# Lab to Tab<sup>™</sup>

HIMEDIA For Life is Precious

ACCESS TO INTERESTING BIOSCIENCES STORIES FROM YOUR TAB - A HiMedia Newsletter

## **COVID SPECIAL ISSUE**



## HiMedia ties up with Syngene International

to manufacture ELISA Kit for Qualitative Measurement of the Anti-COVID-19 IgG Antibody in Human Plasma / Serum

## Launching

## ELISafe 19<sup>™</sup> COVID 19 IgG ELISA Detection Kit

A HiMedia Newsletter Volume -11

MICROBIOLOGY

ANIMAL CELL CULTURE HYDROPONICS SOILLESS FARMING MOLECULAR BIOLOGY CHEMICALS & BIOCHEMICALS LAB AIDS & INSTRUMENTATION

Two industry leaders come together to fight against one pandemic

## HIMEDIA LABORATORIES TIES UP WITH SYNGENE

HiMedia Laboratories Pvt Ltd., a bioscience company with expertise in media manufacturing and diagnostics for over 45 years having presence over 150 countries, has partnered with
Syngene International Ltd., an integrated research and development services company. HiMedia will manufacture the ELISA kits developed by Syngene at its facilities in Mumbai and will distribute it across the country.

Syngene has indigenously developed an anti-CoV-2 IgG ELISA (Enzyme-Linked Immunosorbent Assay) at its research facility in Bengaluru. This advanced highly reliable test identifies the presence of SARS-CoV-2 antibodies in blood samples and confirms if a patient has been exposed to the coronavirus. It has a capacity to test samples together in a single run and generates results within 3 hours.

Commenting on the collaboration below – Dr. Mahesh Bhalgat, COO- Syngene Internatinal and Dr. Vishal G. Warke, Director R&D, Cell Culture & Immunology- HiMedia Laboratories



"We are happy to partner with Syngene in manufacturing and distributing their ELISA kits. This partnership brings together our mutual expertise in research and manufacturing and will further strengthen our fight against the COVID19 pandemic."

> Dr. Vishal G. Warke, Director R&D, Cell Culture and Immunology, HiMedia Laboratories



"At a time when the number of COVID-19 cases is increasing at an alarming rate across the country, there is an urgent need to make available reliable testing kits using advanced technology to test patients and identify positive cases. To fill this gap, Syngene, with its expertise across diverse scientific domains, has developed an ELISA kit that allows higher throughput and generates faster results. We are happy to tie-up with HiMedia who will make the kits available at a large scale to significantly increase serological testing in India."

> Dr. Mahesh Bhalgat Chief Operation Officer, Syngene



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# MESSAGE FROM THE CMD





Dr. G. M. Warke, Ph.D. Founder & CMD - HiMedia Laboratories Pvt. Ltd.

Dear Friends,

I would like to start with wishing everyone health, hope and positivity during these testing times. We are in the middle of a pandemic, where every action of ours is an underlining decision to keep infection at bay and move forward with equal zest for making the most with available means.

The nationwide lockdown did have its effect on HiMedia operations too, wherein, we had to stop the production of all other products and singlehandedly focus on mass production of Viral Transport Medium (VTM) kits, used for COVID-19 sample collection and RNA extraction kits, required for detection of the SARS-COV-2 virus. As the demand of VTM soared, team HiMedia geared up in working round the clock to help in meeting the challenge of supplying 5 lakhs VTM test units per day.

Whereas, VTM was an important commodity, we could not ignore the fact that we had to pave the way for our microbiological media and raw materials that played a vital role in quality analysis of drugs and vaccines for the pharma, research and food industries, which counted within essential services and commodities. Our Molecular Biology team worked meticulously in overseeing the manufacture and marketing RNA extraction and RT-PCR devices, which played vital role in COVID- 19 analyses across the country.

**HiMedia launches ELISafe 19™:** HiMedia has got into a technical collaboration with Syngene International to manufacture COVID-19 ELISA Detection kit. This kit will be helpful for qualitative measurement of the anti-COVID-19 IgG antibody in human plasma/serum.

I would like to thank each and every member of my team, as without their cooperation, meeting this exponential challenge looked difficult. This brings the feeling of contentment and proves that making any impossible feat possible is a two-way relationship, for both, the organization as well as its people. This is bound by the trust each employee has towards the organization.

I welcome you all to our COVID- 19 special edition of our newsletter which showcases HiMedia's contribution towards the nation during trying times.



## Drug Repurposing in the times of Covid-19 outbreak A guest column by Dr. Samir Kulkarni

Dr. Samir Kulkarni is a recognized leader in the area of Biologics product development. He holds a versatile qualification background in complementing faculties of pharmaceutical sciences, bioprocessing, chemical engineering and business management from reputed institutes such as ICT and IIMB.

His total experience extends over a period of about 20 years in the area of biological sciences, with tenures in reputed research institutions such as Oak Ridge National Laboratory and University of Cincinnati, as well as in leading biologics organizations such as Intas Pharmaceuticals, Dr Reddy's Laboratories and USV Limited etc.

His core technical expertise is in therapeutic protein chemistry and includes technical assessment and development of the entire CMC value chain for biopharmaceuticals from clone to clinic. In senior leadership roles in biologics development organizations, he has successfully executed strategic plans for biosimilars development programs, through effective cross-integration between functions such as, research, manufacturing, regulatory, clinical and commercial development.

He is presently working as the Director for Innovation, Incubation and Linkages with University of Mumbai. He also holds additional charge as the Director of National Centre for Nanoscience and Nanotechnology. Apart from his university responsibilities, he is actively consulting biopharmaceutical development organizations, helping them address, both strategic as well as product development issues.



Dr. Samir Kulkarni, Ph.D.

#### DIRECTOR -

Innovation, Incubation and Linkages;

#### DIRECTOR -

National Centre for Nanoscience and Nanotechnology; University of Mumbai





## Drug Repurposing in the times of Covid-19 outbreak

Repurposing of a drug involves, extensive mapping of the mechanism of action (MOA) of the infectious agent. In the case of Covid19, the understanding of the MOA of the coronavirus needs to be understood. It has been determined so far that the virus induces its pathological manifestation by gaining entry into human mucosal cells aligning the laryngopharyngeal tract and the lungs. The S1 domain of the spike proteins of the viral surface latch onto the Angiotensin Converting Enzyme 2 (ACE2) present on the outer surface of the host cells and the S2 domain enables fusion of the oily cover of the Virus with the cell surface of the host. Once the virus gains entry into the cells by means of endosomal fusion with the lysosomes, it releases its RNA that

hijacks the genetic machinery of the host cell to create multiple copies of its own RNA, resulting into formation of infective virions. The understanding of this entry mechanism of the virus,

The onset of 2020 saw entire world devising plans to fight against COVID19 the pandemic caused by Coronavirus infection, thereby sidetracking every other concern for a while. The fear of the disease created acute psychosis in both citizens as well as businesses worldwide. Outspread of the disease which was first noticed in Wuhan city of Hubei province in China, has been so rapid that India along with the rest of the world has been found completely unprepared to handle the gravity of the situation.

The pandemic was identified to be perpetrated by a highly infectious Coronavirus, originating in Chinese horseshoe bats. The sudden onset and sheer magnitude of the expanse of the disease has left the world in a precarious situation, with no drugs or vaccines

available to counter this new virus. Worldwide there have already been more than 5 million cases of infection and over 350,000 deaths in about 5 months, and the urgency of finding a therapeutic solution for the infection is clearly immediate. This leaves no time for the complex and prolonged path of drug discovery, the most crucial part of which is demonstrating safety of a therapeutically efficacious drug for human use. In such a situation the only discernible option is to identify already approved drugs for which therapeutic safety has been established through clinical evaluations albeit, for a different indication. Such utilization of a drug, pre-established for a different indication, as a possible solution for a medical emergency on hand is termed as "Drug Repurposing".



provides several possibilities to counter the virus by way of blocking its entry into the cell and/or attacking the virus once it is inside the host cell. Pre-existing drugs with known functionality towards these mechanisms and most importantly with known safety profiles were repurposed as potential drug candidates against Sars-Cov2. For example, hydroxychloroquine, an antimalarial drug known to modify the intracellular lysosomal pH of the host cell was used to render the virus ineffective post entry. Remdesivir, an anti-viral agent which was extensively evaluated clinically, for possible activity against Ebola and Marburg viruses was found to be effective against Coronavirus in a recently conducted clinical study. Remdesivir, has been identified to induce its anti-viral activity by way of releasing an adenosine analogue to interfere with the viral RNA multiplication mechanism and thus disrupting the formation of the infective virions. Ivermectin, a long existing anti-

parasitic drug has been found to be highly efficacious in reversing the impact of the virus in late stage Covid19 patients and scientists are involved in deducing the mechanism of its action against coronavirus. Another pathological manifestation of the virus involves triggering of the B-cells leading to excessive secretion of pro-inflammatory cytokines, resulting into Acute Respiratory Distress Syndrome (ARDS) in the Covid19 patients. ARDS has been identified as the primary reason for fatality from the disease. Cytokines such as Interleukins and TNF have been suggested to be released in excess resulting into excessive inflammation and pus formation in the lung alveolar cells, drastically reducing the lung capacity. An anti-IL-6 monoclonal antibody, Actemra has been attempted as a possible remedial solution against the over-expression of IL-6 in the Covid19 patient with moderate success. Similarly, an anti-psoriatic

binds which CD6. а surface glycoprotein on majority of T-Cells and on a subset of B-Cells, believed to trigger release of pro-inflammatory cytokines is being repurposed to deduce its efficacy against Sars-Cov2. In summary, it can be stated that the strategy of repurposing preexisting therapeutic solutions to counter the magnitude of expanse of Covid19 carries significant merit given the urgency in the matter. However, ensuring the efficacy of these repurposed drugs for Covid19 patients through appropriate clinical evaluation remains a prudent measure before extensive use of such drugs. The scientific community is significantly engaged in this activity as is evident from the numerous clinical studies that have initiated using pre-existing drugs. As the understanding of the MOA of the virus increases, it can be assumed that more and more repurposed drug candidates would find possible applications as therapeutic solutions against Covid19.



monoclonal antibody; Itolizumab

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## COVID*Safe*™ Virus Inactivation Medium



## INACTIVATE... AND BE COVID Safe<sup>TM</sup> !

COVID*Safe*<sup>™</sup> is a stabilization, inactivation and transportation medium designed for potentially infectious viruses in suspected samples.

Specially designed for molecular testing, it rapidly inactivates pathogen infectivity and minimizes risk of accidental disease spread.

On-spot inactivation of viral virulence

> Risk-free sample handling

Biosafety level III NOT required

Cold chain NOT required for transportation



## Current Pandemic Hindsight & Business Eye!

#### **Pessimist or Optimist?**

Famous author Ernest Agyemang Yeboah once said, "Don't just look; see!" Whether one sees the glass half full or half empty, exhibits the determination and extent, to which, he/she would walk on the path of uncertainties to make best opportunities out of frail chances. It takes a deeper introspection to realize that, the probabilities of making better decisions are far higher than we can comprehend. People with positive mindset will, most certainly, find their way to make most out of every uncertain situation at hand for; they always tend to see the glass half filled. When that's the case, they are always high on creative and strategic thinking.

In current situation, where the world economy has crippled due to the outbreak of COVID19 pandemic, businesses that were quick to adapt and diversify based on the need of the hour, did manage to propel in right directions to keep their ships sailing ahead. Like, premium shoemakers branching off to manufacture bathroom slippers and flip-flops. Similarly, apparel manufacturers & designers opted to focus on alternatives like personal protective equipments and comfort accessories, for both sports & home wear, which has become choice of consumers. However, those who could not afford to drive their business, have chosen to strengthen their relationships with existing clients by providing support in whatever little way possible.

Till date, successful business hindsight under COVID-19 situation could be an ideal analogy to transform our existing business by focusing more on 3Bs (Business Ideas, Business plans & Business alliances).

**Business Ideas:** Ideas are the backbone to any business. Any new idea, when put together with well-thought upon contingency plans during difficult times, leads to people on top manage the business growth sustainably. Growth, being the byproduct of a good business, is achieved by focus on both external and internal environments of the organization wherein, internal factor is team development and



Dr. Rahul R Joshi, Ph.D.

**Business Head -**Cell Culture and Immunology



Half full? / Half empty?

external factor that plays a major role is, thorough understanding of the pulse of the market.

**Business plans:** You wouldn't want to build skyscrapers without a proper plan. If you think 'planning' for a business only applies in case of Start-Ups, you need to think twice. Driving a company's growth is a continuous process which also involves being ready for testing times by taking timely strategic measures and being risk ready. Like Mike Tyson once said "Everybody has a plan until they get punched in the mouth"

**Business Alliances:** They can be game changers for any company. In order to gain competitive advantage in the market, entering into a strategic alliance with one or more organizations is a wise way to achieve share into an untapped market or expand the target market and, simultaneously sustain success.

Two things common among businesses that remained stable in midst of the pandemic are **Quick Adaptability** and **Scalability**.

HiMedia being the Indian origin biotechnology-based products

manufacturer, could not only manage to successfully deliver growth during the previous fiscal year, but also exceeded the sales in first quarter of the current financial year. At a time when organizations struggled to reach even half of their business goals due to the on-going pandemic, HiMedia adopted some incredible business ideas by forming a team dedicated to generate new business ideas largely categorized into:

- High Margin Low Volume: based on (strength)using existing core manufacturing set up to address existing market opportunities
- Low margin High volume: based on purely market opportunities where strength to be acquired externally. This was achieved by successful business alliances.







## VTM: The first critical step to detection of COVID-19

### Abstract

The COVID-19 outbreak has had a major impact on diagnostic laboratories in the past several months. In the pre-analytical stage, collecting the proper respiratory tract specimen at the right time, from the right anatomic site, is essential for a prompt and accurate molecular diagnosis of COVID-19. Appropriate measures are required to keep laboratory staff safe while producing reliable test results. In the analytic stage, real-time reverse transcription-PCR (RT-PCR) assays remain the molecular test of choice for etiologic diagnosis of SARS-CoV-2 infection, while antibodybased techniques are being introduced as supplemental tools. In the post-analytical stage, testing results should be carefully interpreted using both molecular and serological findings. This commentary aims to provide a comprehensive review of Virus Transport Medium (VTM) and swabs and the critical factors in sampling.

To ensure that the results of the test are optimum, there are factors at multiple levels which need to be taken care of, and can be broadly classified into 3 steps:

1. Collecting Sample from Patient Site 2. Transporting Sample to the Testing Centre 3. Processing Sample for Virus Detection



Dr. Priti Warke M.B.B.S., M.S.

#### **Director** -

R&D, Head- Requlatory Affairs, Animal Cell Culture and Plant Tissue Culture



Dr. Girish Mahajan, Ph.D., F.S.A.B.

Vice President -Microbiology The first 2 steps directly affect the sample processing and its results, as they are critical factors for maintaining the required quality of the sample, when it reaches the testing centre for processing. This is where VTM and swabs play an important role.

## **1.** Collecting sample from patient site:

#### Sample Collection

A nasopharyngeal (NP) swab and/ or an oropharyngeal (OP) swab are often recommended for screening or diagnosis of early infection. A single NP swab has become the preferred swab as it is tolerated better by the patient and is safer to the operator. NP swabs have an inherent quality control in that they usually reach the correct area to be tested in the nasal cavity. Many studies across the globe suggest that nasopharyngeal swabs may be more suitable than oropharyngeal swab at this late stage of COVID-19 outbreak. CDC is now recommending collecting only the nasopharyngeal (NP) swabs, although oropharyngeal (OP) swabs remain an acceptable specimen type. If both NP and OP swabs are collected, they should be combined in a single tube to maximize test sensitivity, and limit use of testing resources.

#### HiViral<sup>™</sup> Transport media by HiMedia – Features

- It prevents bacterial and fungal contamination
- Avoids drying up of the sample
- Allows longer survival of the present virus in the collected sample
- Prevents the growth of the bacteria and fungi present in the specimen
- Stabilizes the viruses and offers its maximum recovery

#### **Proper Sampling Procedure**

It is extremely important to properly collect nasopharyngeal and oropharyngeal swabs in order to minimize the false negative result. In order to properly obtain an NP swab specimen, and then reduce complications associated with NP sampling, firstly using the distance between the nares to the tragus, estimate the required depth of insertion to sample the nasopharynx. Secondly, direct the swab posteriorly along the floor of the nose, aiming laterally, rather than medially to reduce the risk of pain and bleeding. Tilting the head by 70 degrees can be performed to ensure that the swab remains on the floor of the nose. Thirdly, do not use excessive force to perform the procedure, as the patient may have associated pathologies, causing an obstruction not known to the healthcare practitioner. Patients will likely flinch, but that means the swab has hit the target. Swabs should be kept in place for 10s while being twirled three times. Swabs are then placed in tubes which contain the VTM and the tubes are closed tightly so that there is no leakage.

## 2. Transporting sample to the testing centre:

#### Sample Transportation

Once the sample is collected from the patient, it is very important that the sample reaches the testing centre in detectable condition, so that the tests don't give false negative results. Hence, samples are transported in VTM as it is a specially formulated medium for transport and long term freeze storage of viruses. It is designed to maintain the optimum viability and virulence of the viral sample. VTM is made of Hanks Balanced Salt Solution, and contains a protective protein antibiotic to control microbial contamination and buffers to control the pH. The medium also contains a cryoprotectant which helps in preserving the viruses, if specimens are frozen for prolonged storage. The

medium maintains a pH of 7.3  $\pm$  0.3 at 25°C which is necessary for viability of virus.

### HiViral<sup>™</sup> Transport media by HiMedia – Global Recognition

By Mayur Post date July 11, 2020

Skylark News, Skylark Sport, Space and Energy News Updates

Swabs Collection Kit Market 2020 and Analysis by Top Key Players Focusing on Growth Strategies

Thermo Fisher Scientific, HiMedia Laboratories, Puritan Medical, Laboratory Corporation of America, Lucence Diagnostics

https://www.sportsskylark.com/ swabs-collection-kit-market-2020and-analysis-by-top-key-playersfocusing-on-growth-strategiesthermo-fisher-scientific-himedialaboratories-puritan-medicallaboratory-corporation-of-americalucen/

#### **Proper Transportation Procedure**

Samples should be transported to the laboratory for testing as soon as possible. Samples can be refrigerated at 2-8°C after collection, or can be transported at 2-8°C on wet ice within 48 hours. If a long delay is expected in transit and processing, samples should be transported on dry ice and should be frozen at -70°C.

## **3. Processing sample for Virus Detection:**

When the sample reaches the testing lab, the required amount of VTM is collected from the tube and is processed for virus detection using RT-PCR. The accuracy of the result is directly dependent on the sample collection and transportation procedure. If the sample is collected from the correct site, and is transported at correct temperature, the virus stays intact, and can be detected. The quality of VTM plays very important role, as it depends on the properties of the VTM that the virus (if present) from the collected sample stays viable till it reaches the testing lab. The sterility of VTM also plays very significant role. If the VTM gets contaminated by bacteria or fungi, it no more remains suitable for sample collection. Hence, VTM is considered to be the first and critical step for COVID-19 virus detection.

### HiViral<sup>™</sup> Transport media by HiMedia – Regulatories

- Validated & approved by ICMR-NIV, India
- Validated by European, Middle Eastern & Hong Kong Authorities
- Designed according to WHO directive (Annex 8) & ICMR guidelines
- Manufactured in GMP, ISO 13485 & ISO 9001 Certified facility
- Guaranteed functionality, sensitivity and specificity
- CE Marked for IVD under Directive 98/79/CE

## Recent reserach in Viral transport media

Although VTM is accepted worldwide because of the advantage that patient need not be physically present at the testing centre, the transport involves a lot of risk at various stages. If it is not properly transported or handled, there can be an exposure to coronavirus positive samples.

And due to increase in the testing capacity and lack of experienced professionals, newly trained people have been deployed at various levels to ensure the sample collection and testing is done without much delay. Which also means that there are more chances of mishandling the VTM collection kits. This problem is being tackled by new kind of transport medium which is commonly called Virus Inactivation Medium or Virus Lysis Medium, a medium which inactivates the virus in the collected samples and can still be detected as positive or negative by a specific molecular based test like RTqPCR.

A new molecular transport medium (viral lysis transport medium, VLTM) has been evolved from safety perspectives. It blends cell lysing reagents and labile nucleic acid (DNA & RNA) stabilizing reagents that can inactivate nucleases and preserve released nucleic acid at ambient temperature for later nucleic acid detection procedures. It inactivates the infectious biological pathogens including the virus in the samples. This medium is an advanced version of VTM, and is most preferred for the transport of COVID-19 suspected samples. HiMedia has already inculcated and developed this principle, and launched its VLTM, COVIDSafeTM. The science of transport medium is ever advancing and, HiMedia is always at the cutting edge of such advancements, to deliver the latest and safest for the world.

### HiViral<sup>™</sup> Transport media by HiMedia – Swabs feasibility

- Suitable for nasopharyngeal, Nasal and Tracheal samples
- Patient's friendly Design: Ergonomic design and soft texture for maximum yield and improves patient comfort & sample collection
- Uptake & transfer: Quantitative measurement and improved test sensitivity
- Release: Spontaneous elution of sample into liquid medium

The total cumulative capacity of VTM production in India is over 5 million tests per day with over 100 manufacturers & suppliers across India. Today HiMedia has the capacity to produce 1 million VTM tests per day. Up to 20<sup>th</sup> August 2020, there was an official record at ICMR that almost 8.35 crore patient samples were tested cumulatively. In the segment of swabs and VTM manufacture, today India is truly self-made (Atma-nirbhar, आत्मनिर्भर) and HiMedia is proud to be part of this India's mission.



PW1172 - HiViral <sup>™</sup> Nasopharyngeal Nylon Flocked swab				
Break Point PW043 - HiViral™ Oropharyngeal Viscose swab				
PW043B - HiViral™ Oropharyngeal Viscose swab				
Break Point				
PW043C - HiViral™ Oropharyngeal Viscose swab				
Break Point				
PW043D - HiViral™ Oropharyngeal Viscose swab				
Break Point				
PW1374 - HiViral™ Oropharyngeal Nylon flocked swab				
Break Point				
PW1174 - Sterile Foam Tipped Swab				

### Range of the swabs manufactured by HiMedia Laboratories Pvt. Ltd.



### A Way of Life During COVID-19 Pandemic

For eons now, Yoga has been synonymous to a balanced state, i.e., oneness and harmony between the body and the mind. The general understanding of yoga among masses is considered to be restricted to physical postures, however, in real sense, yoga kriyas help create a balance among our thoughts, intellect and behaviour.

There are, most commonly, 10 styles or systems of yoga, each apart from the other on the basis of the take away each form offers. They are- Ashtang Yoga, Hatha Yoga, Kundalini Yoga, Jnana Yoga, Bhakti Yoga, Karma Yoga, Mantra Yoga, Kriya Yoga, Swara Yoga and Raja Yoga.

Here, we would mostly focus on Hatha Yoga, the most common style used to practice yogasanas or yogic postures. Hatha yoga is derived from two syllables, 'Ha' denoting the pranic or vital force which governs the physical body and 'tha' denotes chitta or mental force. Hence, hatha yoga is the catalyst to awaken two energies that govern our lives through practicing its various techniques of Asanas, Pranayamas, Shatkarmas (Cleansing techniques), Mudras (Mental gestures), Bandhas (Energy Locks) and Nada (Sound) Meditations.

Mrs. Saroj Warke, Director and Co- Founder of HiMedia Laboratories who has also been a yoga teacher for the past 3 decades, shares her insights on how yoga, if practiced regularly, not only helps develop immunity against deadly pathogens, but also stabilizes mental health and calms the mind.

In the below mentioned video, Mrs. Warke introduces to the cleansing practices as well as yogic kriyas to be followed pre and post corona infection. She also mentions one of her case studies wherein a patient with consolidation lungs



was treated by regular practice of therapeutic variations of Hatha Yoga.

Mrs. Warke introduces to the basic yoga processes and their benefits. These include Shat karmas (six cleansing processes), Yogasanas (yoga postures), OM meditation and Pranayamas (breathing processes). She stresses more on the benefits of Shatkriyas. The various types of Shatkriyas include Netra Snan (eye wash), Jal Naiti (nasal wash), Kapalbhati (Bellows breathing), ujjayi breathing (ocean breath), Bhastrika (various types). They play vital role in avoiding a viral attack.

Regarding the Pranayama practices, she further adds that since wearing mask has become a mandate during the pandemic, the lack of oxygen and excess intake of CO2, makes Pranayama very important, as it helps control and extension of Prana or vital energy through the body.

Mrs. Saroj Warke also explains the kriyas that can be practiced post COVID-19 infection, while the human immunity is at its weakest. The kriyas can be performed even sitting on a chair or lying in bed, whichever is convenient for the patient who is under recovery. The information Mrs. Warke provides in the below video link takes one through a detailed session of yoga to be followed during the pandemic. These are absolutely authentic, as well as tried and tested yogic practices.

Click on the link to watch the complete video.

https://www.youtube.com/watch?v=Hpc1RdwM50&t=29s







## **AMR Molecular Diagnostics**



Type of AMR	ESBL	Carbapenem Resistance	Colistin Resistance	MRSA	VRE
Kit Name	Hi-PCR <sup>®</sup> Extended- spectrum β-lactamases (ESBLs) Gene Quantification Probe PCR Kit	Hi-PCR <sup>®</sup> Carbapenemase Gene Quantification Probe PCR Kit	Hi-PCR <sup>®</sup> Colistin Resistance Encoding Gene Quantification Probe PCR Kit	Hi-PCR <sup>®</sup> Methicillin Resistant Staphylococcus aureus (MRSA) (Multiplex) Probe PCR Kit	Hi-PCR <sup>®</sup> Vancomycin Resistant Enterococci (VRE) (Multiplex) Probe PCR Kit

## Targeting COVID-19 using HiGenoMB<sup>®</sup> Extraction Platforms





## Sanitary Hygiene, a Global Necessity in the COVID-19 World

As the COVID-19 pandemic ravages the globe incessantly, sanitary hygiene has never been as highly endorsed across the globe as it is, today. In the wake of this pandemic, best sanitary agents/ disinfectants with major applicability in stringent environments like pharmaceutical clean rooms and hospital operation theatres have now rolled out in domestic, day to day activities. The pandemic has propelled the disinfectant market from US\$0.66 million in 2019 to US\$ 0.78 million in 2020. A projected CAGR of approximately 10.1% till 2023 will place the market size at and estimated US\$1.04 billion.

(Source:https://www.businesswire.com/news/home/20200519005765/en/ Insights-Worldwide-%20Disinfectants-Industry-2030---Identify). Improved global awareness for hygiene is currently leading to a high demand and corresponding influx of newer sanitary products. An insight into the details of their use and applications can help safeguard users in the current scenario.

Similar to the other coronaviruses, the SARS-CoV-2 virus sports an outer fragile envelope which is sensitive to disinfectants and can result in higher susceptibility of this virus as compared to that of the non-enveloped viruses. Armed with this information, the global body WHO recommends the use of three major chemical agents for the objective of effective deactivation of the virus.



Dr. Shakila Balasubramanian, Ph.D.

**Quality Control Manager** -Microbiology



Dr. Swanand Gangal, Ph.D.

**Product Manager -**Microbiology



#### 1. Ethanol 70%-90%

• **Mode of Action:** Alcohol is considered to be a general purpose disinfecting agent with antiviral and antiseptic properties. It denatures proteins and disrupts cytoplasmic membranes thereby effectively deactivating enveloped viruses. However, it is not effective against bacterial & fungal spores and non-enveloped viruses (Rotavirus, Adenovirus, Poliovirus, Rhinovirus, Chickenpox etc.)

#### • HiMedia offers a range of alcohol based disinfectants.

Hand Disinfectants	Surface/Instruments Disinfectants
nand Disinectants	Surface/instruments Disinfectants
1. Triclogel	1. SteRapid™
2. Zentol	2. InstaCull
3. HiShield™ Hand Gel	3. HiShield™ Disinfectant Wipes
4. HiShield™ Spray (IPA)	4. SteriFast Disinfectant Wipes(IPA)
	5. IPA 70%

#### 2. Hydrogen Peroxide (≥ 0.5%)

- Mode of Action: It dysfunctions the infective agent by attacking the membrane and internal organs (DNA, RNA) through destructive hydroxyl free radicals.
- HiMedia's Peroxide Silver is a universal eco-friendly broad spectrum disinfectant (Oxidizing agent) sporting 12% w/w concentration of Hydrogen Peroxide combined with the oxidation power of Silver. The combined effect of H2O2 with silver nitrate results in multiple oxidation power to kill all germs viz. bacteria, fungi, spores, virus, algae and amoebae.

It can be used for aerial fumigation at 20% concentration and for surface disinfection at concentrations ranging 5-10% with a low contact time of 10 minutes. It is a non-polluting and bio-degradable formulation and causes no irritation to skin or eyes.

Besides the above two agents, Chlorine – based agents like hypochlorite can be employed at the concentrations of 1000 ppm for general environmental disinfection and 5000ppm concentrations for biomedical scenarios.

reduction Logarithmic in the total load of infective agents is the critical parameter that should be the point of consideration especially for medical care facilities. The use of the recommended chemical agents has been shown to achieve >3 log reduction of the viral agent from the environmental surfaces after cleaning. Active consideration of target environment to be cleaned with due consideration to the suitability and power of the respective agent is the key

to secure safety from such pandemic potential contagions.

An effective disinfectant combined with strict adherence to the personal hygiene

and safety considerations including the masks and PPE kits is the smartest and a responsible approach to tackle this global crisis successfully.





## Simplifying PCR for COVID-19

### Coronavirus

Coronaviruses (CoVs) are members of the family Coronaviridae, the enveloped viruses that possess extraordinarily large singlestranded RNA genomes ranging from 26 to 32 kilobases in length. Recombination rates of CoVs are very high because of constantly developing transcription errors and RNA Dependent RNA Polymerase (RdRP) jumps in open reading frames. With its high mutation rate, coronaviruses are zoonotic pathogens that are present in humans and various animals with a wide range of clinical features from asymptomatic course to requirement of hospitalization in the intensive care unit; causing infections in respiratory, gastrointestinal, hepatic and neurologic systems.

## Emergence of Novel-Coronavirus 2019 (2019-nCoV): Globally and India

On 31 December 2019, the World Health Organization (WHO) China Country Office was informed of a mysterious outbreak of atypical pneumonia of unknown aetiology traced to a seafood wholesale market in Wuhan City, Hubei Province. A novel coronavirus termed as 2019-nCoV was officially announced as the causative agent by Chinese authorities on 7 January 2020. This virus was named as Novel Coronavirus WHO on 12 January, 2020 and COVID-19 on 11 February, 2020. On 20 January, 2020 the WHO confirmed human-to-



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human transmission of the disease. The World Health Organization (WHO) on 11 March, 2020, declared the novel coronavirus (COVID-19) outbreak a global pandemic. As of 30 May, 2020, the total number of confirmed cases reached 5.92 million in 213 countries and territories around the world, which has resulted in 3,64,000 deaths. The first confirmed case of COVID-19 in India was reported on 30 January, 2020. As on 30 May, 2020, a total of 1,74,000 cases have been confirmed with 4971 deaths. Among the foremost priorities during pandemic situation is to facilitate reliable laboratory diagnosis.

## HiMedia's Contribution in fighting COVID-19

Being in the clinical diagnostic industry for over 44 years, HiMedia Laboratories Pvt. Ltd., is actively engaged in combating human health by developing Innovative and Affordable Molecular Diagnosis. At Molecular Division our prime objective is pioneering of "One-Stop Molecular Diagnostic Solution".

Continuing with our legacy, HiMedia Laboratories Pvt. Ltd. has been the torch bearer among the Indian manufacturers of Viral RNA Extraction kits used for COVID-19 detection. HiMedia's "HiPurA® Viral RNA Extraction Kit" which is Indian FDA approved, continues to be the most important kit being used in the diagnosis of COVID-19 patients in India. Viral RNA extraction from the patient sample plays a critical role on determining sensitivity of the coronavirus detection procedure. We also have various Real-time PCR systems Insta Q48<sup>®</sup> M2, Insta Q48<sup>®</sup> M4, Insta Q96<sup>®</sup> Plus and Insta Q96<sup>®</sup> 6.0 which are being used in the diagnosis of COVID-19 infection.



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