

INTERNATIONAL CONFERENCE

ON CORONA (COVID-19/SARS-COV2)

VIRAL GENOMICS

(online)

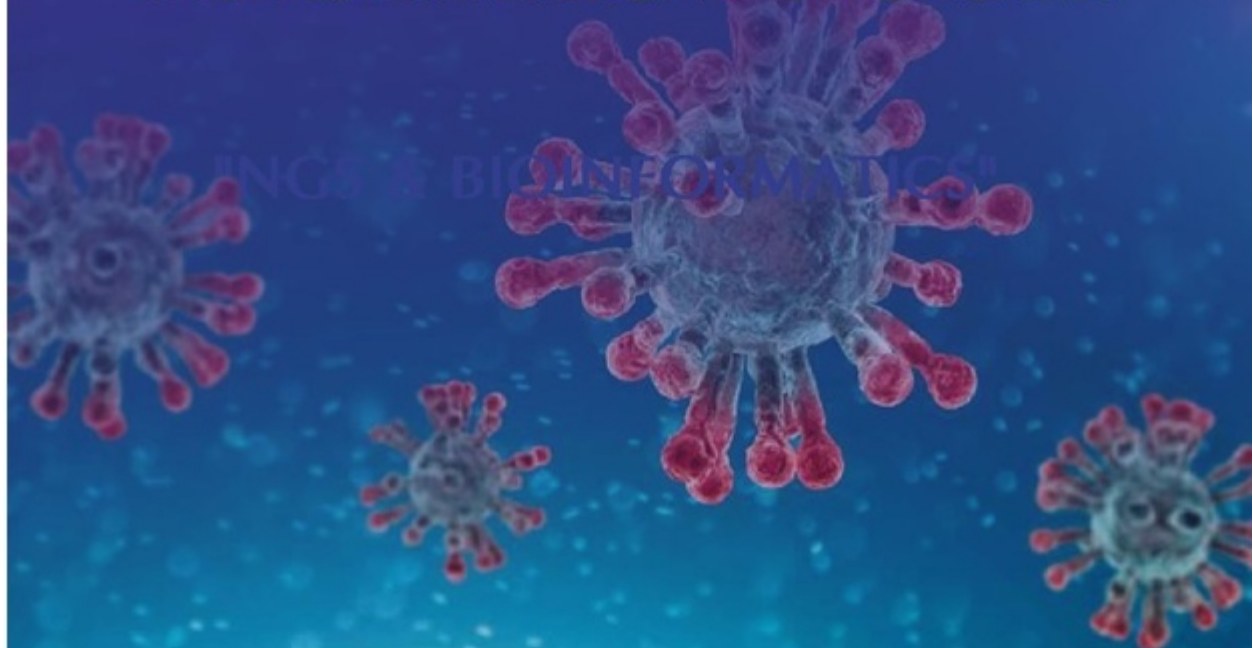
Bengaluru Genomics Center (BGC)

And

Sarvasumana Association

ISSN : 2394-4668

ABSTRACT BOOK



International Journal of Public Mental Health and Neurosciences

ISSN: 2394-4668 (Special Issue)

ORGANIZER	Bengaluru Genomics Centre Pvt. Ltd, Bengaluru, India
	Sarvasumana Association, Bengaluru, India

PATRON

Dr. Pruthvi Chakravarthi T-CEO, Bengaluru Genomics Centre Pvt. Ltd,
Bengaluru, India

Mrs. Padmashree Murthy- President, Sarvasumana Association,
Bengaluru, India

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Bengaluru Genomics Center Pvt. Ltd. (BGC)



Welcome All

The International conference on corona viral genomics is conceived to beat COVID-19 through GLOBAL EDUCATION AND RESEARCH. It will pave way that could lead to further innovations.

Having with us one of the best speakers of the world is a blessing.

This is much more than a conference as it is a COVID19 GLOBAL SCIENTIFIC MISSION. The role that genomics and bioinformatics is to play in COVID-19 is undoubtedly crucial.

One must feel proud to learn, research and work on this invisible monster, the COVID-19. Feel proud to be a part of this global meet and be the change in 2020.

Regards

Dr. Malali Gowda

Founder and Director

Bengaluru Genomics Centre (BGC)

P-40/2, 2nd Floor, Ramanashree California Garden, Ananthapura Main Road, Yelahanka,
Bengaluru – 560064, India

www.bgc-genomics.com

reach@bgc-genomics.com

Sarvasumanâ Association

Reg. No.: JNRS79-2014-15

Recognized Scientific and Industrial Research Organization (SIRO)
By Department of Scientific and Industrial Research (DSIR),

Govt. of India.



सर्वसुमना

#168 A, 1st cross,
1st Block, 3rd Phase,
BSK 3rd stage,
Bangalore-560085



Welcome

It gives me great pleasure to invite delegates from across the world for the online “International Conference on Corona (COVID-19) Viral Genomes” at which will be streamed live from Bengaluru, India. This is the 1st conference of its kind globally. We have combined the themes Covid 19 functional genomics, therapeutics and drugs, traditional medicines, Big data in Bioinformatics and prevention and management.

A person cannot buy health, postpone disease, through practicing Asanas, but following a healthy life style—following the eight limbs of yoga. Patanjali Yoga Sutras give all the essential information about yoga in a masterly manner, it is also recognized as the masterpiece in the literature of Yoga and has stood the test of time and experience.

Yoga is a Way of Life. Yoga cannot be taken as a hobby or to find an escape from stress and pressure in day to day life. It can be undertaken on understanding the nature of human life, challenges, pain, suffering which are definitely there in it.

This conference gives a platform to researchers, students to share their ideas, inventions with like-minded people.

I hope that you will find the online conference and the post-conference workshop enjoyable and comfortable.

With Kind regards

Padmashree Murthy
President

June 10, 2020

Dear all,

We hope that the vaccine strategy described here can be used for many different viruses including SARS CoV 2. With the combined knowledge of all the approaches described in the conference, I believe that we can all tide over this crisis.

Best regards,

Dr. Meenakshi Iyer

Postdoctoral fellow
Indo-African dengue consortium,
Prof. Sudhir Krishna lab
NCBS-TIFR, GKVK
Bangalore, India

Suvarthi Das, M.Sc., Ph.D.
Independent Consultant
Voluntary Research Scientist
Stanford University Medical Center
Palo Alto, California, USA

To

Prof. Malali Gowda
Founder and Director
Bengaluru Genomics Center
Bengaluru, India

Date: June 7, 2020

Sub: Message Regarding International COVID-19 Web Conference

These are unprecedented times. We are in the middle of a pandemic. But as Napz Cherub Pellazo said: 'Facing the pandemic, is not what happened matters, it is how we respond.'

One of the critical means of pandemic response, in addition to the hands-on approach, is definitely spreading mass-awareness about 'how', 'what' and 'why' of the disease, its prevention and/or remediation. That can be achieved through digital and print media, private and public memoranda and in a more organized way through seminars and conferences.

I congratulate Bengaluru Genomics Center and Sarvasumana Association for arranging this timely global web-conference on COVID-19. I heartily thank you all for giving me the opportunity to present my talk on a very relevant topic of 'Antibody profiling: prospect in the diagnostic and therapeutic landscape'. Being a junior scientist, I look forward to the immense opportunity of learning from my experienced co-speakers from around the globe, and I wish all success to this endeavor.

Namashkar,

Suvarthi Das

California, USA ***email: suvarthi.d@gmail.com***Linkedin: <https://www.linkedin.com/in/suvarthi-das/>

Bengaluru Genomics Center Pvt. Ltd. (BGC)



From Convener's Desk

The world has witnessed an unprecedented incident through COVID-19, which pushed us into uncertainty, endangering lives, which reminded and made us realise the very nature of our existence.

In this era of multiomics, bioinformatics, gene editing and technological revolution, the entire scientific community, medical management, economy, states and multilateral organisation are challenged by this COVID-19 and are striving hard to decipher and find the solution.

This International conference is intended to bring all traditional and modern medicine across the planet under one roof for self-expression, research, enrich and empower each other to help the humanity, which turned out to be a great scientific feast in this transformation to make a difference.

This agglomeration brought a new scientific temper, help each other in this present pandemic and for times to come.

It was a great moment to be part of this conference, blessing to listen and learn from great scientists, medical practitioners and eminent masters and hope everyone got enriched and transformed.

A big pranam for their contribution.

Prayers to those who lost their lives...

Gratitude and regards,



Dr. Pruthvi Chakravarthi T,
Chief Executive Officer,
Bengaluru Genomics Centre (BGC)

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Bengaluru – 560064, India

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From Organizing Secretary's Desk

Ever since the World Health Organization had declared the Wuhan City virus outbreak a Public Health Emergency of International Concern (PHEIC) the international community expedited finding ways to significantly accelerate the development of interventions and therapeutics for this COVID-19.

This timely conference is an amalgam of all the researchers, health practitioners, doctors, ayurvedacharyas, healers and care givers working towards the remedy of COVID-19.

The globe is experiencing an emergency lockdown but it is a strange fact that it has brought the people staying in different parts of the world virtually closer. It is heartening to see people ready to help each other virtually.

The covid-19 has become a boon for us that it is connecting people virtually. Day is not far that this virtual connection will pave a new path for the human race.

I hope that you will find both conference and post conference workshop enjoyable and comfortable.

With Kind regards

Preenon Bagchi

Preenon Bagchi
Secretary

+91-9986274603
<http://sarvasumana.in>



Sreehareeyam Ayurveda

CENTRE FOR AYURVEDIC CARE AND RESEARCH

2, Rajaji Nagar Main Road, Thiruvanniyur, Chennai 600 041

Mob : 86101 77899 Email : sreehareeyam@gmail.com

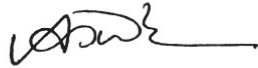
Dr. A. Sudheer B.A.M.S., M.D.

Reg. No. /Class:1562/A

Name :

Date : June 05, 2020

Best wishes to this conference that marks a new journey - that shall be arduous, that shall not shy away to question existing scientific approaches, that shall seek answers and shall pave the way to the future, that shall soon be a past to win over not just covid 19 but even covid 21.



Dr. Sudheer Ayyappan BAMS MD

Medicines available at

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PLENARY TALKS

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PLENARY TALKS

**COVID AT HIGH ALTITUDE: LOWER INCIDENCE ALL AROUND THE
WORLD AND HOW HIGH-ALTITUDE PHYSIOLOGY HELPS ELUCIDATE
THE COMPLEX MECHANISMS OF VIRAL ATTACK AND CRITICAL
HYPOXIA COMPROMISE**

Prof. Dr. Gustavo Zubieta-Calleja

High Altitude Pulmonary and Pathology Institute IPPA, La Paz, Bolivia

Email ID: gzubietajr@gmail.com

High altitude medicine studied during 50 years at the High Altitude Pulmonary and Pathology Institute in La Paz, Bolivia 3600m, has provided insights into COVID-19. The pathophysiology has been poorly understood and initially, word got around that it was a SARS (Severe Acute Respiratory Syndrome) pneumonia. The critical hypoxia and «gaspings» present in some patients are alarming. However, at high altitude all around the world there is a lower incidence. This becomes one of the most significant findings in the COVID-19 Pandemia, because it helps save lives, through multiple mechanisms. I first postulated back in 2017 in a paper published at BLDE Journal (India), on extended longevity at high altitude, that Ultra-Violet extreme radiation in the city of La Paz, could serve as a natural disinfectant. The effect would fall on all surfaces exposed to the sun. As Coronavirus is extremely contagious, this biophysical characteristic of high altitude could reduce the contagion spreading significantly. Other characteristic like less humidity, molecules spreading apart due to the lower barometric pressure (Natalia Zubieta-DeUrioste), and exposure to sunlight thereby generating Vitamin-D could be contributing factors among others. ACE2 receptors are downregulated in adaptation to high altitude, and being these the entrance point of the virus, they possibly also play a role. The high altitude cities have had COVID-19 but the asymptomatic seem much more

prevalent, and the recovery much more favorable, not only in bigger numbers but also in some places without deaths. High altitude cities have seen their Intensive Care Units empty. COVID-19 destroying the alveolo-capillary cells as their entrance point in the lungs produces severe lung compromise. This generates a decrease of the arterial Partial Pressure of Oxygen (PaO_2) rapidly placing the patients in a comparable altitude of the summit of Mt. Everest with a PaO_2 of around 30 mmHg. When PaCO_2 begins to rise severe hypoxia and “gasping” ensues. Lacking the 2 high altitude fundamental factors of the Tolerance to Hypoxia = $\text{Hb}/\text{PaCO}_2 + 3.01$, (increased hemoglobin and low PaCO_2), and actually going in the opposite direction, cellular death is an inevitable outcome. With a better understanding of this extremely aggressive disease with the help of high altitude physiology and physiopathology, we can all expect a better outcome.

ACCREDITATION REQUIREMENT FOR COVID TESTING LAB FACILITIES

Dr. Thuppil Venkatesh

*Foundation for Quality India (FQI) s in India, Email ID -
venkatesh.thuppil@gmail.com*

COVID -19 can be confirmed only with laboratory diagnosis. Though several tests are suggested the most commonly used test is RT-PCR based one. Majority of tests carried out till date is based on RT PCR. Though the test is time consuming apart from cost involved is an accepted test to confirm COVID. Any diagnostic test is required to provide accurate and reliable result which has to of assured quality. This need to be demonstrated through third party certification or accreditation as per the guidelines provides by ISO 15189:2012. Once the quality of resources and competence of people working in the laboratory comply with the requirement of the International standard ISO 15189 accreditation is granted to the test procedure adopted for a limited period of time. Accreditation bodies across the Globe are voluntary non Governmental organisations. Accreditation is driven by third party payment organization or through competition or due to public demand. When a statutory body like ICMR insists diagnostic laboratories has to go in for accreditation. This is applicable to only private labs due to many factors. The number of COVID 19 testing labs needs to be in large number post COVID lockdown removal. Since we do not have any defined treatment protocol as on now preventive measures need to be taken after testing segregation of these who are proven positive. Large testing facilities is the need of the day

CLINICAL MANAGEMENT OF COVID -19 PATIENTS

Dr. Abhuyuday Kumar

Dept. of Anaesthesiology, All India Institute of Medical Sciences(AIIMS) Patna, India. Email ID: drabhyu@gmail.com

80 % of the patients with COVID 19 show either mild or no symptoms. Rest will have moderate and severe symptoms and treatment is given depending on the severity. Infection prevention control is a critical and integral part of the clinical management of patients and should be initiated at the point of entry of the patient to the hospital and to be followed throughout the course in hospitals. Supplemental oxygen therapy should be given immediately to patients with severe acute respiratory infections (SARI) and respiratory distress. Patients with mild COVID-19 should be given symptomatic treatment such as antipyretics for fever and pain, adequate nutrition, and appropriate rehydration. For moderate and severe cases, empirical antibiotics should be started after taking samples for bacterial culture. In patients with severe ARDS, lung-protective ventilator strategies and prone ventilation should be given. A conservative than aggressive fluid therapy is recommended in patients with SARI when there is no evidence of shock. For the management of septic shock crystalloid over colloid is preferred and norepinephrine is considered vasopressor of choice. Hydroxychloroquine and Azithromycin are advised to be considered as an off label indication in patients with severe disease and requiring ICU. There are some ongoing trials on Remdesivir and plasma therapy, which have shown some positive results.

**IDENTIFICATION OF NOVEL PHYTOCHEMICAL INHIBITORS
AGAINST SARS- COV2 (COVID-19) THROUGH MOLECULAR DOCKING
APPROACH**

Prof. Kusal K Das

BLDE (Deemed to be University), Vijayapur, India.

Email ID: kusaldas@bldedu.ac.in,

COVID-19 due to SARS-CoV2, a rapidly spreading new strain of coronavirus, has affected more than 200 Countries and received worldwide attention. The main protease (M^{Pro}) controls and manages the life cycle of this corona virus. Das and his group studied on screening of novel inhibitors against target protein through computer aided drug discovery. Phytochemical as well as synthetic drugs were selected from available database and these compounds were screened using PyRx virtual screening tool. Total 20 best compounds were selected after primary screening and out of 20 molecules, 6 best compounds were selected and molecular docking was performed to find best binding affinity and molecular interaction. Result indicate that top two hits may act as inhibitor as COVID-19. Phytochemical myricetin which is commonly found in fruits and vegetables like raw onion, wild tomatoes, sweet potato or even red wine and known antiviral drug fosamprenavir showed best result with highest binding energy and good interaction with aminoacid residues present in active site of M^{Pro} . These molecules may act as potential target after validation through in vitro as well as in vivo analysis. With these conclusive we can propose that these compounds can be a good therapeutic approach against COVID-19, however before validating, further studies should be carried

through using in vitro and in vivo models so as to declare these compounds as potent drugs.

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TELEMEDICINE IN REMOTE PLACES: HOW TO REDUCE DOCTOR-PATIENT CONTACT DURING THE COVID-19 PANDEMIC

Dr. Augusto Ittig

Red Iberoamericana de Salud Digital (Iberoamerican Network of Digital Health). Emergency Surgeon, Argentina.

Email ID - aeittig@gmail.com

"IN COVID 19 Pandemia one of the strategies is to decrease the contact between suspected and confirmed Coronavirus patients is the use of Telemedicine, going from presential to virtual care. It not only prevents infections, but also preserves health personnel so that they can continue working throughout the pandemic. Here is our eleven-year experience ..."

Telemedicine in the last 11 years and how it helps to reduce the spread of COVID-19

Each virtual consultation is one less chance of viral transmission from the patient to the doctor and from the doctor to the patient

In 2009 we started with the first theoretical experiences of remote connectivity in Brazil in Atibaia, Sao Paulo and we began to see how to transfer the experience of remote connectivity in the electrical area in large electrical distribution networks to the medical area.

In 2010 the first concrete experience was in a salt flat in the Salta puna for a lithium company in the Argentine Republic, in this company, with four nurses and I, we began to provide support to a place five to seven hours away from San Salvador de Jujuy on gravel roads and more than 4,000 m above sea level and from there we progressed where we used very basic connectivity, we used a rustic video platform, we began to see patients and connect them with multi-parameter monitors for better diagnosis and treatment

In 2015 I was incorporated into the national structure of a leading medical coverage company in Argentina where we began to develop the National Telemedicine Network for remote locations, its headquarters is in Buenos Aires and there are 24x7 on-call doctors for 365 days of the year; These on-call doctors who were trained in virtual care are emergency physicians who work in well-known hospitals in Buenos Aires. The care system in this central has three

components: a first telephone exchange where a call comes in requesting virtual assistance, then establishes the video assistance between the remote site and this central by the doctors, this assistance is made in a Box containing a computer, two screens, a webcam, a microphone and headphones; if necessary when the clinical picture is more complex, that doctor passes the video assistance from his Box to a meeting room where the rest of the doctors on duty support the request for video assistance from the remote place among all as if it were a clinical athenaeum.

So the first services to remote places went to lithium mining companies, first in the province of Salta and Catamarca and then in the province of Jujuy, all at 4,000 meters above sea level, but then we continued to support other mining companies in the province of San Juan and then to mining companies in Patagonia in the province of Santa Cruz.

Then we continued to provide services to hydroelectric dams such as the two large Argentine hydroelectric dams.

Then we continued with oil companies first with an Offshore oil company that is located at the entrance to the Strait of Magellan and then with an Onshore oil company that is located in the province of Neuquén in the Vaca Muerta exploitation area.

We also continued to provide telemedicine coverage to offshore fishing vessels that leave the city of Mar del Plata and spend 35 days fishing and fishing on the high seas; from those places we give support to the nurses who work on top of those ships in those days

In 2017 we created RISAD: Ibero-American Digital Health Network with members from all Ibero-America from Spain, Portugal, Mexico, Guatemala, Costa Rica, Colombia, Peru, Ecuador, the United States, Brazil, Chile, Bolivia, Uruguay, and Argentina.

RISAD provides many services, from advising in each of these countries on telemedicine projects for both tele-assistance and tele-education; It generates Congresses in different places in Latin America that were face-to-face until the pandemic that they began to make virtual now. We have meetings with the entire team once a week and eventually group meetings since our Network

works with seven different groups: legislation, tele education, tele assistance, communications, publications, innovation and treasury.

For three years, we have dictated a Virtual Portfolio of Introduction to Telemedicine for students of medical schools from all of Latin America, as was the last edition where seven schools from Latin America actively participated before speakers from the countries of Spain, Mexico, Colombia, Chile, and Argentina.

In 2018, with the same company that developed the remote assistance unit, an Online Medical Consultation service was created in that same Management: an application that supports all our affiliates by video assistance that has been very successful because from March 2018 to March 2020, 35,000 video assistances were carried out, but during the pandemic from March to June, another 60,000 virtual consultations were made, thus avoiding each of these consultations a contact between the doctor and the patient

In 2020 during the pandemic we generated in the province of Jujuy for the Ministry of Health in 15 days, a video consultation system for the general population; This video consultation is free and free for all citizens of the province of Jujuy, they only need to enter the Ministry page to download an application for video and they can have three options for specific attention: for COVID-19, one option of care for general medicine, and a mental health care option

Where are we going?!: I don't know, I have some ideas: on the one hand, the use of "wearerables", that is, of all the elements with portable connectivity that can emit information from smartphones and watches, all these mobile portable elements will help the videoconference between the patient and the doctor to approximate the patient's diagnosis and thus solve cases.

On the other hand, Big Data, Machine Learning and Artificial Intelligence are extremely important tools for the advancement of telemedicine in the very near future.

MOLECULAR EPIDEMIOLOGY OF SARS-COV-2 IN KARNATAKA, INDIA

Prof. V. Ravi

*National Institute of Mental Health and Neuro-Sciences
(NIMHANS), Bengaluru, India.
Email ID: virusravi@gmail.com*

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) a coronavirus that causes a severe acute respiratory diseases in humans called CoVid 19 (Corona Virus Disease 19), as it was first reported in December 2019. Taxonomically, SARS-CoV-2 is a strain of *severe acute respiratory syndrome-related coronavirus1* (SARSr-CoV1) which was discovered in 2003 and referred to as SARS virus. It is believed to have zoonotic origins and has close genetic similarity to bat coronaviruses, suggesting it emerged from a bat-borne virus.

SARS-CoV-2 belongs to the broad family of viruses known as coronaviruses. It is a positive-sense single-stranded RNA (+ssRNA) virus, with a single linear RNA segment. Other coronaviruses are capable of causing illnesses ranging from the common cold to more severe diseases such as Middle East respiratory syndrome (MERS, fatality rate ~34%). It is the seventh known coronavirus to infect people, after 229E, NL63, OC43, HKU1, MERS-CoV, and the original SARS-CoV. Like the SARS-related coronavirus strain implicated in the 2003 SARS outbreak, SARS-CoV-2 is a member of the subgenus *Sarbecovirus* (beta-CoV lineage B). Its RNA sequence is approximately 30,000 bases in length. SARS-CoV-2 is unique among known betacoronaviruses in its incorporation of a polybasic cleavage site, a characteristic known to increase pathogenicity and transmissibility in other viruses.

SARS-CoV-2 virion is 50–200 nanometres in diameter. Like other coronaviruses, SARS-CoV-2 has four structural proteins, known as the S (spike), E (envelope), M (membrane), and N (nucleocapsid) proteins; the N protein holds the RNA genome, and the S, E, and M proteins together create the viral envelope. The spike protein, which has been imaged at the atomic level using cryogenic electron microscopy, is the protein responsible for allowing the virus to attach to and fuse with the membrane of a host cell;^[101] specifically, its S1 subunit catalyzes attachment, the S2 subunit fusion. Protein modeling experiments on the spike protein of the virus soon suggested that

SARS-CoV-2 has sufficient affinity to the receptor angiotensin converting enzyme 2 (ACE2) on human cells to use them as a mechanism of cell entry.

This presentation will highlight the various aspects of virology of SARS CoV2 and relate the structure of the virus and its genomic organization to certain aspects of disease biology we understand as of today.

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ANTIBODY PROFILING: PROSPECT IN COVID-19 DIAGNOSTIC AND THERAPEUTIC LANDSCAPE

Dr. Suvarthi Das

Stanford University Medical Center, California, USA Email ID: suvarthi.d@gmail.com

The novel coronavirus nCoV, now named SARS-CoV2, surfaced in Wuhan city of Hubei province, China for the first time in late 2019. Since COVID-19 was declared a pandemic, there has been a pressing need for rapid diagnostics and immediate therapeutic approaches. Mass antibody testing efforts have come to the forefront amid these, as they can in most cases, rapidly provide an overall broader scenario of the infection status and can successfully detect asymptomatic transmissions. Although qRT-PCR is considered a gold-standard for diagnosis of such a viral disease, the expertise, specialized equipment, the cost, and time involved, called for a more simplified yet reliable approach. The aggressive spread, insufficient knowledge of prognosis about COVID-19, inadequate statistics, absence of, mild and/or varied symptoms etc. made controlling the situation, even more challenging. From the therapeutic standpoint, repurposing of existing drugs and combinatorial treatments have been under trial, but despite, some promising results, none so far could be approved as a universal standard, given the complicated nature of the disease progression and probable side-effects. Importantly, by profiling antibodies, the recovery rates, and possible development of immunity to the virus can be known. This shall pave the way to the correct statistics and aid in proper epidemiological modeling for this pandemic. Understandably, though several strip-based rapid antibody-based diagnostic kits are already available, they can only be used in combination with repeated nucleic acid amplification-based

tests for correct diagnosis. Furthermore, a recovered patient's convalescent plasma can be used for immediate therapy for the seriously ill. Particularly, in countries like India, where the percentage of recovery is pretty high, identifying potential donors and using their plasma for therapy, might be a pliable approach, while we wait for a successful drug mediated therapy or vaccine development. SARS-CoV2 specific monoclonal antibody synthesis and trials reported by some groups enhance the therapeutic possibilities, as well. In summary, despite its pitfalls, public profiling of antibodies against SARS-CoV2 might be a crucial factor in beating the manifold challenges of this pandemic.

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DIAGNOSIS OF COVID-19: LABORATORY PERSPECTIVES

Dr. Sathyanarayan M.S.

Co-Principal Investigator, State Level Virus Research & Diagnostic Laboratory, Bangalore Medical College & Research Institute, Bengaluru, India. Email ID: drsathyams@gmail.com

Corona Virus Disease- 19 (COVID-19), caused by SARS-CoV-2 has affected millions across the globe. World Health Organization (WHO) has promoted the strategy “Test, Test and Test” of suspected cases to address the issue. The role of laboratory in tackling the pandemic caused by SARS-CoV-2 is crucial. In light of the situation, laboratory can be called the ‘nerve centre’ of action, as testing is the bedrock of diagnosis, prognostication, therapeutic monitoring and surveillance. Newer guidelines for testing of suspect cases are released from time-to-time, as the situation is very dynamic. Indian Council for Medical Research (ICMR) has been tasked with the role of framing guidelines for testing. When the infections just started emerging in India, testing was restricted to international travellers, especially from Wuhan, China. Over the next few weeks, testing was expanded to include travellers from other countries which reported cases of COVID-19. Later, testing was undertaken for suspected cases who fall under a number of categories: Symptomatic/ Asymptomatic cases with history of international travel, migrants especially from high case burden states, symptomatic health care workers, pregnant women nearing date of delivery, primary contacts of confirmed COVID-19 cases, among others. Case definitions have also been evolving in this situation. Testing by real time Reverse Transcription Polymerase Chain Reaction (rRT-PCR) using approved kits is considered as the gold standard for SARS-CoV-2. ICMR-National

Institute of Virology (ICMR-NIV), Pune was the first testing site in India for confirmation of these cases. In the next phase, 13 testing sites in various geographical locations of the country were identified and enabled for the purpose. The country, at present has close to 700 testing sites for COVID-19. Various platforms like rRT-PCR (including qPCR, Cartridge Based Nucleic Acid Amplification Test (CB NAAT), microchip based assays), Isothermal amplification, Next Generation Sequencing (NGS), Micro NMR (μ NMR) and CRISPR among nucleic acid tests (NATs for viral RNA) are being evaluated and employed for COVID-19 molecular diagnosis. On the protein tests front for immunoglobulins and viral antigens: Serological rapid detection test (RDT), IgM/IgG EIA/ CLIA, viral antigen tests (VAT) using LFA or ELISA, Microarrays, Virus neutralization test (VNT), Western blots and Immunofluorescence microscopy are being developed. A molecular laboratory setup requires proper infrastructure in terms of layout, equipment and trained human resources. There has been a surge in establishment of molecular laboratories, which has resulted in capacity building of institutions and catering to the high volume of testing undertaken during the current pandemic. On behalf of ICMR, State Level VRDL, BMCRI performed the performance evaluation of microchip based rRT-PCR assays, TrueNat Beta CoV for screening using E gene and TrueNat SARS-CoV-2 for confirmation using RdRp-2 gene target. These point of care (PoC) assays had 100% concordance with the results of rRT-PCR ICMR-NIV protocol. PoC assays have multiple benefits, including requirement of minimal infrastructure/ training and these can be used in field settings. Serological assays are being evaluated and recommended for sero-surveillance in the population by ICMR. ICMR-NIV has

developed an IgG EIA, which is expected to be used for this purpose in the coming days.

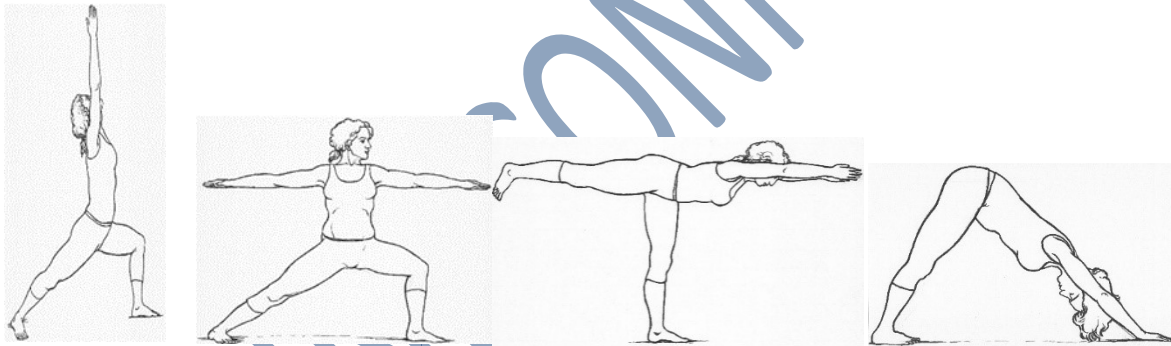
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THE PSYCHOSOCIAL GENOMICS OF THE WARRIOR VIRABHADRA

Dr. Kathryn L. Rossi

*Milton H. Erickson Institute of the California Central Coast MHE-CCC,
USA. Email ID: kathryn@ernestrossi.com*

We explore 1-Stage Creative development of PsychoSocial Genomic through Virabhadra, the Warrior. How do the ethics of yama and niyama, ancient stories and movement through asana impact our conscious growth, understanding and comfort in this current world of confusion? Can we map actual gene expressions to these behaviors in real time for individual seekers?



Prepare
Swords of Intent
& Courage
Virabhadrasana A
Warrior A

Act
Decisive & Bold
B
Warrior B

Reframe
Let Go
Digāsana- direction
Warrior C

Rest
New View
AdhoMukha Śvānāsana
Downward Facing Dog

**TERRAIN AYURVEDA - REDEFINING RESEARCHES IN AYURVEDA TO
PREVAIL ON COVID19**

Dr. Sudheer Ayyappan

Sree Hareeyam Ayurveda, Chennai, India Email ID:

sudheerayurveda@gmail.com

Terrain Ayurveda is a novel concept proposed to enable researchers across different branches of science to frame new ayurvedic principled research protocols on understanding the interaction of a human body with microbes and herbs, based on the existing least researched terrain theory of microbes. Understanding Terrain Ayurveda is vital for the Ayurveda world to win over covid 19 as neither translating ayurveda terminologies, as contributed by the meticulously executed NAMASTE portal (National AYUSH Morbidity and Standardized Terminologies Electronic Portal) nor the millions spent on conducting scientific researches till date, through a course of few decades, across the world, to appease existing popular antiviral approaches, that evaluate herbs- have truly enabled Ayurveda as evidence based medicine to treat covid 19.

ROLE OF ACUPUNCTURE IN PREVENTION & CONTROL OF COVID-19

Dr. M.Manoharan

***Sr.Consultant (Acupuncture Dept), Sri Sri Holistic Hospitals,
Hyderabad. Email ID: manoharan303@gmail.com***

Acupuncture is a system of medicine which is more than 5000 years old, considers human being is a part of nature and connection between heaven and earth. Heaven being the yang aspect and earth is the yin aspect ,the human being is controlled by the forces of yin and yang. A person is healthy as long as the balance between yin and yang is maintained (Good Immunity) and any imbalance (weakened immunity) between them can cause a disease internally or allow the external influences such as extreme cold / heat or pathogens like virus / bacteria can affect the body by taking advantage of the weakened immunity.

Covid-19 is a disease which primarily affects the Lung , Spleen/Stomach (Respiratory and Digestive System). Lung as per Chinese five elements is considered as METAL and responsible for protecting the body as a Shield, increasing the ‘Defensive Qi’ (immunity in general terms) of the body. TCM role of Lung is Governing Respiratory System, managing water pathways, Improving immunity, controlling the skin , mucus, ability to smell and control nose affections.

Spleen / Stomach as per Chinese five elements is considered as EARTH and responsible for digestion system and absorbs the nutrition from the food , nourishes the muscle and fat, circulate blood and fluids, controls production of phlegm, ability to taste, memory function and controls mouth affections and saliva.

It is noted that the symptoms start with ‘damp cold in lung & spleen ’ then ‘damp cold blocking the lung’ and proceed to 'Extreme lung obstruction' to cause a collapse. In treatment of confirmed cases the point selection will be based on the stage. 1.The strategy for preventing the corona virus is to create a hostile environment for the virus not to hold and survive. The corona virus likes cold, damp and stagnant conditions. Hence create heat , warmth in the body

and drive dampness away. 2.Keep the energy moving to avoid coldness in the body. 3. If cold and dampness is present expel them with Acupuncture and Moxibustion. 4. Stimulate the Qi of Lung and Spleen by selecting appropriate acupuncture point for needling and increase the lung immunity and spleen efficiency. 5. The acupuncture or Moxibustion point selection is done based on the patterns of symptoms the disease is producing and interaction of five elements in the body.

ONLINE CONFERENCE

STRUCTURE-BASED IDENTIFICATION OF POTENTIAL INHIBITORS OF SARS-COV-2 MAIN PROTEASE

Md. Imtaiyaz Hassan

Centre for Interdisciplinary Research in Basic Sciences, Jamia Millia Islamia, Jamia Nagar, New Delhi 110025, India, E-mail: mihassan@jmi.ac.in

The sudden emergence of severe respiratory disease, caused by a novel coronavirus (SARS-CoV-2), became a public health emergency. Genome sequence analysis of SARS-CoV-2 revealed a close resemblance to the severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV). The main protease is one of the most characterized drug targets of the CoVs as this enzyme is essential for processing the polyproteins required for viral assembly. To address coronavirus disease (COVID-19), currently no effective drug or vaccine is available. In this regard, drug repurposing is the best choice to explore potential lead compounds available in different databases targeting the main protease (M^{pro}) enzyme of SARS-CoV-2. The M^{pro} enzyme plays a key role in mediating viral replication and transcription and thus being considered as an attractive drug target. By using structure-based drug design, pharmacophore modeling and virtual high throughput drug screening combined with docking and all-atom molecular dynamics simulation approach, we have identified five preclinical leads as potential inhibitors of SARS-CoV-2 M^{pro} . MD simulation studies revealed atomistic insights into the binding mechanism of selected inhibitors to the functionally important residues of M^{pro} . In other study, we have identified Glecaprevir and Maraviroc as the best inhibitors of CoV-2 M^{pro} . Both drugs bind to the substrate-binding pocket of SARS-CoV-2 M^{pro} and form a significant

number of non-covalent interactions. Glecaprevir and Maraviroc bind to the substrate-binding pocket of SARS-CoV-2 Mpro which is highly conserved among all the structures of SARS-CoV-2 Mpro. This work provides sufficient evidence for the use of Glecaprevir and Maraviroc for the therapeutic management of COVID-19. Our study identified best compounds that could be used as a promising lead to fighting COVID-19 infection as these compounds fulfill all drug-likeness properties. However, clinical validation is required for proper therapeutic implications.

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**MOLECULAR EPIDEMIOLOGY OF SARS-COV-2 IN KARNATAKA,
INDIA**

Dr. Chitra Pattabiraman
National Institute of Mental Health and Neuro-Sciences
(NIMHANS), Bengaluru, India. Email ID:
chitra.nimhans@gmail.com

We used whole genome sequencing of SARS-CoV-2 genomes to perform genomic epidemiology of COVID-19 in Karnataka. We were able to identify multiple clusters across 6 high burden districts in Karnataka. In my talk I will discuss the sequencing strategy and analysis workflow. Preliminary analysis suggests multiple independent introductions into Karnataka followed by local transmission as of mid May 2020.

RESPIRATORY FAILURE DUE TO GAS DIFFUSION LIMITATION

Dr. Giuseppe Miserocchi

*Department of Medicine and Surgery, Università Milano Bicocca,
Milan, Italy. Email ID: giuseppe.miserocchi@unimib.it*

Covid pneumonia, currently referred to as “interstitial pneumonia”, is a specific case of acute respiratory failure due to remarkable gas diffusion limitation. This talk will review the very first steps triggering a sequence of events leading to severe lung edema that ultimately characterizes what is commonly referred to as “acute interstitial lung disease”. These events occur within the first 3-4 hours after a trigger event. Knowledge of these events might turn useful for decision making concerning therapy. It might also be useful to outline how to define quantitatively the impact of a diffusion limitation on gas exchange. In case of a damage involving a large part of the lung, thus with a remarkable limitation to gas diffusion, the acute problem is to rely only on the available part of the lung that can still contribute to gas exchange. Two options are available to assist the patient and decision making is obviously a difficult task, based on the severity of the disease. A mandatory target is that to preserve the function of the lung portion still assuring gas diffusion. The options include: mechanical ventilation in intensive care unit (ICU) or careful management of the patient avoiding mechanical ventilation. Advantages and disadvantages of the two options will be discussed.

INDIAN SARS-COV-2: HOW MANY STRAINS ARE THERE?

Dr. Kumar Somasundaram
Microbiology and Cell Biology, Indian Institute of Science,
Bangalore 12, India Email: skumar1@iisc.ac.in;
ksomasundaram1@gmail.com

A novel corona virus (SARS-CoV-2) causes acute respiratory disease (Coronavirus disease 2019; COVID-19), which was initially found in China but now it is spread all over the world. World Health Organization (WHO) declared COVID-19 as a pandemic disease on March 11, 2020. While the number of COVID-19 cases has increased to more than 6.6 million world-wide([https://www.arcgis.com/apps/opsdashboard/index.html#/bda7594740299423467b48e9ecf6](https://www.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6)), it has just crossed over two lakhs in India (<https://www.mohfw.gov.in/>) (as on 5th June, 2020). The low infection rate in spite of the fact our population contributes to one third of world's population, could be contributed to various reasons like long lock down with effective social distancing, active identification COVID-19 patients and quarantining them with proper treatment, presumed cross immune protection and possibly variation in the viral strain that are introduced or prevalent in India. Comparison of viral genome sequences from different regions/countries of the world allows us to identify the genetic diversity among viruses which would help in ascertaining viral virulence, disease pathogenicity, origin and spread of the SARS-CoV-2 between countries. The objective of our study is to ascertain the genetic diversity among Indian SARS-CoV-2 viral isolates in comparison to the strains that are occurring world-wide. In addition to identification of types of viral strains in India, it is anticipated that our study will help us to

understand source of virus origin, route of spread, transmission dynamics of the virus, disease severity, possible viral strains for vaccine development, right type of diagnostic kits and possibly developing relaxation models of social distancing. During the talk, I will discuss our current progress future directions related to functional genomics of Indian SARS-CoV-2 isolates

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CARE OF COVID-19 IN THE NURSING HOME ENVIRONMENT

Dr. Oscar Murillo

*St. Lukes University Hospital, Bethlehem, PA, USA. Email ID:
oscarmurillo53@gmail.com*

COVID-19 related fatalities account as of today for 110,000 deaths in the United States Long-term care residents in our nursing facilities account for 40% of those fatalities. I will relate my experience in taking care of the COVID-19 patients in the nursing home environment who wished to remain in the nursing home. I will also discuss my initial approach, future measures that the homes need to take in order to decrease the high mortality rate that we have seen.

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MY EXPERIENCE IN TREATING COVID 19 CASES WITH HOMEOPATHIC SIMILIMUM

Dr. Pradeep Kumar Gupta

***Department of Materia Medical @ Naiminath Homoeopathic
Medical College, Hospital & Research Center, Agra, India.***

Email ID: nhmcagra@gmail.com

The speaker's primary aim in this talk is to share his experience of treating Corona virus infected cases with Homoeopathy. The speaker is a primary investigator and an integral part of research projects which are being conducted for novel corona virus - Covid 19 infection. The global public health emergency of COVID-19 pandemic disease caused by severe acute upper/lower respiratory distress syndrome coronavirus 2 has been unfolding rapidly that emerged in Wuhan, China and has now spread to at least 212 countries. So far, as on date 2nd June 2020, 6, 394, 316 globally confirmed cases, 377,966 deaths are reported which is "Very High" under WHO risk assessment. In India, 199,757 cases and 5612 deaths are reported as on 2nd June, 2020, according to Ministry of Health & Family Welfare. Naiminath Homoeopathic Medical College, Hospital and Research Centre, Agra in which the speaker is Principal, has conducted four studies in this regard. These studies have been conducted chronologically one after the other and have better equipped the speaker to deal with this deadly virus. The journey started on 10th March, 2020 by treating flu like illnesses in the Out- patient department of the Hospital where these patients were prescribed Homoeopathic Medicine based on totality of symptoms gathered during case taking. The two pilot studies of flu like illnesses concluded on 21st April 2020 where 216 patients were enrolled. Out of 216

patients, 163 were cured, 50 improved while 3 patient did not experience a significant improvement. The next study was undertaken with an aim to document a Genus Epidemicus against novel corona virus - Covid 19 infection by recording, evaluating and analysing general, special and peculiar symptoms of several Covid 19 patients which were tested positive in RT- PCR test specific for SARS-CoV-2 in order to get totality of symptoms by obtaining a complete survey of this morbidity currently occurring as pandemic. An interview of 570 patients (resulted positive in RT-PCR test specific for SARS-CoV-2) was conducted with the help of a schedule and an interview guide. Through this, vital information regarding patient's source of infection, onset of symptoms, symptoms along with generalities and concomitants, pre-existing medical conditions was captured. Based on these symptoms, a group of medicines was evolved by the method reportorial approach to the case. The medicines Arsenic Album, Bryonia Alba, Phosphorus, Sulphur, China, Natrum Mur, Aconite Nap., Veratrum Album and Gelsemium were the pool of medicines after repertorization. Based on our knowledge of Materia Medica Pura and the morbid picture of the patients, maximum number of totality was covered by Arsenic Album & Bryonia Alba as a large number of patients had intense anxiety for future, work, business, & home, dry cough, extreme thirst for large quantity of water and desire for rest. Also, the current weather has been favour of the prescribing of Bryonia Alba. This made Bryonia Alba the proximate drug of choice as the Homoeoprophylaxis among the medicines procured during the reportorial analysis. The fourth study is a Randomised Clinical Trial titled "Homoeopathy as an adjuvant to standard treatment protocol in management of corona virus infection – A randomized, placebo controlled, open label study" is undertaken in technical collaboration with Central Council for Research in

Homoeopathy, New Delhi. The study is currently going on and significant results are being seen every day. The results are validating the role and effect of remedies deduced from earlier studies and Homoeopathy in general. The journey has been long, insightful full of hurdles and difficulties. It is not yet over but the speaker is confident and determined to prove the efficacy of Homoeopathy in defeating novel corona virus.

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**NUTRACEUTICALS, NUTRITION FOR IMMUNITY--KEY TO FIGHT
AGAINST COVID19**

Dr. Anuradha, M

Padmashree Institute of Management and Sciences, Bengaluru, India

Email ID: pimsprincipal@gmail.com

Globally there is an increasing trend towards mental ailments for multiple reasons including lifestyle and stress factors. There is promising interest in utilization of alternate methods which can improve the mental health. The adjunctive use of nutrition and nutraceuticals has the potential to modulate the symptoms of mental illness including depression and mood disorders. There is a surge in research and development in this area, however there is limited scientific validation and systematic review. In the present study a comprehensive review with respect to nutraceuticals and their alleviating potential of mental illness is discussed.

NUCLEIC ACID VACCINES: NOVEL STRATEGIES FOR THE DESIGN AND IMMUNIZATION –

Dr. S.Arun,

National Centre for Biological Sciences, Bengaluru,

Email ID: asankaradoss@ncbs.res.in

Nucleic acid vaccines (NAVs) based on either plasmid DNA or mRNA are being developed as a means to combine the positive attributes of live-attenuated and subunit vaccines. Genetically engineered DNA/RNA can be delivered in vaccine form, which has a remarkable record of safety and immunogenicity in numerous recent clinical trials. NAVs elicit more sustained cellular responses and more consistent antibody responses capable of mediating long term protection, opens up this platform to be examined in both preventive and therapeutic arenas. Plasmid DNA vaccines have been extensively evaluated in human clinical trials and be safe and immunogenic, however, the low immunogenicity could compromise the application in humans. In recent years, many efforts have been made to enhance the immune responses elicited by DNA vaccines, which includes RNA/codon optimization, antigen consensus to enhance expression, leader sequence utilization, prime-boost regimens, and the improvement in new *in vivo* delivery strategies including electroporation (EP). We propose to study the feasibility of generating a much more robust immune response using the synthetic vaccine approach delivering polyvalent DNA vaccine coding for DENV consensus antigens from all four serotypes. The enhanced synthetic consensus DNA vaccine strategy could effective to design a vaccine against COVID 19 and a range of emerging infectious pathogens.

DIAGNOSIS AND TREATMENT OF COVID-19 USING TRADITIONAL ACUPUNCTURE AND MOXIBUSTION –

Dr. Debasis Bakshi,

Dept. of Acupuncture-Moxibustion, Indian Research Institute for Integrated
Medicine (IRIIM), Mourigram, Howrah 711 302, West Bengal, India,
E-Mail: drdebasis56@gmail.com

Introduction: Corona Virus Disease 2019 (COVID-19) is an acute respiratory ailment with main clinical manifestations like fever, fatigue, dry cough and developmental dyspnoea. It is highly infectious and with remarkable dimension of susceptibility and so possesses a serious threat to people's health. It belongs to the category of pestilence in traditional acupuncture, caused by epidemic pathogen invading the body, characterized by dampness, heat, and poison including blood stasis. "Acupuncture", is an ancient and traditional system of medicine for the treatment of medical problems, which means puncturing standard needles (Acupuncture needles) at appropriate sites of the body, called Acupuncture points (Acu point). Moxibustion is an associated stimulation method of acupuncture points wherein heat is applied by igniting dry leaves of *Artemisia vulgaris* or Moxa (Mugwort), a specific herb available at Himalayan range. Basic concept of Traditional Acupuncture (TA) is Holism. It refers to the comprehensive consideration of human body (the inner) and natural surrounding (the outer), includes two aspects: (i) human body as a whole & different body parts, *zang*-viscera and *fu*-viscera, the interlinked meridians of the body and ii) the unification of human body and the surrounding. In diagnosis, consideration of disease and the surrounding is a must. Besides, the tiredness, mental stress and improper diet can affect the visceral functions and cause disease. Diseases of viscera may range from a lower endurance to tiredness, mental changes and poor appetite, etc. During the long period of medical practice in TA, some diagnostic verticals like observation, auscultation & olfaction, interrogation and palpation including syndrome differentiation developed. Recently, modern scientific methods are considering the conduction of these diagnostic methods and syndrome differentiation in combination with traditional methods. *Acupuncture & Moxibustion (AM) Treatment for COVID-19:* Divided into three stages: (i) *Prevention stage:* Principle of treatment is to

enhance the Immunity (*Wei Qi*) and to strengthen healthy energy (*Zheng Qi*) for the benefit of *Fei-Lung* and *Pi-Spleen* functions to combat foreign pathogens. Primary acu-points selected based on individual symptoms like fever, abdominal disorders, fatigue & poor appetite, clear nasal discharge, sore & painful back etc. (ii) *Treatment stage*: Acupuncture is applied to interrupt disease progress. The primary acu-points selected based on individual symptoms like persistent fever, chest tightness and shortness of breath, coughing with sputum, loose stools, diarrhea, cough with yellow & sticky sputum, constipation, nausea, low grade fever etc., (iii) *Recovery stage*: Acupuncture is applied by eliminating pathogenic factors (*Pathogenic Qi*) from the body and to recover lung and spleen functions. The primary acu-points selected based on individual symptoms for lung (e.g., chest tightness, shortness of breath) and spleen (e.g., poor appetite, diarrhea) *Qi* deficiency. Application of Moxibustion : Indoor moxa fuming can be used to prevent COVID-19, volatile oil produced by the burning moxa stick can relieve cough and asthma, moxa smoke produced by the burning moxa stick has a broad spectrum anti viral effect. *Discussion*: In the face of pestilence, AM with characteristics of simplicity, convenience, low cost and effectiveness certainly could play a positive role in the prophylaxis and treatment of COVID-19. *Conclusion*: In India, AM is not yet recognized nationally (except in two states). So, formally COVID-19 patients cannot be treated by AM as per Govt. of India guidelines. But acupuncturists of India have vast experience in treating same clinical conditions mentioned above in many Respiratory acute & chronic illnesses, but not COVID-19. After the outbreak of COVID-19, People's Republic of China and few other countries have well tried on COVID-19 patients in different stages with a remarkable result. We sincerely hope that if allowed officially, in India we can create suitable conditions and strive to play the role of AM in all clinical stages. AM can be used together with any other medicine to play the synergistic role for the benefit of suffering humanity.

CONSENSUS RECOMBINANT SUBUNIT VACCINES FOR VIRUSES –

Dr. Meenakshi S Iyer,

National Centre for Biological Sciences (NCBS), Bengaluru.

Email ID - meenakshis@ncbs.res.in

Consensus subunit vaccines have been designed for a variety of pathogens, including viruses, in which conventional vaccine strategies failed to induce immune responses (Sette et al., 2001; Sette and Fikes, 2003). This strategy has shown promising results in genetically complex pathogens such as, HIV, influenza A virus, among others (Meyerhoff et al., 2017; Carter et al., 2016; Vijayachari et al.; 2015). Many studies have shown that consensus sequences which include information from all the strains of a pathogen elicit better immune response compared to a single representative strain (Moutaftsi et al., 2006; Yan et al., 2007). The design is able to include both conserved and variable sites, without altering the structure or function of the proteins. Although this approach can be used for any virus, like SARS-CoV2, I would be describing about a consensus vaccine against dengue virus, as a case study.

Although the first infection with dengue is self-limiting, a second infection with a heterotypic virus causes a severe disease. This is thought to be due to the presence of circulating non-neutralizing cross-reactive antibody causing antibody-dependent enhancement (ADE) (Taylor et al., 2015). Since, there are no effective medicines and there are four serotypes of dengue, it becomes important for developing tetravalent vaccines capable of inducing balanced immune responses and broad protection against all four serotypes simultaneously (Wang et al., 2019). This could be accomplished by using four separate components (monovalent vaccine) or a single vaccine with representative epitopes or consensus sequences from multiple strains (tetravalent vaccine). The E glycoprotein of DENV is a major component of the surface of DENV and a primary target for neutralising antibodies (Beltramello et al., 2010). I will be describing the development of a pan-dengue E protein-based vaccine using consensus approach. The consensus approach is expected to offer protection from the different strains in each serotype. The preliminary screening has yielded positive results and we are testing whether the vaccine is able to confer a balanced immunity against all serotypes.

AYURVEDA`S PERSPECTIVE ON COVID 19 –

Prof. DR.G.G.Gangadharan,

Ramaiah Indic Specialty Ayurveda - Restoration Hospital, Bengaluru

Email: vaidyaggganga@gmail.com

The COVID-19 pandemic is the latest novel disease causing agent in the world, and has health officials and policy makers scrambling to find a solution. The disease itself remains incompletely understood, and seven months after its first occurrence in Wuhan China, conventional medicine is yet to identify a cure or a vaccine. Ayurveda, a five thousand year old system of Indian medicine views pandemics, infectious disease causing organisms, and their symptomatology through a much larger holistic lens, that refuses to reductionistically look at disease as a function of a target and a receptor, but as a larger loss of harmony between the body and the world. This presentation will attempt to elaborate briefly an Ayurveda understanding of the COVID-19 pandemic.

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PSYCHOSOCIAL IMPACT OF COVID 19

**Dr Virupaksha H S , MS Ramaiah Medical College and Hospitals, Bengaluru,
India**

Pandemics were largely unknown to the current generation. There are almost 7 million people infected and more than 400000 death making it one of the most devastating illness in recent times. COVID 19 has been declared as pandemic by WHO and has affected more than 195 countries with unprecedented infection rate and deaths. The fear of contracting COVID, lockdown related issues, stigma, economic slowing etc have put tremendous pressure leading to various psychosocial issues including risk of suicide. This session will focus on various mental health issues that can be encountered and steps to prevent and manage the same.

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VACCINE FOR COVID 19

Dr. Balakrishna Pisupathi, The International Initiative on Knowledge Management (IIKS)

The advancements in treatment and finding a vaccine for COVID 19 is possible because of unprecedented collaborations that occurred in science. Open data, open source information, pre peer review publications have all contributed to the advances during the past few months.

Dr. Balakrishna will be speaking on how open data and science is poised in the future and the challenges countries will face once a drug or vaccine is found and ready for commercial use.

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MULTIPLE ORGAN DYSFUNCTION SYNDROME - COVID_19 (MODS- COVID-19): A NEW DEFINITION

Dr. Paolo Pelosi

University of Genoa, Italy

SARS-CoV-2 is still a poorly known disease, initially described as a viral pneumonia with features similar to acute distress respiratory syndrome (ARDS). However, clinicians have progressively understood that this virus causes an “atypical” picture of ARDS; moreover, SARS-CoV-2 presents also a systemic involvement of peripheral organs, which is probably the results of the activation of cytokines and coagulation cascade. This results in the occurrence of a high number of non pulmonary complications which involve the cardiac, coagulative, neurological, abdominal system and are associated with increased mortality and morbidity. Current research does not allow to provide the clinicians with specific guidelines to treat non pulmonary complications in COVID-19 patients, and in our opinion, physicians should follow the general clinical principles used in the non COVID-19 populations. Research aimed to clarify the mechanisms, clinical features, and management of this disease is urgently needed. Future investigations should focus on exploring the pathophysiology of multiorgan dysfunction and on the study of new therapeutic targets and in the individualization of the treatment with personalized approaches to COVID-19 management.

RNA WORLD Reality in Real Time

Prof. Malali Gowda,

Founder and Director of Bengaluru Genomics Center, Bengaluru, India

Email ID: hereditydecoder2020@gmail.com

Abstract: COVID-19 - CORONAVIRUS DISEASE - 2019 origin and become contagious in Wuhan, China from December 2019. Now COVID-19 infected over 7 million people across the world. The top most COVID-19 cases are occurred in the USA, Brazil, Russia, China, India and UK. COVID-19 is a single stranded RNA virus, predicted to be more wide spread in multiple cycles of infection and damaged the economy and livelihood of humans. We need to revisit RNA evolution on planet earth and impact on life survival.

RNA viruses are evolved much earlier than the eukaryotic life forms. The origin of life was hypothesized to be from single stranded RNA in the inorganic world. The single strand RNA molecule is highly dynamic and transformed to double stranded RNA and DNA molecules. RNA viruses are short in length and limited coding capacity, but viruses are rapidly challenging human immunity. As of today, most viruses are challenges to human antiviral drugs or vaccines because they undergo rapid mutation process to escape from drugs or host immunity. The innate nature these RNA viruses copied to complementary DNA (cDNA) and invade the host genomes. These retro-viruses are locked to host genome forever and undergo stable germ line transmission to next generation. Human immunodeficiency virus (HIV) is the best studied viruses, which spread to human population via Chimps in 1920 in Africa. The HIV target germline transmission and integrate human genome. Host defense system is the most important factor to combat many viral diseases like AIDS and COVID-19. Human RNA is also highly dynamic and create spectrum of RNA species including RNA edits, alternative splicing, chimeric RNAs, small RNAs, etc. COVID-19 is new to scientists; understand the host genes in response to COVID-19 infection is utmost important. Boosting human immunity using traditional medicine or herbs is one of ways to manage COVID-19 spread.

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POSTER ABSTRACTS

IMPACT OF COVID-19 PANDEMIC ON FOREIGN NATIONALS AND OUT OF STATION STUDENTS STUDYING IN PUNE CITY, INDIA

K.P. Sandalu Romeshika Perera, Bhavana Reddy Mallu and Dr. Sneha Joshi,

Department of Biotechnology, Fergusson College (Autonomous), Pune

COVID-19 has caused students and universities alike to adapt quickly to changing circumstances. The uncertainty felt by the world in the face of COVID-19 is, unsurprisingly, mirrored by students. This survey was conducted to understand the impact of COVID-19 on foreign and out of station students stranded in the parent institutional city, Pune because there was very less preparation time and information available regarding the situation. The aim of this research was to find the difficulties the students face in the Pune Metropolitan city in India, due to Pune being the most affected by the pandemic after Mumbai in the state of Maharashtra. We are also aiming to raise awareness among the related authorities in taking proper action on their problems. The questionnaire was answered by 234 individuals, out of which 56.8% were Indian Nationals and 43.2% were Foreign Nationals. Highest amount of responses were from students following undergraduate courses (66.2%). Many of them state that the precautionary measures taken by the locals are moderate. The major problem affecting majority of the sample population has been the "Availability to travel" as the borders were closed and the country entered into a lockdown period. Students have received a lot of social and academic support during the lockdown period. Up to date the final year students have not been informed about the examination pattern and that problem should be brought into light. The recommendations given in the poster will help relevant authorities to take firm, fast and flexible decisions based on the research findings in an emergency situation like this in future. The research report generated will facilitate all the related higher educational authorities to help frame their decisions accordingly and to better support the stranded students in every possible way they can. We would also like to express our gratitude to all those who took time in this difficult and challenging time to participate in our survey.

SYSTEMATIC REVIEW ON THE RELATIONSHIP BETWEEN VITAMIN D AND SARS-CoV-2

***Lavanya Suresh Iyer ,Kusum Jaikishan Daby, Samiksha Adarsh
Jambhulkar and Dr. Sneha Joshi***

Department of Biotechnology, Fergusson College (Autonomous), Pune

The COVID-19 pandemic that had originated in Wuhan Province of China in December, 2019 has rapidly spread to different countries world-wide within a span of few months. Despite the strict lockdown and quarantine measures imposed, the pattern of spread of COVID-19 infections in different countries is starkly different.

It has been observed that the countries in the northern hemisphere such as Spain, Italy, Sweden and Switzerland reported the first COVID-19 infections in the winter season. Subsequently, the virus spread rapidly in these countries leading to a steep rise in cases. Despite not being very densely populated, the mortality rate due to the COVID-19 infections was also very high. It is important to note that the countries in the northern hemisphere experience very little sunlight and the vitamin D deficiencies in these countries are very high.

In comparison, although countries belonging to the Southern hemisphere, such as Australia, India and Africa have reported an increase in COVID-19 infections, the ratio of the total number of SARS-CoV-2 infections to the overall population of these countries is very less. The onset of the infection in these countries was during summer and the Vitamin D status amongst people is also good. This could be an influencing factor in the decreased rate of COVID-19 spread in the southern hemisphere.

Through this review, we aim to discuss the role of Vitamin D in protecting against SARS-CoV-2 infections.

COVID-19: VISUALIZING THE INDIAN SCENARIO

Priyanjali Dias, Anagha Bhagat, Sahina Sabnam and Dr. Sneha Joshi

Department of Biotechnology, Fergusson College (Autonomous), Pune

The spread of the novel coronavirus outbreak in Wuhan, China compelled all nations of the world to strategize and prepare for the situation before their citizens contracted the virus. India, a diverse country in terms of its culture, ethnicities, and geographical differences bears a robust population of over 1.3 billion people. Owing to the high pathogenicity of the virus, several hypotheses were developed and strategies were implemented in view not only to eradicate the virus but also to restrict its spread as far as possible. Surprisingly, contrary to what was expected, the death rate due to COVID-19 in India, as compared to that observed in America, Italy, and Spain, was found to be on the lower side. This study was carried out to analyze the potential causes of this observation. Some factors that we considered were temperature, overall immunity, BCG, and MMR vaccination. Additionally, strategies opted by the government - like precisely timed nationwide lockdowns, immediate setting up of test centers and online helplines, effective use of 'AAROGYA SETU' application, and prophylactic treatments suggested by AYUSH may have further led to a reduction in the death rate. The future course of the pandemic in India is likely to be affected by pollution, climate change and more importantly the then opted strategies to ensure sanitation and proper social distancing to manage a population of 1.3 billion.

LETTER TO EDITOR

Dr. Parimala S

**Vasishth Academy of Advanced Studies and Research, 1st Main, 9th Cross, Srinidhi
Layout, Chunchaghatta, 7th Phase J.P.Nagar, Bangalore-560062**

Dear Editor,

The word Pandemic cannot be used lightly. It carries lot of explicit implications about a serious Health issue globally and WHO announced COVID19 as one such pandemic on 12th of March 2020.

Historically it is proven that none of the Pandemics could be controlled. However in the present case there were 77 countries and territories with no reported cases, About 55 countries and territories have reported 10 cases or less(*WHO DG speech*, n.d.)).

India ranks 41st among the 195 countries affected with novel Corona virus so far. The good news is that the impact of this virus has been about 500-2000times lower compared to other affected European countries(Devadasan, n.d.).

The case fatality rate of n COV in India was reported to be about 4.5% as on 27th March 2020, based on the available data. However taking the Median measure, which is the 50th percentile of CFR it would still reduce to 0.4 %. Though these data suggests that India seems to be following a different trajectory in the number of corona positive cases unlike China and Italy, we cannot totally ignore the simulations and mathematical propositions of exponentially increasing numbers.

HOW SAFE IS IT TO METAPHORICALLY NAME COVID 19 AS A WAR????

Dr. Parimala S

**Vasishth Academy of Advanced Studies and Research, 1st Main, 9th Cross, Srinidhi
Layout, Chunchaghatta, 7th Phase J.P.Nagar, Bangalore-560062**

India has been in news for many good reasons since about a month or two. Amidst the hues and cries raised against violation of human rights, imposing autocratic leadership etc the biggest democracy issued the biggest ever lockdown on its citizens. Now that 3 bouts of this lockdown has been over and today most of the ones who raised their protests against the lockdown has agreed that there wasn't any other option to curb the chain of transmission of novel corona virus.

However is it right on the part of politicians across the world and the apex health agencies to address this crisis as a war? The metaphoric equivalence of the present crisis with war to inculcate the gravity of this situation in the people, may as well have a significant impact on their mental health and sense of security. It is true that people all over the world including the leaders, politicians, health professionals or business men had not anticipated this kind of havoc by a micro-organism. But now that we are facing the issue we need to find viable solutions to live and sail across the crisis.

SARS-COV-2 TARGETS FOR COMPUTATIONAL PROCESS OF DRUG REPURPOSING

Almas Jabeen, Dr. Khalid Raza and Dr. Nadeem Ahmad

Department of Biosciences, Jamia Millia Islamia, New Delhi-110025, India

The novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is an enveloped, positive-sense, single stranded RNA beta coronaviruses of zoonotic origin which is responsible for notorious Coronavirus Disease (COVID-19). It emerged in December, 2019 rapidly spreading over hundreds of countries all over the world in an alarming proportion, making it a pandemic. This outbreak led to an immediate global response by countries worldwide to take imperative healthcare measures and researches in order to fight against the disease. The research community is striving hard to find the potent pharmacological treatments against COVID-19. The rapid generation of scientific data and findings regarding SARS-CoV-2 has provided us with several possible drug targets and antiviral drug candidates. This paper systematically describes the potential druggable targets in SARS-CoV-2. Moreover, the basic computational pipeline for drug repurposing process against the target falls within the scope of the paper.

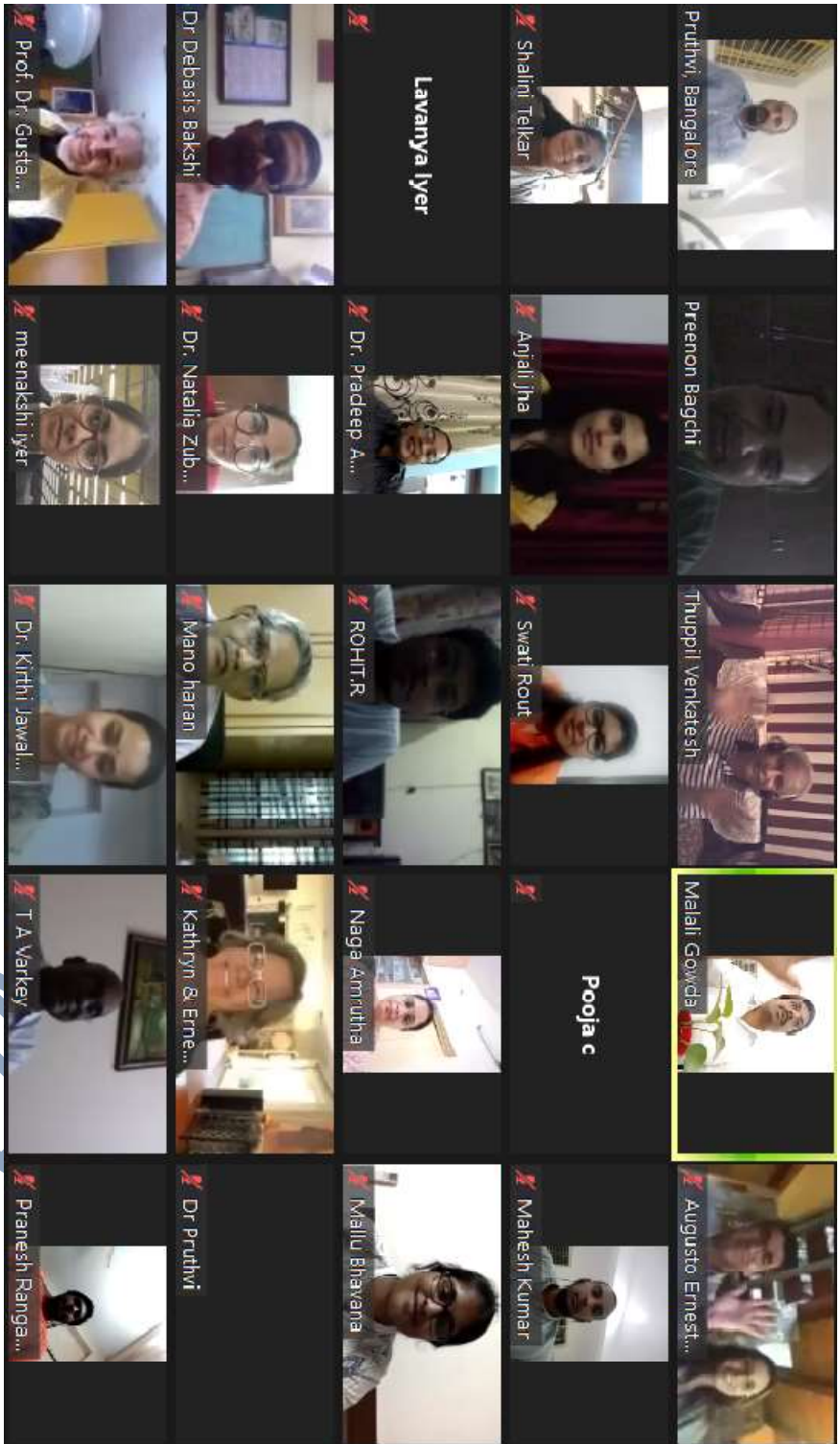
IMPACT OF SOCIAL DISTANCING ON THE MENTAL WELL BEING DURING THE CORONA 19 PANDEMIC

Dr. Parimala S

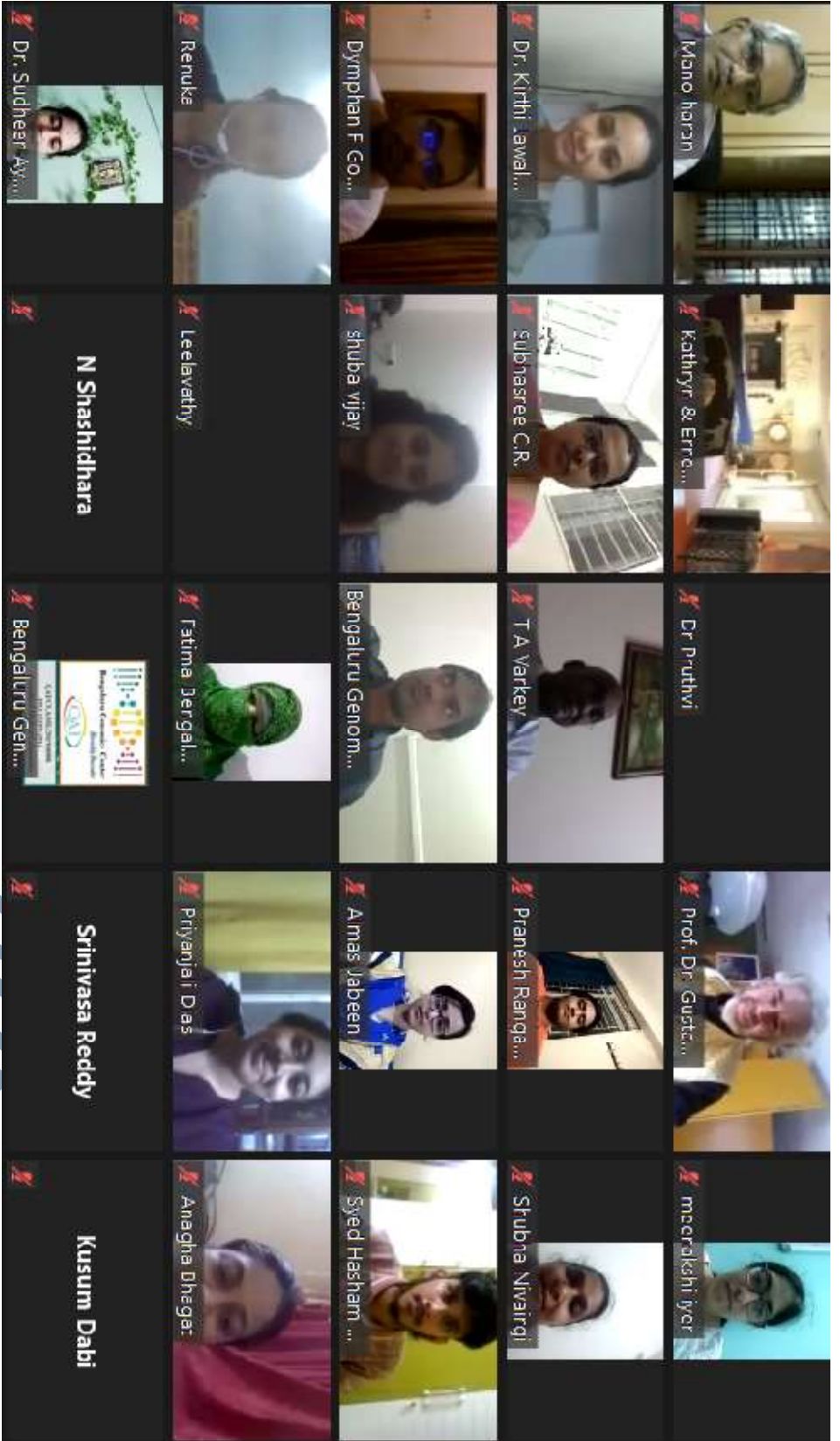
**Vasishth Academy of Advanced Studies and Research, 1st Main, 9th Cross, Srinidhi
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Those who have knowledge about the history of Public Health will be aware that such pandemics and epidemics are not new to us and civilizations as well. However, for the younger generations and unexposed lot this is grave and extraordinary. I am trying to avoid usage of negative terms and am being cautious in choosing my phrases so as not to create any undue stress. Here we want to focus on the mental health consequences resulting due to the social distancing and lockdown measures imposed on individuals across the world. Nations have imposed restrictions on free movement, transport, gatherings of individuals to avoid the spread of infection and spike in number of cases.

The apex body of Health, The World Health Organisation declared Novel corona virus outbreak as a pandemic on March 11th, 2020(1). Following the same United States announced this as a National emergency on March 13th 2020(2). WHO and many other Health organisations have issued guidelines to curtail the spread of infection viz., avoiding frequent touching of face, nose, eyes; washing hand with soap and water for atleast 20sec(3) to destroy the virus contracted on touching infected surfaces and most importantly Social distancing. This involved minimising the social and physical contact between people(1). To promote such distancing restrictions were imposed on the size of gatherings for functions, funerals and other gatherings; until very essential to avoid all sorts of physical exposure, tele working or work-from-home, distance learning and so on.



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