESKAPE pathogens, which drive severe hospital-acquired infections and evade standard antimicrobial treatments. Reliance on culture-based diagnostics delays intervention, leading to frequent outbreaks, increased mortality, prolonged hospital stays, and rising healthcare costs.

Huwel's innovation, the Quantiplus® Environmental Surveillance Kit, is a real-time qPCR-based detection kit and a rapid, scalable AMR and ESKAPE pathogen monitoring system for the identification of AMR and ESKAPE genes, enabling targeted surveillance in hospital wastewater, pharmaceutical discharge, and community water sources. By enabling real-time AMR insights, this technology also empowers public health agencies with early outbreak warnings, optimised containment strategies, and evidence-based policies, strengthening AMR surveillance globally.



<https://huwellife.com/>

MERIL's quest to combat and address antimicrobial resistance (AMR) at its environmental roots, protecting health, biodiversity, and our collective future



Meril Diagnostics Pvt. Ltd.
Founder - Dr. Prabhakar Mujagond
Environmental AMR - Detection

Meril Diagnostics is developing a real-time multiplex RT-PCR assay (MERINAT ESKAPE- Pathogen ID and AST Panel) for qualitative detection of priority ESKAPE pathogens and 16 AMR determinants across nine antibiotic subclasses directly from wastewater samples. Paired with a specialised nucleic acid extraction kit, it delivers results in 2.5 hours (including extraction), targeting influent, effluent, and sludge from municipal treatment plants and hospitals. At late TRL 4, advancing to TRL 6 via multi-site pilots, the solution tackles AMR's environmental amplification where resistance genes converge in sewage, enabling horizontal transfer before clinical emergence.



<https://www.merillife.com/>



ASTSENSe: A next-generation phenotypic platform for rapid AST and AMR surveillance of drug-resistant bacteria in environmental water



Module Innovations Pvt. Ltd.
Founder - Mr. Sachin Dubey
Environmental AMR - Detection

Module Innovations is a deep-tech startup headquartered in Pune, India, focused on building breakthrough diagnostic technologies to tackle some of the most urgent challenges in infectious diseases and antimicrobial resistance (AMR). It was founded with the vision of enabling faster, accurate diagnostic platforms that deliver actionable results at the point of need.

The company's core innovation, ASTSENSe, is a first-of-its-kind rapid antimicrobial susceptibility testing (AST) platform that delivers results in as little as two hours directly from samples. Additionally, Module Innovations is developing automated DNA extraction technology to incorporate with ASTSENSe. Module Innovations addresses a critical gap in current systems where delayed or empirical antibiotic use drives rising AMR. The platform is being developed for high-burden indications such as urinary tract infections (UTIs), bloodstream infections, and emerging environmental AMR surveillance, unlocking multiple clinical and public-health use cases from a single core technology.



<https://moduleinnovations.com/>

Compact DX: A cartridge-based assay with a fully automated device for detection of waterborne pathogens



Mylab Discovery Solutions Pvt. Ltd.
Founder - Mr. Hasmukh Rawal
Environmental AMR - Detection

Expansion of Mylab's cartridge-based assay - Compact Dx, is a fully automated device, to detect multiple critical wastewater pathogens. These water samples serve as a powerful early-warning tool for predicting disease outbreaks within communities.

The proposed assay is designed to work universally across wastewater samples from diverse sources, ensuring broad applicability and will feature automated result interpretation and reporting, enabling on-site deployment and operation by non-specialised personnel with minimal training. This innovation aims to provide an accessible, efficient, and scalable solution for monitoring public health threats through wastewater-based epidemiology.



<https://mylabglobal.com/>

Devices to prevent the spread of drug-resistant infections in healthcare environments



Biomoneta Research Pvt. Ltd.
Co-founder - Dr. Arindam Ghatak
Environmental AMR - Prevention

Biomoneta creates solutions to prevent the spread of infections in hospitals and other healthcare facilities, and to preclude product contamination in critical pharmaceutical & biotechnology environments. Biomoneta's flagship product is an advanced air decontamination Technology (ZeBox Air Sterilisation) that can be used in human presence with zero downtime and low lifetime maintenance. It is the only Indian product certified for killing a wide spectrum of airborne pathogens by a nationally accredited lab conducting airborne microbe testing.

Currently, more than 350+ units of Zebox technology are deployed (sold) at various sites such as hospitals (120+ units), home healthcare (100+ units) and business establishments (70+ units). In addition to aiding faster recovery of cancer patients and immuno-compromised individuals, Biomoneta products are also deployed at various medical and healthcare facilities.



<https://www.biomoneta.com/>

qAMI: Quantitative Airborne Microbial Index, a novel technology to instantly monitor the airborne microbial load to prevent infection occurrence



Biomoneta Research Pvt. Ltd.
Co-founder - Dr. Arindam Ghatak
Environmental AMR - Prevention

Biomoneta is developing qAMI, a novel technology based on Artificial Intelligence and Machine Learning (AI/ML), that instantly monitors the airborne microbial load. The technology leverages universally converted microbial zeta potential, microbial volatile organic compounds (mVOCs), and other environmental parameters to improve detection accuracy, enabling rapid, real-time air quality assessment. Additionally, the proposed technology is capable of detecting and identifying the presence of pathogenic vs non-pathogenic microorganisms in the air samples. Hence, providing valuable insights into the prevalence of potential resistant microbes at the specific site of testing.



<https://www.biomoneta.com/>

IAIH has collaborated with national and global stakeholders to support innovative solutions.



State Bank of India Foundation (SBIF) is the corporate social responsibility (CSR) arm of the State Bank of India (SBI), one of India's largest public sector banks



Global AMR Innovation Fund (GAMRIF) is a UK aid fund that supports research and development around the world to reduce the threat of antimicrobial resistance in low and middle income countries



Combating Antibiotic-Resistant Bacteria Biopharmaceutical Accelerator (CARB-X) is a global non-profit partnership accelerating antibacterial products to address drug-resistant bacteria, a leading cause of death around the world



International Centre for Antimicrobial Resistance Solutions (ICARS) partners with low and middle-income countries to co-develop and implement sustainable, context-specific, cost-effective solutions to address antimicrobial resistance (AMR)



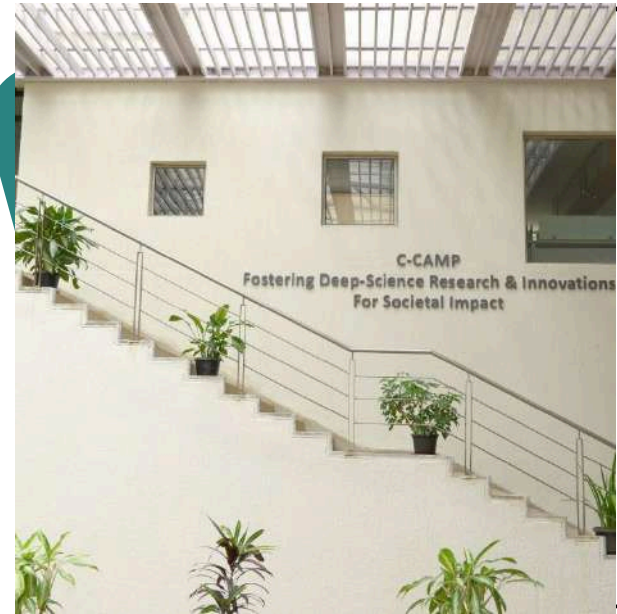
About C-CAMP

The Centre For Cellular and Molecular Platforms (C-CAMP) is an initiative supported by the Department of Biotechnology (DBT), Ministry of Science And Technology, Government of India.

C-CAMP is mandated to be 'an Enabler Of Cutting-edge Life Science Research & Innovation.' We are a hub of world-class deep science/deep tech-based innovations



The India AMR Innovation Hub (IAIH) is conceived and driven by C-CAMP. IAIH is envisioned as a converging and collaborative platform for national and global stakeholders to address AMR in India through technological innovations.



C-CAMP acknowledges support from



Office of the Principal Scientific Adviser
to the Government of India



NITI Aayog



भारत सरकार
विभाग कल्याण पारिवारिक
MINISTRY OF
HEALTH AND
FAMILY WELFARE



भारत सरकार
भारतीय चिकित्सा अनुसंधान परिषद
INDIAN COUNCIL OF
MEDICAL RESEARCH



जीवप्रौद्योगिकी विभाग
DEPARTMENT OF
BIOTECHNOLOGY



भारतीय
कृषि विज्ञान परिषद
ICAR



संयुक्तता और वैश्वीकरण
Department of Animal Husbandry and Dairying



भारतीय रसायन विज्ञान परिषद
(CSIR) (CSCO)
भारत सरकार
भारतीय रसायन विज्ञान परिषद
भारत सरकार



भारत सरकार
भारतीय मत्स्य विज्ञान परिषद
भारत सरकार



औषध विभाग
Department of
Pharmaceuticals



भारत सरकार
भारतीय वन विभाग
भारत सरकार

Stakeholders and partners of India AMR Innovation Hub (IAIH)



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GAMRIF
Global AMR Innovation Fund



ICARS

novo nordisk
foundation



World Health
Organization
India



GARDP



FIND
Diagnosis for all



DNDi
Design for Neglected Diseases Institute



PATH
10401120



AMR-Global
Global Solutions to Curb AMR



nado



swissnex



BeST
CLUSTER



GangaGen



bugworks



Cipla



VENUS
Caring Innovations



Zydus Cadila



Gates
Foundation



CYTECARE
CANCER HOSPITALS
Fighting cancer the right way



Elanco



Rx Dx
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