

#Aatmanirbhar

YOURSTORY

COVID-19 INDIAN STARTUP INNOVATORS

IN ASSOCIATION WITH C-CAMP

How C-CAMP chose 30 startups under its C-CIDA programme to help India fight COVID-19



TABLE OF CONTENTS

04	Foreword by Shradha Sharma Founder and CEO, YourStory	06	Introduction by Dr Taslimarif Sayied, Director and CEO, C-CAMP
08	Executive Summary	10	Innovations that are the Need of the Hour
14	C-CIDA's Stars For Impact <ul style="list-style-type: none">• Rapid Diagnostics Kits• Assisted Ventilation• Remote Vitals Stats Monitoring Systems• Cold Chain Viral Sample Transport• Air and Surface Sanitising Technologies• Preventative Technologies• Novel Approaches in Therapeutics• Telemedicine• AI/ML-based Pre-Screening and Monitoring Technologies• Novel Screening Platform for Anti-COVID-19 Drugs• Control of Viral Contamination in Wastewater• Therapeutic Approaches		



Shradha Sharma

**Founder and CEO,
YourStory**

Foreword

For the last few months, the coronavirus pandemic has continued its relentless march across the globe, seeping into every aspect of our lives. The fatigue over never-ending news cycles with grim updates, the fear brought on by uncertainties, and the longing to go back to life as it was in 2020 BC or 'Before COVID-19' is very real.

I wish I could say that the worst is over and that we are out of the woods. But the reality is far more serious, as experts across the world have been warning us repeatedly. Today, India has overtaken China in terms of the COVID-19 tally, and we are no closer to knowing when this crisis will abate and collectively all of us can exhale.

But the wonderful thing about human beings is that even when the odds are stacked against us, we continue to persevere. That's the indomitable human spirit. And when this never-say-die spirit intersects with the power of ideas and innovation, a lot of good takes place.

That's exactly what C-CAMP COVID-19 Innovations Deployment Accelerator (C-CIDA) is all about – drawing from the limitless creativity of the human mind and backing it with science and technology.

I feel extremely proud to present these 30 innovations that are part of the C-CIDA platform, some brilliant in their simplicity and some awe-inspiring in their vision. They are the epitome of 'Aatmanirbhar Bharat', with quality and standards easily at par with the best in the world.

These solutions are from across diverse industries, but all with a common goal: to fight COVID-19. C-CIDA not only showcases innovations such as assisted respiratory devices, pre-screening and monitoring tools, rapid diagnostic kits, preventive technologies, new therapeutic

approaches and telemedicine, but also provides on-the-ground help to enable them to reach more people in time.

Special thanks go to the Centre for Cellular and Molecular Platforms (C-CAMP) for recognising the need of the hour and fast-tracking the development of these critical solutions that can combat this pandemic.

Testing times such as these are a catalyst which can spur the creation of amazing solutions. And I sincerely hope that these innovations can give hope and strength to more people as we emerge from this crisis



**Dr Taslimarif
Saiyed**

**Director and CEO,
C-CAMP**

Introduction

The novel coronavirus or COVID-19 has emerged as one of the gravest public healthcare challenges in recent history. By March 2020, it was clear that India – with its high population density – would be especially susceptible.

India has traditionally relied very heavily on imports of healthcare solutions like medical devices, diagnostics technologies, etc. The unprecedented global disruption caused by the pandemic, however, directly affected these supply chains and we were faced with a phenomenally unprecedented task. This was the time to look within our own backyard to find deployment-ready innovations and give them the last push or nudge to reach the market.

Even before the first lockdown started, we at C-CAMP had already felt the need to identify and work with such locally produced COVID-19 innovations for rapid deployment and implementation. One of the first such innovations we fast-tracked is an indigenous rapid diagnostics kit that has since received regulatory nods and has been deployed in the field.

But as the virus marched on with no sign of reprieve, we recognised the importance of being more organised and focussed in our efforts. C-CIDA was launched in late March 2020, barely a day into the lockdown with the aim to align near deployment-ready innovations with unmet needs and help them overcome last-mile gaps wherever and howsoever possible.

The programme quickly attracted attention not only from the Indian innovation community but also from several Indian and international investor bodies and innovation centres. We joined hands with Social Alpha, United Nations Health Innovation Exchange or UNHIE, MedTechConnect, Xynteo India2022, AIC-CCMB, CCMB, India Health Fund, PATH, Action Covid-19 Team (ACT), and 91 Springboard.

A month down the line, C-CIDA has received more than 1,100 applications, out of which we have selected 30 innovations in critical categories such as diagnostic kits, ventilators, remote monitoring, preventive technologies and more. We called them “Stars For Impact” in light of their huge potential for impact on how this pandemic plays itself out in India.

C-CIDA has now evolved from Phase I of Innovations Harvesting to Phase II of Deployment. We are now concentrating all our energies to handhold not just these chosen 30, but many other upcoming innovative technologies for deployment scale up. Boosting scale up capacity is a core requirement given the massive scale of the challenge we are staring at.

I am delighted to say that within 45 days of launching the accelerator more than half of these 30, a whopping 17 to be exact, have already been deployed in the field to help curb the pandemic. We have worked very closely with central and state governments, industries, investors, and other stakeholders to ensure that these innovations with phenomenal potential can convert into real impact. This, in itself, is a gratifying outcome for C-CIDA, and the C-CAMP team that made it possible.

I cannot end without mentioning the way Shradha Sharma, Founder and CEO of YourStory Media, and her team have engaged so meaningfully with the accelerator through our journey. They have been instrumental in connecting these exciting Made in India innovations with the larger ecosystem nationally.

We thank Shradha and YourStory for providing this amazing platform to C-CIDA and its Star Innovations. Together we shall!



Executive Summary

“The unseen enemy is always the most fearsome.”

— George R. R. Martin

As of May 25, with over 346,000 casualties across the globe and rising, the coronavirus pandemic — leaving a trail of destruction of lives, livelihoods, and economies in its wake — has become one such unseen enemy that the human race has faced in recent times.

Even as scientists and researchers across the globe are racing to come up with a cure or vaccine, the best-case scenario shows that there are at least 12 to 18

months for these to hit the market. In the interim, our best bet is to continue to explore solutions designed for quick on-ground implementation. Some of these high-risk and high-gain solutions, if successful, can add a whole new dimension to tackling the COVID-19 pandemic.

With this in mind, the Centre for Cellular And Molecular Platforms (C-CAMP) launched a COVID-19 Innovations

Deployment Accelerator or C-CIDA in late March to identify and fast-track innovations that can be immediately deployed across India to support hospitals and governments in their fight against coronavirus.

C-CAMP is an initiative of the Department of Biotechnology and supported by the Ministry of Science and Technology. Its mission is to highlight scientific breakthroughs, and bridge gaps between the industry and startups through interaction, innovation, and incubation.

Since its launch, C-CIDA has found over 30 startups building out-of-the-box solutions, which include rapid diagnostic kits, assisted respiratory devices, pre-

screening and monitoring tools, preventive technologies including air and surface sanitisers, remote vital stats monitoring systems and telemedicine and end-to-end cold chain transport for viral specimens from remote locations. C-CIDA will now connect these startups with industry as well as government agencies for funding, scaling, and deployment.

The C-CIDA platform is a collaboration between Indian and international organisations, including Social Alpha, United Nations Health Innovation Exchange or UNIHIE, MedTechConnect, Xynteo India2022, AIC-CCMB, CCMB, India Health Fund, PATH, Action Covid-19 Team (ACT) and 91 Springboard.

Innovations That Are The Need Of The Hour

As we navigate the new normal, where masks and sanitisers have become de rigueur accessories and terms such as social distancing and lockdowns are a familiar part of our vocabulary, there is still a lot that we don't know about the virus and what course it can take.

In the meantime, there are crucial areas with a huge need for innovative solutions to help us be better prepared. These include preventive measures, diagnostic solutions, as well as treatment measures. Some of these most include:



1) Rapid diagnostic kits:

Even as data seems to put India in a better position than some of the developed countries, we cannot afford to be complacent. One of the most urgent requirements is large-scale testing of vast swathes of the population, to screen carriers who are either asymptomatic or have mild undiagnosed symptoms.

In fact, countries that have managed to flatten the curve have adopted this approach. While imported test kits are an option, they can be expensive. On the other hand, the turnaround time for results also needs to reduce. India's need for large-scale and rapid testing can be best met by indigenously manufactured tests that are affordable and accurate.

2) Assisted ventilation:

The COVID-19 virus essentially targets the lungs or respiratory system. In more critical patients, it manifests as moderate to acute respiratory distress, which requires assisted mechanical ventilation support. A recent Brookings report suggests that India has a maximum of ~57,000 ventilators, in both government and private hospitals.

Given the grim predictions about the scale of the pandemic and the potential number of people who may be affected by it, this number is nowhere near adequate since the requirement is likely to be more than double.

3) Remote vital stats monitoring systems:

As the pandemic spreads to multiple hotspots across India, it is likely that hospitals will become severely congested. In addition, healthcare personnel are already stretched to their capacity, and are often at a high risk of exposure.

To provide some relief to the overburdened healthcare system and increase patient capacity, remote monitoring via a unified central platform can be a great option, especially in isolation wards and quarantine facilities.

4) Cold chain viral sample transport:

As the pandemic makes inroads into India's rural hinterland, it will become imperative to have viable transport options for samples that need to be tested. The lack of ICMR-approved diagnostic centres in rural areas makes this a challenge.

These innovative measures can ensure that samples remain viable until they reach the nearest approved lab, thereby preventing false negatives, which is a very crucial factor in containing the pandemic.

5) Air and surface sanitising technologies:

A study by the National Institutes of Health, Centre for Disease Control, UCLA

and Princeton University found that the SARS-CoV-2 virus was detectable in aerosols for up to three hours, and on plastic and stainless steel surfaces for up to three days.

This sustained time of viability is one of the primary causes for further transmission and air and surface sanitising technologies are critical.

6) Preventive technology:

The SARS-CoV-2 virus is one of the most contagious coronaviruses known to humankind. According to experts, the likelihood that the virus may remain in circulation even after being suppressed are high, and this will be the case until a vaccine is developed.

In this scenario, preventive technologies that can go the extra mile to help sanitise surroundings can be game-changers.

7) Novel approaches in therapeutics:

With no known cure at present for the SARS-COV2, scientists are exploring unconventional options, such as transplantation of mesenchymal stem cells (MSCs) derived from cord blood into patients' lungs.

The hypothesis is that these transplanted MSCs can suppress any exaggerated immune response, and protect the lungs from further damage. A limited clinical trial in Germany and New

York has shown encouraging results. There are only a handful of companies, including one in India, engaged in MSC-based COVID-19 therapy.

8) Telemedicine:

Hospitals are infection hotspots during this pandemic and pose the risk of high exposure for patients whose immunity is already compromised due to other chronic health problems.

Comprehensive telemedicine systems can provide personalised home-based healthcare services, bringing the hospital into a patient's home.

9) AI/ML-based pre-screening and monitoring technologies:

While we work to increase the testing rate in India, apart from testing kits we also need to factor in resources and other consumables, which are being used to maximum capacity.

This can be remedied by using innovative pre-screening solutions that can detect early COVID-19 symptoms at the very initial stages as an additional tool for screening and triaging.

10) Novel screening platform for repurposed COVID-19 drugs:

A majority of therapeutic options in the fight against SARS-Cov2 include already approved drugs that are being repositioned for COVID-19.

These repurposed drugs need a stable, scalable, and reliable drug screening platform, which are closest to the human host cell population. A screening platform that can mimic human lung tissue can act as the ideal test bed in the lab before clinical trials.

11) Control of viral contaminants in wastewater:

The problem of viral contamination of the environment through untreated waste is very real. A recent study in France found traces of the coronavirus in sewage water.

A number of other studies are also exploring the possibility of COVID-19

spreading through wastewater. Hence, it is important to adequately treat wastewater to prevent any such spread.

12) Therapeutic approaches:

There is no known SARS-Cov2 therapy yet. Among the several clinical options being looked into, convalescent plasma therapy is at the top.

It is an experimental treatment that is being tested in various countries and has been permitted for clinical trials in various Indian states by ICMR. According to reports, a limited trial in New Delhi has shown encouraging results.



C-CIDA'S Stars For Impact

C-CAMP received over 1,000 applications from across the country in the weeks after C-CIDA was launched. After a rigorous vetting process, these 30 startups were seen as potential game-changers and were selected to be part of the C-CIDA programme.

RAPID DIAGNOSTIC KITS



CoSara Diagnostics

Headquarters: Ahmedabad

CEO: Dwight H Egan

Product: Logix Smart™ Coronavirus
2019 (COVID-19) Test Kit

USP: Fast, accurate, affordable

CoSara Diagnostics is the first and only Indian startup to get a Central Drugs Standards Control Organisation (CDSCO) licence to manufacture their single-step reaction kit (RT-PCR) for testing COVID-19. The Logix Smart™ Coronavirus 2019 (COVID-19) Test Kit is based on trademarked CoPrimer technology from Utah-based Co-Diagnostics, the first US company to receive a CE mark for their COVID-19 testing kit.

The Logix Smart™ Test Kit is cheaper than imported kits, delivers results in just two and a half hours, and can be manufactured in large volumes (up to 10,000 kits a day). The kit has US FDA approval for emergency use across the globe and the company plans to export to countries like France, Italy, Iran, and Morocco with EOLs from Philippines and Dubai.



Ampligene India Biotech

Headquarters: Ahmedabad

CEO: Dr Chirag Pandya

Product: AmpEZRapid

USP: Speed, increased testing capacity, and easy tracking

The need of the hour is to increase the number of COVID-19 screening tests, and Ampligene's rapid and sensitive isothermal amplification-based test can help ramp up the capacity of testing labs since it delivers results in just 30 minutes.

The AmpEZRapid is based on isothermal amplification of nucleic acid and can be used as a screening or confirmatory diagnosis platform. The solution increases the capacity of lab to test for COVID 19 by 5-7 times compared to a normal PCR test since the results come back in just 30-minutes. Since it is compatible with most Wi-Fi, Bluetooth, and GPS enabled-devices, the solution enables tracking of screened as well as COVID-19 positive individuals.



Huwel Lifesciences Pvt Ltd

Headquarters: Hyderabad

CEO: Dr Shesheer Kumar

Product: Quantiplus CORONA VIRUS (2019nCoV) Detection Kit

USP: Affordable, accessible, rapid diagnosis

Hyderabad-based Huwel Lifesciences's real-time qualitative PCR promises rapid diagnosis of COVID-19 infections. The indigenously developed Quantiplus CORONA VIRUS (2019nCoV) Detection Kit has been validated by NARI and approved by ICMR, and the product is already available in the market.

The ultrafast and sensitive chip-based PCR can handle large volumes with ease, making a rapid and confirmatory diagnosis affordable and accessible. Since all molecular reagents and diagnostic consumables used in the test are made in-house, continuous availability is not an issue.





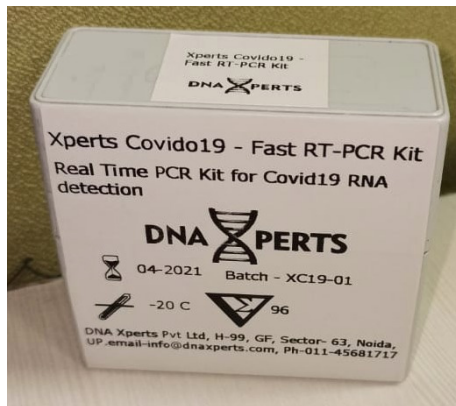
DNA Xperts

Headquarters: Noida

CEO: Ashwani Kumar Misra

Product: Covid-19 Fast RT-PCR kit

USP: Low-cost, fast results, reliable



DNA Xperts has developed a fast, real-time PCR kit for Cov-2 RNA detection that uses special probes for higher sensitivity and specificity. Their proprietary buffer can support swab samples directly without RNA extraction, considerably cutting down testing times to less than an hour.

The affordable test is designed to be more sensitive than standard RT-PCR kit for an accurate diagnosis. It is also compatible with all RT-PCR machines. The kit is currently being validated for ICMR approval. With the current capacity, DNA Xperts can manufacture over 8,000 kits every day and going forward can scale up to 100,000 kits a day.



Aerobiosys

Headquarters: Hyderabad

Co-founder: Rajesh Thangavel
Yadav

Product: Jeevan Lite

USP: Affordable, portable,
telemedicine capabilities



Jeevan Lite is a full-fledged portable and battery-operated ventilator for both invasive and non-invasive support. The low-cost device offers multiple modes of ventilation, and is capable of CPAP (continuous positive airway pressure) and can act as a standard invasive ventilator.

Since the device is battery-powered, it can even work without electricity in remote areas. Being IoT-enabled, it can be operated remotely, and the phone app can transfer data in real-time, making it ideal for telemedicine and telesupport.

CoeoLabs

Headquarters: Bengaluru

Founder: Nitesh Jahangir

Product: VAP-Care and Saans

USP: Low-cost, easy to use, safe



Patients on ventilators can develop secondary infections due to intubation or aspiration of infected fluids, which can prove fatal. According to a recent Lancet report, secondary infections are the reason for 30 percent of COVID 19-related deaths. VAP-Care from CoeoLabs has been designed to prevent such secondary infections. In addition, the system also reduces the direct risk of virus exposure for healthcare workers.

The automated oral hygiene maintenance system is the first of its kind sensor-based fully automated secretion and oral hygiene maintenance system. During a pilot trial of VAP-Care at Narayana Hospital, no VAP-related complications were observed in 10 patients on ventilator support.

Saans, another offering from the same company, is a portable, multimodal Continuous Positive Airway Pressure (CPAP) respirator which can be used as an alternative to conventional intubated ventilators. Saans also has a patented over-ride manual mode for emergencies and adjustable oxygenation ratio in output.

CPAP machines have received US FDA approval for use as a 'bridge' or interim ventilator. So, a device like Saans allows doctors to triage and earmark resources more optimally. Unlike in intubation, Saans is easy-to-use and can be administered by non-skilled personnel.

CoeoLabs' partner company Innacel Technologies has currently deployed the device in the market.



Avyantara

Headquarters: Hyderabad

Founders: Hyma Goparaju and
KVKLN Rao

Product: Pulmon-Safe

USP: Affordable, scalable

Hyderabad's Avyantra has developed Pulmon-Safe, a 100 percent automated and scalable helmet-based CPAP and advanced CPAP-assisted respiratory device. It serves as an intermediary between CPAP and full-blown invasive ventilation.

The low-cost system is enhanced with all positive-pressure resuscitation methods like automatic positive airway pressure (APAP) and Bilevel Positive Airway Pressure (BIPAP). It is also IoT-enabled and supports all modes through a smart app.



Biodesign Innovation Labs

Headquarters: Bengaluru

Chairman: Gautham Pasupuleti

Product: Respiraid

USP: Smart, precise, mobile

Respiraid is an automated respiratory assistive device for use in emergencies and for on-the-go ventilation during transportation. It is an easy-to-use alternative to prolonged manual ventilation during respiratory arrest, and the first line of defence during respiratory failure.

Respiraid is mechanised, adjustable, and battery-operated, and is more precise compared to manual ambu-bag-based ventilation. It can be used for moderately severe COVID-19 cases to ease the stress on ICUs.

REMOTE VITAL STATS MONITORING SYSTEMS



Cardiac Design Labs

Headquarters: Bengaluru

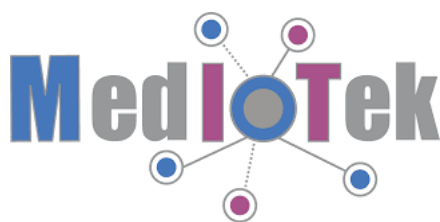
Founder: Anand Madanagopal

Product: Telemetric Patient Monitoring System

USP: Allows preemptive intervention, can be used outside hospitals

CDL's Telemetric Patient Monitoring System is a wearable device to keep track of cardiac vitals in COVID-19 patients with comorbidities and drug-induced heart problems. The digital health platform constantly monitors ECG, respiration rate, SPO2, temperature, BP and other vital parameters and provides real-time analysis.

The system adds great value to remote monitoring technologies and can identify the onset of cardiac complications, and bring in preemptive intervention where needed. It can be deployed at locations such as railway coaches, hotels and schools which have been repurposed as isolation wards.



MedIoTek

Headquarters: Chennai

Founder: Sharmila Devadoss

Product: Vincense

USP: Affordable, can be used in low-resource settings

MedIoTek's medical-grade wearable device can track basic health parameters such as respiration rate, pulse rate and skin temperature, and flag respiratory risks and other risk parameters at the initial stage of COVID-19 infections. This makes it ideal for triaging.

The cost of the device is based on the usage of features, making it a more affordable option. It also has offline data-logging capabilities and can be used in low-resource settings.



Turtle Shell Technologies Pvt. Ltd

Headquarters: Bengaluru

Founder(s): Mudit Dandwate,
Gaurav Parchani

Product: Dozee

USP: Comfortable, comprehensive

Dozee is a contact-free health monitor that can be placed below a mattress and track vital parameters, which can convert any bed into a continuous health monitoring unit. The device can monitor respiration cycles and intelligently detect early signs of respiratory distress in COVID-19 patients.

Because it is contactless, it is comfortable to use and can even be used for sleep health management. A single device can monitor multiple ICU parameters, making it a comprehensive solution.



Nemocare

Headquarters: Hyderabad

Co-founder: Manoj Sanker

Product: Nemocare Raksha Plus

USP: Easy-to-use, eases the burden
on healthcare workers

Nemocare Raksha Plus is an IoT-enabled smart wearable that can scan vital parameters such as heart rate and its variability, oxygen saturation, respiration rate, body temperature, cough sounds, and geolocation.

The easy-to-use device can remotely monitor suspected COVID-19 patients and track signs of disease progression, making the job easier for overworked healthcare personnel. Biopharma companies and institutions working on developing therapies can use the device to get a better understanding of their efficacy on candidates.

COLD CHAIN VIRAL SAMPLE TRANSPORT



Blackfrog

Headquarters: Manipal

Founder(s): Mayur Shetty, Donson D'Souza, Ashlesh Bhat

Product: Emvolio

USP: Portable, increases the viability of samples from remote areas



Blackfrog has developed a portable, battery-operated solid-state refrigeration system that can be used to transport viral swabs, medical-grade specimens and vaccines. The product has in-built temperature regulation of 2-8 degrees Celsius that lasts for up to 12 hours. This makes it ideal for the safe and effective transport of COVID-19 specimens as per WHO regulations.

The system is GPS and IoT-enabled, and can be used to track and monitor the location and condition of samples during transport. Emvolio can help deliver samples from remote rural locations to the nearest testing centre. The system has been deployed on a pilot basis in Udupi District Hospital.



Thermal Energy Service Solutions Pvt. Ltd

Headquarters: Navi Mumbai

Founder: Rajat Gupta

Product: Tessol

USP: Convenient, affordable

Tessol's thermally-insulated, temperature-controlled bag can be used for viable transport of viral samples. The product uses gel-based insulation technique and can maintain the required temperature of 2-8 degrees Celsius for up to six hours, enabling the viable transport of sensitive specimens.

The affordable product, with separate collection chambers for different types of specimens, can carry a large volume of samples per trip.



Pluss Technologies

Headquarters: Gurugram

Founder: Udit Mangal

Product: Celsure

USP: Affordable, stable

Celsure is a last-mile box with temperature-controlled packaging technology for viable transport of viral swabs. The product uses a novel phase change material (PCM) called savE to maintain temperatures of 2-8 degrees Celsius for up to 120 hours.

The PCM does not require thawing, so its action is not limited by sweat times. The product has already been deployed in the market. The company has the capacity to produce 10,000 boxes in a month.

AIR AND SURFACE SANITISING TECHNOLOGIES



Biomoneta

Headquarters: Bengaluru

Founders: Janani Venkatraman and Arindam Ghatak

Product: Zebox

USP: Standalone plug and play decontamination technology

Zebox is an air decontamination device that can trap and kill microbes, and prevent the transmission of infections in hospital and healthcare settings.

Its unique airflow design enables it to kill over one billion air-borne microbes in a range of up to 150 sq ft within 10 minutes. Being electromagnetic emissions compliant, Zebox is ideal for hospital rooms, ICUs and BSL3 laboratories



Leafbox Technologies

Headquarters: Bengaluru

Founders: Kiran Raj and Praveen Kumar

Product: Air purifier and UVC steriliser

USP: Wide coverage area, can be integrated with existing systems, ozone-free

Leaf Box's COVID-19 care products include a compact UVC-based, integrable air-purifier and a UVC-based surface steriliser. The air purifier also includes HEPA and activated carbon filter for fast removal of particulate matter and microbes.

It has a range of at least 500 square metres per hour. The compact ozone-free steriliser box with a germicidal UV lamp is meant for dry sanitization of personal use items such as phones and laptops, and masks. Leaf Box's technology can be easily integrated with existing air-purifiers or air-conditioners.



RR Animal Healthcare Ltd.

Headquarters: Hyderabad

Founder: Dr Debashish Dutta

Product: RH5+ surface disinfectant

USP: Affordable, No unpleasant smell

RH5+ is a broad-spectrum antimicrobial effective against all coated viruses and bacteria. RH5+ is enhanced with potent sterilising components like quaternary ammonium salts and glutaraldehyde that significantly increases its activity.

It can be an ideal surface sanitising solution in multiple settings including infection hotspots, hospitals etc. RH5+ has approval from the Drug Controller General of India (DCGI) and is already deployed in the market.

The current manufacturing capacity for the disinfectant is 10,000 litres/week.

PREVENTIVE TECHNOLOGIES



Omicsgen

Headquarters: Ernakulam

Founder: Dr Beena P.S.

Product: Smartlyse antimicrobial
wipes

USP: Low-cost, long-lasting, 100
percent natural

Omicsgen's Smartlyse is a smart anti-microbial and anti-viral gadget wipe which acts within five minutes of application. It is safe to use on gadgets.

With a certification from the Ministry of Ayush, Smartlyse is 100 percent natural and is also more affordable than several UVC sanitisers currently available in the market.



OMG Innovations

Headquarters: New Delhi

Partners: Amul Shradha Bahl and
Nisshant Laroia

Product: Whiff Biospray

USP: 100 percent natural, safe

Whiff Biospray is a 100 percent natural disinfectant, effective against viruses and other microbes. The herbal spray can be used both indoors and outdoors for sanitisation purposes.

The product has been certified by the Ministry of Ayush and has the potential to be a safe solution to quickly sanitise high-traffic closed spaces such as offices, schools, malls etc.



Clensta Technologies

Headquarters: New Delhi

Founder: Puneet Gupta

Product: Waterless personal hygiene solution

USP: Affordable, convenient

A large section of the Indian population does not have access to running water. So, soap-based sanitisation techniques are not convenient for them.

Clensta's zero-water product is more convenient in such situations. The antiseptic and antimicrobial rub is affordable and is already available in the market.

NOVEL APPROACHES IN THERAPEUTICS



Stempeutics

Headquarters: Bengaluru

MD & CEO: Dr Manohar BN

Product: Stempeucel®

USP: Licensed by European Medicines Agency

Stempeutics has developed a Mesenchymal Stem Cell (MSC) therapy to target severe lung disease in COVID-19 affected patients. MSC-based therapy is currently under clinical trials in Europe, and Stempeucel is the only Indian/Asian regenerative stem-cell therapy solution being tested, along with solutions from companies in Israel, the US, and Europe.

The product already has an Orphan Drug Designation (ODD) and an Advanced Therapy Medicinal Product (ATMP) licence from the European Medicines Agency (EMA).

TELEMEDICINE



Ubiqare

Headquarters: Bengaluru

Co-founder: Sridhar Pillalamarri,
Dr Sundararajan Srinivasan

Product: Cloud-based healthcare
platform for COVID-19 patients

USP: Comprehensive one-stop
solution

Ubiqare's cloud-based mobility platform can be used for patient management of mild cases of COVID-19 or those in the post-infection recovery stage. The platform is connected with a network of quality healthcare specialists and can serve as a one-stop solution for teleconsultation, tele-triaging, and collaboration through sharing of clinical notes, observations, and prescriptions.

The system has an in-built feature for interactive audio-video sessions between doctors and patients. It is compatible with various remote health monitoring systems for round-the-clock assessment reports and HIPAA compliant for one-touch access to electronic medical records.

AI/ML-BASED PRE-SCREENING AND MONITORING TECHNOLOGIES



Salcit

Headquarters: Hyderabad

Founder: Narayana Rao Sripada

Product: Swaasa

USP: Non-invasive, convenient, scalable

Salcit has developed Swaasa, a non-invasive early screening technology that uses acoustics to perform respiratory health checks to detect COVID-19 infection. The solution uses a smartphone interface to record and analyse cough sound patterns in patients through AI/ML and big data analysis.

It can differentiate between obstructive and restrictive respiratory disorders. The composite risk score in each use allows for detecting and alerts against worsening symptoms.

Salcit's technology can be used for pre-screening and continuous monitoring of COVID-19 infection, and for location-based tracking of high-risk individuals. Swaasa's non-invasive nature makes it highly scalable



Docturnal

Headquarters: Hyderabad

Founder: Rahul Pathri

Product: TimBre

USP: Non-invasive, convenient, fast

Docturnal has repurposed their flagship product TimBre, a tuberculosis pre-screening technology, into a sound-based, non-invasive, pre-screening tool for COVID-19 infection.

The smartphone-based technology uses AI/ML to offer a prognosis based on patient cough sounds. The results available in real-time can then be used to appropriately triage COVID-19 cases. The solution is highly scalable.



Predible

Headquarters: Bengaluru

CEO: Suthirth Vaidya

Product: LungIQ

USP: Efficient

LungIQ is an AI-based solution for pre-screening and monitoring of COVID-19 patients through Chest CT imaging. The solution helps in triaging high-risk patients for follow-up RT-PCR diagnostic testing.

LungIQ can accurately quantify the severity of the disease and monitor its extent, thereby assisting clinicians in deciding the course of treatment



Alkenist

Headquarters: Bengaluru

CEO: Ashwin Amarapur

Product: Quickdiag

USP: Quick diagnosis

Aikenist offers smart AI /ML-based analysis of X-rays and CT-scans for COVID-19 pre-screening. Quickdiag helps detect the severity of pneumonia, and is four times faster than other scanning solutions in its class, thereby facilitating quicker triaging for confirmatory diagnosis.

The technology can be used as an AI assistant for radiologists.

The solution is cloud-based and is compatible with all CT and X-ray machines, and interoperable with multiple scanners for higher mobility.

NOVEL SCREENING PLATFORM FOR ANTI-COVID-19 DRUGS



Eyestem Research

Headquarters: Bengaluru

Founder: Dr Jogin Desai

Product: Human lung progenitor cells as a novel screening platform for anti-COVID-19 drugs

USP: Fast drug screening

Eyestem's solution is a pluripotent stem cell-based cellular system, which consists of first-generation alveolar epithelial cells in an air-liquid interface. These are differentiated lung organoids in the making and can be used as anti-COVID-19 screening platforms or ACS for fast, high-content drug screening.

Eyestem's ACS can act as model systems closest to actual human lungs, and can help streamline and de-risk the COVID-19 drug pipeline much faster by identifying potential candidate drugs more easily and rapidly.

The solution is undergoing validation studies at CCMB, Hyderabad. If successful, this will be the first-of-its-kind technology, which will potentially transform how COVID-19 drugs are being screened globally.

CONTROL OF VIRAL CONTAMINATION IN WASTEWATER



Need Innovation

Headquarters: Bengaluru

Headquarters: Kolkata

Founder: Sandeep Sarkar

Product: Kerasiev

**USP: Plug-and-play, eliminates
manual intervention**

Kerasiev is a ceramic membrane-based bio-hazardous wastewater filtration system that can successfully block the SARS-Cov 2 virus in suspension since it has a smaller pore size compared to the diameter of the Cov2 virus.

This is a first-of-its-kind technology for India and can help reduce the viral load in sewage, and also prevent COVID-19 contaminated effluents from reaching the larger ecosystem.

The membrane has a shelf life of 10 years and can easily be integrated with current sewage treatment plants (STP). The plug-and-play design eliminates the need for human intervention and consequent virus exposure.

THERAPEUTIC APPROACHES



Innaumation Medical Devices

Headquarters: Bengaluru

Founder: Dr Vishal U S Rao

Product: Plasma and cytokine-mediated immunomodulatory therapies for COVID-19 patients

USP:

Innaumation has set up a robust platform to extract convalescent plasma from the blood of recovered patients and transfuse it to critically ill COVID-19 patients. This plasma, enriched with a high concentration of virus-neutralising antibodies, can enhance the immune response in such patients.

Innaumation's solution is among the first Indian convalescent plasma therapies to be approved by ICMR for clinical trials. They have tied up with HCG Hospitals, Bengaluru for trials and possible implementation.

Since plasma therapy is a well-established therapeutic option exercised earlier during SARS 1, MERS and Ebola outbreaks, fewer regulatory hurdles are expected in its use for COVID-19 patients. This is important given the paucity of time and the massive number of lives at stake.

Innaumation has also proposed a second immunomodulatory treatment in the form of an immunity booster injection for infected patients in the early stage.

About C-CAMP

Centre for Cellular and Molecular Platforms (C-CAMP) is India's premier innovation and technology hub, as well as one of the largest and most thriving life sciences incubators in the country. Its mandate is to enable cutting-edge life science research and innovation and promote life science entrepreneurship.

C-CAMP has directly funded, incubated, and mentored more than 150 startups over the last few years and is connected to about 1,000 healthcare, agriculture, and environment startups, and entrepreneurs across the country.

C-CAMP is an initiative supported by Government of India agencies, including the Department of Biotechnology, Ministry of Science and Technology, NITI Aayog-AIM, and MeITY.

Find more details on www.ccamp.res.in

Twitter: @ccamp_bangalore

Facebook: C-CAMP

LinkedIn: C-CAMP

Find more details on www.ccamp.res.in

About YourStory Research

YourStory Research, the research arm of YourStory Media, is the definitive source for data-led insights and analysis of trends impacting the Indian entrepreneurial and tech ecosystem. YourStory Research focusses on market research, market intelligence, startup discovery, and consulting in the startup ecosystem in India.

YourStory Media Private Limited is India's leading digital platform for positive, inspirational stories of change-makers and entrepreneurs across India.

©YourStory Media Private Ltd.

Author and Lead Analyst: Jyoti Ayyar

Research Production: Saheli Sen Gupta, Anish M, Aditya Ranade

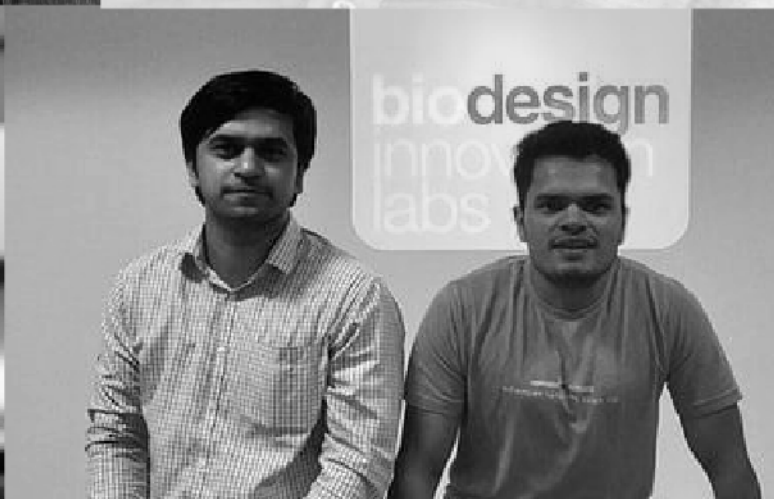
Website: research.yourstory.com

Email: research@yourstory.com

Twitter: @YourStoryCo

Facebook: YourStory Media

LinkedIn: YourStory Media



YOURSTORY