SCIENCE & TECHNOLOGY EFFORTS IN INDIA ON COVID-19

VIGYAN PRASAR
[AN AUTONOMOUS ORGANISATION OF
DEPARTMENT OF SCIENCE & TECHNOLOGY]
GOVERNMENT OF INDIA

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सबका साथ, सबका विकास, सबका विश्वास
Sabka Saath, Sabka Vikas, Sabka Vishwas

सत्यमेव जयते

डॉ हर्ष वर्धन
Dr Harsh Vardhan

स्वास्थ्य एवं परिवार कल्याण, विज्ञान और प्रौद्योगिकी व पृथ्वी विज्ञान मंत्री, भारत सरकार
Union Minister for Health & Family Welfare, Science & Technology and Earth Sciences Government of India

FOREWORD

The 2019 Novel Coronavirus (SARS-CoV-2) has spread rapidly throughout the world and has assumed the proportion of a Pandemic. Given the lack of an efficacious vaccine as well as non-availability of suitable chemotherapeutic interventions, mankind is experiencing an unprecedented existential crisis.

2. The Ministry of Science and Technology and the Ministry of Health & Family Welfare, with their various departments, are contributing in various ways towards the national R&D efforts for developing solutions to combat COVID-19. The Department of Science & Technology under the Ministry has launched a nationwide exercise to map and boost development of COVID-19 solutions with R&D, seed capital and scale-up support. All academic and research institutions are being reoriented to focus on the development of diagnostics, vaccines, antivirals, disease models and other R&D to enable a cure for this dreadful disease. Around 15 labs of Council of Scientific & Industrial Research (CSIR), under the Department of Scientific & Industrial Research, across the country are working in close partnership with major private sector Industries, PSUs, MSMEs and other Government departments to develop solutions for COVID-19. The Department of Biotechnology (DBT) under the Ministry has also formed a consortium to support the development of Medical equipment, Diagnostics, Therapeutics, Drugs and Vaccines to meet the Healthcare Challenges. Indian Council of Medical Research (ICMR), under the Ministry of Health & Family Welfare has already isolated the virus strain successfully, which is a first step towards vaccine research. Similarly, various other organizations under Ministry of Human Resource & Development, Ministry of Defence, Ministry of Chemicals & Fertilizers, etc. are also contributing substantively to our R&D efforts. The private sector has also come forward in a big way to supplement these efforts.

3. With a view to spreading awareness about the S&T efforts of the Government of India as well as private sector in finding solutions for COVID-19, Vigyan Prasar - an autonomous institution under Ministry of Science & Technology and engaged in large-scale science communication and popularization activities - has compiled all initiatives being undertaken in this field.

4. This document "Science & Technology Efforts on COVID-19 in India" shall serve as a ready-reckoner for policy makers, scientists, researchers, scholars and other stakeholders who might be interested in understanding and keeping themselves abreast with the latest S&T efforts being made to develop solutions to combat COVID19.

(Dr. Harsh Vardhan)

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PREFACE

At the fag end of 2019, China informed the World Health Organization (WHO) regarding the occurrence of cases of pneumonia of an unknown cause in Wuhan City in Hubei province. On January 9, 2020, WHO issued a statement saying Chinese researchers have made the preliminary determination of the virus as a novel coronavirus. Since then, several lakhs of positive cases and more than one lakh deaths have been reported due to COVID-19 across the world. Lockdowns, curfews, sealing of hotspots of outbreak area, massive airport screenings, quarantines, and social distancing have become the norm across the globe.

In these critical times, access to authentic information is of paramount importance. Vigyan Prasar (VP) has been covering the pandemic since the early days with the science communication perspective and journalistic flavour, ensuring that science and safety are the primary focus. VP is a national level organization of the Department of Science and Technology, Government of India, engaged in science communication and popularization. The principal objective of VP is to serve India's science popularization agenda. This is achieved through several strategically important two-way, stakeholder-specific approaches to communicate about principles and practices of science and technology and implications for development and quality of life. Science popularization therefore serves as a robust knowledge-led tool to fulfil various mutually reinforcing public policy objectives.

For the benefit of the stakeholders, we have prepared a compilation of the most relevant initiatives and efforts taken by the Government of India through its various Science Ministries, Departments, and Funding organizations. These organizations are geared for combating the epidemic of COVID-19. These research-driven and technology-based interventions have been initiated on war footing to fight out the outburst of the pandemic. Government of India, through its various wings, like Science Ministries, Departments, and Funding organizations, has invited Calls for Proposals (CFPs) and Expression of Interest (EoIs) to enhance research and development-related activities to battle the pandemic out.

We hope this initiative of Vigyan Prasar shall be a handy guide to scientists, researchers, and scholars, especially those who are interested in knowing various aspects of COVID-19 and contributing to the coronavirus warfare in whatever minuscule way and people at large.

Vigyan Prasar
New Delhi

DR. HARSH VARDHAN EXHORTS CSIR SCIENTISTS TO DEVELOP COVID-19 MITIGATION SOLUTIONS TO EFFECTIVELY COMBAT THE DISEASE

12th April 2020, New Delhi

- Genetic sequencing was crucial in eradicating Polio; it will help in COVID-19 mitigation also, said Dr. Harsh Vardhan
- These are times of war, deliver solutions before war ends, not a routine research project, states Dr. Harsh Vardhan
- COVID-19 will give boost to country's resilience and self-reliance and enhance indigenous capacity in developing critical health care equipment

Today Dr. Harsh Vardhan, Union Minister for Science & Technology held a review with DG CSIR, Dr. Shekhar C. Mande and all the CSIR lab directors through video conference of the steps undertaken by CSIR and its constituent 38 labs towards mitigation of Corona Virus outbreak in the country.

DG CSIR Dr. Shekhar C. Mande informed that Core Strategy Group (CSG) has been set up in CSIR and the five verticals have been identified under which the COVID-19 related activities are being carried out. These include: Digital and Molecular Surveillance; Rapid and

Dr Harsh Vardhan during video conferencing on research and developments initiatives on Covid-19 with the directors of CSIR labs

Economical Diagnostics; New Drugs / Repurposing of Drugs and associated production processes; Hospital Assistive Devices and PPEs; and, Supply Chain and Logistics Support Systems. Dr. Mande also mentioned that 15 CSIR labs are working in close partnership with major Industries, PSUs, MSMEs and other departments and ministries at the time of the crisis in the country.

After briefing of all the efforts being made by the CSIR labs in finding a solution for COVID-19, Dr. Harsh Vardhan informed them about the steps being taken by the Government of India in combating COVID-19.

Dr. Harsh Vardhan exhorted CSIR scientists and said, "India has high expectations from its scientific community and I am sure that the community will rise to the occasion and deliver in this time of need". He appreciated that CSIR Labs were also participating in testing of swab samples of COVID patients and some of them have started doing genetic sequencing of virus with a target of doing 500 sequencing in coming weeks. Dr. Harsh Vardhan said, "Genetic sequencing is very crucial in identifying the host response as well as identifying population vulnerability to the disease." He said, "These genetic sequencing efforts remind me of Polio eradication movement 26 years back. Towards the fag end of the Polio movement, active surveillance of the country was done to find out the cases of acute flaccid paralysis. That time also, genetic sequencing was used to establish the travel history of polio virus which eventually helped in the eradication of polio."

He also appreciated CSIR for partnering with MSMEs, Major industries, PSUs working on RT-PCR machines. He said, "Plasma based therapy is very much needed at this hour. For this, we need to motivate the patients who have recovered from the COVID-19 to donate blood."

He also appreciated the work done by CSIR-NAL with BHEL and BEL on Ventilators, Oxygen Enrichment Devices and are also developing 3-D printed face shields, face masks, gowns and other protective equipment. "All these things will help us in next few weeks.", He said.

Dr. Harsh Vardhan, however, cautioned, CSIR scientists to develop COVID-19 mitigation solutions keeping fixed timeframe in mind. "These are times of war, CSIR scientists should work to deliver solutions before war ends, they should not treat it as a routine research project". He said, "COVID-19 has also come as a blessing in disguise as it will give boost to country's resilience and self-reliance and enhance indigenous capacity in developing critical health care equipment." He also appreciated the collaboration being done by the CSIR scientists using Video Conferencing tools and reiterated the scientists that while doing research they should continue observing social distancing and lockdown because till such time vaccine is developed by scientists to combat COVID-19, these two remain the most potent form of social vaccine.

Dr. Shekhar C. Mande, DG, CSIR, Dr. Anurag Agrawal, Director, Institute of Genomics and Integrative Biology (CSIR-IGIB) and Dr. Nakul Parashar, Director, Vigyan Prasar were present in the review meeting with the Union Minister. Directors of remaining 38 CSIR labs attended the meeting through Video Conference.

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The e-newsletter is being published on a regular basis by collating all the inputs received till the preceding day of the release.

The older issues of e-newsletter are available in the Archival Section at https://vigyanprasar.gov.in/covid19-newsletters/.

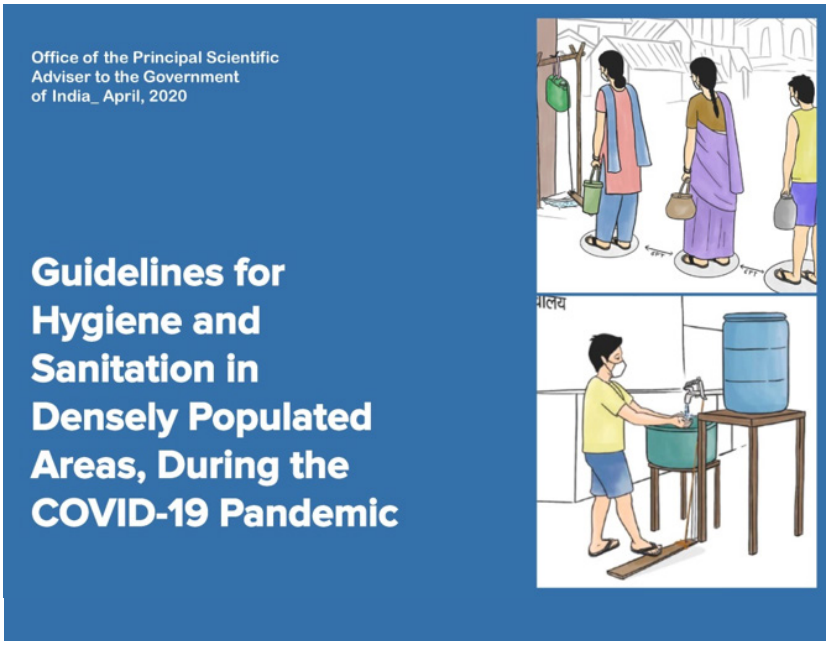
SCIENCE & TECHNOLOGY EFFORTS TO DEAL WITH COVID-19
BY

Office of the Principal Scientific Adviser (PSA)

Foot-Operated Washing Station implemented at IAO

Foot-operated Washing Station, implemented at the Indian Astronomical Observatory (IAO), Hanle, Ladakh, provided as an example for implementation in the 'Guidelines for hygiene and sanitation in densely populated areas, during the COVID-19 pandemic' released by the Office of PSA. IAO has one of the world's highest located sites for optical, infrared and gamma-ray telescopes. It is operated by the Indian Institute of Astrophysics (IIA), Bengaluru.

Website link:
https://pib.gov.in/PressReleseDetailm.aspx?PRID=1614064
Detailed Guidelines:
http://164.100.117.97/WriteReadData/userfiles/PSA_DenseAreaGuidelines_Version8.pdf.pdf



SCIENCE & TECHNOLOGY EFFORTS ON COVID-19

by

Department of Science and Technology (DST)

Integrated geospatial platform to help area-specific strategies & decisions in COVID-19 outbreak

The Department of Science and Technology (DST), Government of India, has created an Integrated Geospatial Platform out of available geospatial datasets, standards-based services, and analytic tools to help decision making during the current COVID-19 outbreak and aid devising area-specific strategies to handle the socio-economic impact in the recovery phase. The platform is initially expected to strengthen the public health delivery system of the State and Central Governments and subsequently provide the necessary geospatial information support to citizens and agencies dealing with the challenges related to health, socio-economic distress, and livelihood challenges. The mobile application SAHYOG as well as the web portal (https://indiamaps.gov.in/soiapp/) prepared and managed by the Survey of India (SoI) has been customized to collect COVID-19-specific geospatial datasets through community engagement to augment the response activities by Government of India to the pandemic. Information parameters required as per the Govt. of India strategy and containment plan for large outbreaks have been incorporated in the SAHYOG application. This mobile application will complement the "AAROGYA SETU" mobile application launched by the Government of India for Contact tracing, Public awareness, and Self-assessment objectives. State Spatial Data Infrastructure (SSDI) in Madhya Pradesh, Odisha, Punjab, and Jammu & Kashmir have been providing collateral standards-based geospatial data services to the State and District Level authorities in the respective States through State Geoportals for integration with related health datasets towards combating COVID-19 pandemic.

Website link:

https://dst.gov.in/integrated-geospatial-platform-help-area-specific-strategies-decisions-covid-19-outbreak

Special Call under SATYAM to fight against COVID-19

Department of Science and Technology invites concept note under 'Science and Technology of Yoga and Meditation (SATYAM)' for the appropriate intervention of yoga and meditation to fight against COVID-19 and other similar kinds of viruses.

This special call aims to provide assistance to our society in today's critical condition arising due to the pandemic COVID-19. The project may address on improving immunity, improving respiratory system, stress, anxiety, depression and others.

The concept note may be submitted at e-PMS (onlinedst.gov.in) till April 30, 2020.

Website link:

https://dst.gov.in/callforproposals/special-call-under-satyam-fight-against-covid-19

Call for Expression of Interest - 2nd Set of Products

Sree Chitra Tirunal Institute for Medical Science and Technology (SCTIMST), Thiruvananthapuram, an institute of national importance under the Department of Science & Technology, Government of India, has developed designs and know-how for several products to combat the COVID-19 pandemic crisis. The institute is interested in transferring these designs and know-how to entities that can manufacture and make them available to the users. Expression of Interest (EoI) is invited from interested entities for this purpose.

Website link:

https://www.sctimst.ac.in/resources/Rev-EOI%20COVID%2019%20-%2008.04.2020.pdf

Expression of Interest for developing and manufacturing devices for the fast track Programme for COVID-19 pandemic

Sree Chitra Tirunal Institute for Medical Science and Technology (SCTIMST), Thiruvananthapuram invites manufacturers/startups/social groups who are interested in working with the Institute to co-develop and manufacture medical devices on a fast track mode to support the distressing situation created by the epidemic COVID 19. The call is for the development of Ambu bag-based Ventilators, Ventilator Sharing Kit, Battery-operated Assistive Breathing Unit, Isolation Pods, Disposable Safety Face Shield and Deployable Field Units.

Website link:

https://www.sctimst.ac.in/RESOURCES/EOI%20COVID%2019%20-%2029.03.2020.pdf

Proposals invited on COVID-19 & related respiratory viral infections

Science & Engineering Research Board (SERB), a statutory body of the Department of Science & Technology, invites proposals as part of special call under IRHPA (Intensification of Research in High Priority Area) scheme designed explicitly for COVID-19 and related respiratory viral infections to ramp up national R&D efforts for new antivirals, vaccines, and affordable diagnostics.

Website link:

https://dst.gov.in/pressrelease/proposals-invited-covid-19-related-respiratory-viral-infections

TDB invites technology proposals for fighting COVID-19

The Technology Development Board (TDB), a statutory body of the Department of Science & Technology (DST) invites proposal applications from Indian companies and enterprises to address protection and home-based respiratory intervention for COVID-19 patients. The proposal may include technologically innovative solutions like low-cost masks, cost-effective scanning devices, technologies for sanitization of large areas as well as for contactless entry, rapid diagnostic kits, oxygenators, and ventilators.

Website link:

https://dst.gov.in/pressrelease/tdb-invites-technology-proposals-fighting-covid-19

Call for Proposals: Indo-U.S. Virtual Networks for COVID-19

The Indo-U.S. Science and Technology Forum (IUSSTF) announces a Call for Proposals for COVID-19 Indo-U.S. Virtual Networks. IUSSTF encourages proposals that convincingly demonstrate the benefits and value of the Indo-U.S. partnership to advance research and address critical

challenges related to COVID-19. Virtual Networks would allow Indian and U.S. scientists and engineers currently engaged in COVID-related research to carry out joint research activities through a virtual mechanism, leveraging existing infrastructure and funding. These network projects could be of two types: Knowledge R&D Networks and Public-Private Virtual Networks.

Last date of submission: May 15, 2020

Website link:

https://iusstf.org/announcements-and-events

United States - India Science and Technology Endowment Fund COVID-19 Ignition Grants

IUSSTEF would select and support promising joint U.S.-India S&T-based entrepreneurial initiatives that address the "development and implementation of new technologies, tools, and systems to address COVID-19-related challenges including monitoring, diagnosis, health and safety, public outreach, information and communication". These initiatives can originate from government, academic, non-governmental or commercial entities and any combination thereof, provided they focus on applied R&D and have commercial potential. USISTEF would also consider proposals related to technologies/ products that can be re-purposed to address COVID-19 in the current scenario. USISTEF encourages projects that demonstrate a high degree of innovation leveraging advances in science and technology.

Last date of submission: May 15 2020

Website link:

https://iusstf.org/announcements-and-events

SCIENCE & TECHNOLOGY EFFORTS ON COVID-19

by

The Department of Biotechnology (DBT)

C-CAMP picks 13 ideas to tackle the COVID-19 epidemic

A special accelerator focused on COVID-19 has identified 13 innovations, including assisted respiratory devices, air and surface sanitizing technologies and a cold-chain viral swab sample transport that could be deployed to tackle the epidemic. The identified innovations include assisted respiratory devices by Biodesign Innovation Labs and Aerobiosys Innovations and remote vital parameter monitoring systems from MedIoTek Heath Systems, Cardiac Design Labs, Nemocare and Dozee and air and surface sanitizing technologies from LeafBox Technologies, Biomoneta and Clensta.

Website link:

https://tech.economictimes.indiatimes.com/news/technology/c-camp-picks-13-ideas-to-tackle-the-covid-19-epidemic/75112883

Efforts underway to produce therapeutic antibodies against COVID-19

Prof Vijay Chaudhary's group at University of Delhi South Campus-Centre for Innovation in Infectious Disease Research, Education and Training (UDSC-CIIDRET), supported by the Department of Biotechnology (DBT), is isolating genes encoding antibodies, which can neutralize the SARS-CoV-2 using an extensive antibody library already available in-house as well as a library made from cells of patients who have recovered from COVID-19 infection.

Website link:

https://pib.gov.in/newsite/PrintRelease.aspx?relid=202173

BIRAC supported Twenty In-Market Startup Products

IndiaFightsCorona: Details of 20 In-Market products from BIRAC supported Startups as potential COVID solutions can be found in the following link.

FetalLite: It is an instrument devised to monitor the fetal heart rate for the women-in-labour.

LUNGIQ: It is an instrument devised to review precision insights from Lung CTs.

Website link:

https://birac.nic.in/webcontent/1585918972_covid_solution_v2.pdf

COVID-19: DBT-backed consortium aims to produce therapeutic antibodies

Anti-COVID Consortium backed by the Department of Biotechnology (DBT) involving the public-private partnership is working to produce therapeutic antibodies against SARS-CoV-2.

Website link:

https://www.biovoicenews.com/covid-19-dbt-backed-consortium-aims-to-to-produce-therapeutic-antibodies/

COVID GYAN

Covid Gyan serves as a hub to bring together a collection of resources in response to the COVID-19 outbreak. These resources are generated by research institutions in India and several associated programmes. The content presented on the website provides a scientific understanding of the disease and its transmission. The main objective of the website is to create public awareness and bring in a holistic approach to the understanding of COVID-19 disease and potential means to mitigate it.

Various autonomous institutions associated with the Department of Biotechnology (DBT) are resource providers to this initiative, like the Institute for Stem Cell Science and Regenerative Medicine (InStem) and the Centre for Cellular And Molecular Platforms (C-CAMP).

Website link:

https://covid-gyan.in/

A new kit to detect COVID-19 infection

Researchers at the Rajiv Gandhi Centre for Biotechnology (RGCB), Thiruvananthapuram are in the final stages of developing a kit that promises to help detect SARS CoVID-19 infection as early as four days post-infection of the virus. The kit will be able to detect two types of antibodies - Immunoglobulin M (IgM) and Immunoglobulin G (IgG).

Website link:

https://vigyanprasar.gov.in/wp-content/uploads/A-new-kit-to-detect-COVID-14apr20.pdf

SCIENCE & TECHNOLOGY EFFORTS ON COVID-19

by

The Council of Scientific & Industrial Research (CSIR)

Minister exhorts scientists to develop COVID-19 mitigation solutions within fixed timeframe

Union Minister for Health and Family Welfare, Science and Technology and Earth Sciences, Dr Harsh Vardhan, exhorts scientists to develop COVID-19 mitigation solutions within a fixed time frame. "We are in midst of a war and we have to supply the weapons on time. If we supply the weapons when the war is over or have made huge destruction the weapons are useless. It is not like routine CSIR research job," said Dr Harsh Vardhan. He was addressing a review meeting through video conferencing with Dr Shekhar Mande, Director General of the Council for Scientific and Industrial Research (CSIR) and all the 38 CSIR lab directors.

Website link:

https://vigyanprasar.gov.in/isw/Minister-exhort-scientists-to-develop-COVID-19-mitigation-solutions-within-timeframe.html

कोविड-19 से निपटने में महत्वपूर्ण हो सकता है आनुवांशिक अनुक्रमण

आनुवांशिक अनुक्रमण वायरस के प्रति वाहक की प्रतिक्रिया का पता लगाने के साथ-साथ बीमारी के प्रति जनसंख्या की संवेदनशीलता की पहचान करने में भी बेहद महत्वपूर्ण हो सकता है। यह बात स्वास्थ्य एवं परिवार कल्याण, विज्ञान एवं प्रौद्योगिकी और पृथ्वी विज्ञान मंत्री डॉ हर्ष वर्धन ने कही है। वह वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद (सीएसआईआर) द्वारा को. विड-१९ के संदर्भ में किए जा रहे प्रयासों के बारे में वीडियो कॉन्फ्रेंसिंग के जरिये आयोजित एक समीक्षा बैठक को संबोधित कर रहे थे।

Website link:

1. https://hindi.webdunia.com/my-blog/covid19-120041300065_1.html

कोहरे की इन सूक्ष्म बूंदों से उपचार रोक सकता है कोविड-19 का विस्तार

कोहरा घना हो तो अक्सर दुर्घटना की आशंका रहती है। लेकिन, अब पुणे स्थित राष्ट्रीय रासानिक प्रयोगशाला (एनसीएल) के परिसर में कोहरे की सूक्ष्म बूंदों का उपयोग कोविड-19 के संक्रमण से बचाव के लिए किया जा रहा है।

Website links:

https://vigyanprasar.gov.in/isw/These-fog-droplets-may-prevent-treatment-by-expanding-covid-19-hindi.html

.https://pib.gov.in/PressReleasePage.aspx?PRID=1613217

कोविड-19 के खिलाफ गाँवों में अलख जगा रही सीएसआईआर प्रयोगशाला

अपने अनुसंधान के जरिये समाज की मदद करने वाला वैज्ञानिक समुदाय अब कोविड-१९ के प्रकोप को देखते हुए लोगों

को जागरूक करने के लिए जमीन पर भी उतर रहा है। इस सामाजिक जिम्मेदारी को निभाते हुए भोपाल स्थित एडवांस्ड मैटेरियल्स ऐंड प्रोसेस रिसर्च इंस्टीट्यूट (एम्प्री) भी ग्रामीण स्तर पर कोविड-१९ के संक्रमण को रोकने की कोशिशों में जुट गया है।

Website links:

https://vigyanprasar.gov.in/isw/CSIR-lab-waking-up-Alakh-in-villages-against-Kovid-19-hindi.html

SCIENCE & TECHNOLOGY EFFORTS ON COVID-19

by

The Indian Council of Medical Research (ICMR), and The Ministry of Health & Family Welfare (MoHFW)

Call for Letter of Intent for Participation in A Phase II, Open Label, Randomized Controlled Study to Assess the Safety and Efficacy of Convalescent Plasma to Limit COVID-19-associated Complications

ICMR is inviting a letter of intent from institutions with the equipment and infrastructure available to participate in a clinical trial to study the safety and efficacy of convalescent plasma in COVID19 patients, subsequent to necessary approvals and clearances.

Website link:

https://icmr.nic.in/sites/default/files/upload_documents/LOI_CPL_12042020.pdf

Call for Letter of Intent for Participation in Therapeutic Plasma Exchange in COVID-19: Protocol for a Multi-centre, Phase II, Open Label, Randomized Controlled Study

ICMR is inviting a letter of intent from institutions with the equipment and infrastructure available to participate in a clinical trial to study the safety and efficacy of therapeutic plasma exchange in COVID-19 patients, subsequent to necessary approvals and clearances.

Website link:

https://icmr.nic.in/sites/default/files/upload_documents/LOI_TPE_12042020.pdf

Applications invited from Government & Private Medical Colleges for setting up COVID-19 testing facility

ICMR invites applications from all Government and Private Medical Colleges for establishing a COVID-19 testing facility. All Medical Colleges with following infrastructure and expertise may apply.

Website link:

https://icmr.nic.in/sites/default/files/upload_documents/Invitation_from_Govt_Pvt_Medical_College_COVID19_testing_facility.pdf

Integrated Govt. Online Training (iGOT) courses on DIKSHA platform on COVID-19 pandemic

Ministry of Personnel, Public Grievances & Pensions, D/O Personnel & Training launched separate courses on the DIKSHA platform on COVID-19 pandemic.

Website link:

https://www.mohfw.gov.in/pdf/iGOTCovid19Circular(2).pdf

SCIENCE & TECHNOLOGY EFFORTS ON COVID-19

by

The Defence Research and Development Organisation (DRDO)

Bio Personal Protective Equipment (BIO-PPE) to coverall with shoe cover for healthcare professionals

Defence Research and Development Organisation (DRDO) has developed a bio suit to keep the medical, paramedical and other personnel engaged in combating COVID-19 safe from the deadly virus. Scientists at various DRDO laboratories have applied their technical know-how and expertise in textile, coating and nanotechnology to develop the Personal Protective Equipment (PPE) having specific type of fabric with coating.

Website link:
https://drdo.gov.in/sites/default/files/whats_new_document/DRDE_Product_for_COVID-19%20_Final_.pdf

BIO PPE for healthcare professionals

Covid-19 Sample Collection Kiosk (COVSACK)

A kiosk has been developed by DRDO-DRDL that can help healthcare workers take samples from suspicious patients, without the need of PPE kits. It is designed as such that the Kiosk can be disinfected automatically with the help of its inherent features without any help of human personnel.

Website link:
https://drdo.gov.in/covid-19-sample-collection-kiosk-covsack

SCIENCE & TECHNOLOGY EFFORTS ON COVID-19

by

Other Scientific and Academic Institutions

IIT Ropar develops design of Negative Pressure rooms to check spread of COVID19

IIT Ropar has sent their proposal to the Ministry of Human Research and Development (MHRD) and principal scientific adviser for creating negative pressure isolation rooms on a mass scale to prevent room-to-room cross-contamination in hospitals. The negative pressure room ensures that released droplets of the infected do not stay suspended and is sucked out through the ventilation. South Korea has been able to contain the COVID-19 through their mobile and drive through testing facilities which have negative pressure rooms. The testing labs and isolation rooms (which have one or more COVID patient) need to be converted into negative pressure rooms for the safety of health workers.

Website link:

1. http://www.iitrpr.ac.in/iit-ropar-news
2. https://www.newindianexpress.com/nation/2020/apr/06/iit-ropar-develops-portable-negative-pressure-rooms-to-shield-medical-staff-from-coronavirus-2126506.html

Ventilator that can treat two patients, courtesy IIT Ropar scientists

In a significant achievement in fighting the Coronavirus, the IIT Ropar researchers have now come up with the low cost and portable ventilators that can be easily and quickly manufactured as per the requirement. These ventilators can provide oxygen to two patients at a time.

Website link:

1. http://www.iitrpr.ac.in/iit-ropar-news
2. https://timesofindia.indiatimes.com/home/education/news/ventilator-that-can-treat-two-patients-courtesy-iit-ropar-scientists/articleshow/74967790.cms

IIT-Ropar develops device to clean, reuse PPE kits

Researchers at the Indian Institute of Technology (IIT), Ropar have come up with a technique to clean and sterilize personal protection equipment (PPE) kits, including surgical masks and other protective gears, without causing any damage to those.

Website link:

1. http://www.iitrpr.ac.in/iit-ropar-news
2. https://timesofindia.indiatimes.com/city/

ludhiana/iit-ropar-develops-device-to-clean-reuse-ppe-kits/articleshow/74939891.cms

IIT-Ropar scholar, private engineers group, develop an app to prevent community transmission

IIT-Ropar scholar and some engineers of Lagom Innovation Pvt of different streams have developed an android application that may prove helpful in curbing the community transmission of the virus. The app can identify the suspect within a distance from 1 to 3 meters. The app also maintains a record of the persons coming contact with each other for 14 days and this will and this will make easy to trace out the persons who had come in contact with the COVID-19 suspect.

Website link: 1. http://www.iitrpr.ac.in/iit-ropar-news

2. https://timesofindia.indiatimes.com/city/chandigarh/coronavirus-iit-ropar-scholar-private-engineers-group-develop-an-app-to-prevent-community-transmission/articleshow/74875207.cms

SCIENCE & TECHNOLOGY EFFORTS ON COVID-19

by

Private Sector Enterprises

Pune Face Shield Action Group has delivered 12900+ face shields

Pune Face Shield Action Group has provided 12900+ face shields so far. Efforts to scale up production by replacing rate-limiting steps (esp. laser cutting), efforts to identify new sources for supply, efforts to raise funds, efforts to find others who can help manufacture these Face Shields in larger quantities, efforts to find people in other cities who can reproduce the model in their cities/areas — success in Aurangabad, Nanded so far.

Website link:

https://www.venturecenter.co.in/faceshield/7-april-2020-pune-face-shield-action-group-has-delivered-4800-face-shields-so-far/

Mylab partners with Serum Institute India's CEO Adar Poonawalla and Abhijit Pawar, Chairman AP Globale to scale-up production of the COVID-19 test kit

Mylab Discovery Solutions has developed the first COVID-19 rapid testing kit in India. This testing kit has been approved by the Indian Food and Drug Administration, the Central Drugs Standard Control Organisation (CDSCO), and the ICMR. This kit can give test results within 2.5 hours. After joining hands with Serum Institute of India and AP Globale, the test capacity of Mylab has increased from 1.5 lakh tests a week to 20 lakh (2 million) tests a week.

Website link:

https://mylabdiscoverysolutions.com/press-release/

DST funded company to scale up device to enrich oxygen supply in air for the treatment of COVID-19 patients

Genrich Membranes, a spin-off company, based on proprietary technology licensed from CSIR-National Chemical Laboratory, Pune is being funded by the Department of

Science and Technology (DST) to scale up membrane oxygenator equipment (MOE) that it has developed to treat COVID-19 patients. Based on innovative, indigenous hollow-fiber membrane technology, the MOE enriches oxygen in the air up to 35% under pressure (4-7 bar, using oil-free compressor).

The equipment consists of membrane cartridge, oil-free compressor, output flowmeter, humidifier bottle, nasal-cannula, and tubing & fittings. The compressed, filtered air from the compressor is fed to the membrane cartridge, which selectively permeates oxygen over nitrogen offering oxygen-enriched air as the product at the ambient pressure. The membrane cartridge capable of distinguishing oxygen and nitrogen restricts the passage of viruses, bacteria, and particulate matter. The product air is of medical grade.

The device is safe, does not require trained manpower for its operation, needs minimum maintenance, is portable, compact, and with plug-and-play facility provides on-site, quick-start oxygen-enriched air.

Website link:

https://dst.gov.in/dst-funded-company-scale-device-enrich-oxygen-supply-air-treatment-covid-19-patients

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Website link:

https://mylabdiscoverysolutions.com

COVID-19 IN MEDIA

COVID-19 in Digital Media

DR HARSH VARDHAN, Union Minister, Ministry of Health & Family Welfare, Science & Technology, and Earth Sciences, speaking on Coronavirus
Website: https://www.indiascience.in/videos/dr-harsh-vardhan-interview-on-coronavirus-h

TACKLING COVID-19 WITH SCIENCE AND TECHNOLOGY: Interview of Prof K VijayRaghavan, PSA to Government of India
Part-I - Website: https://www.youtube.com/watch?v=nklCcONnKGQ&feature=youtu.be
Part-II -Website: https://www.youtube.com/watch?v=n9xcgBg0EqM&feature=youtu.be

LIVE TALK BY PROF ASHUTOSH SHARMA, SECRETARY, DEPT OF SCIENCE & TECHNOLOGY
Website: https://www.youtube.com/watch?v=DP3mpDIYTTo&feature=youtu.be

VIGYANDARPAN: Interview with DG-CSIR on Coronavirus
Website: https://www.indiascience.in/videos/vigyan-darpan-interview-with-dg-csir-h

VIGYAN DARPAN: Interview with AIIMS Director Dr RandeepGuleria
Website: https://www.indiascience.in/videos/vigyan-darpan-h-telecast-on-23-slash-03-slash-2020

COVID-19: INDIA'S FIRST PAPER STRIP DIAGNOSTIC TEST KIT
Website:https://youtu.be/_kvqu3A7404

AAROGYA SETU APP
Website: https://www.indiascience.in/videos/aarogya-setu-app-e

COVID-19 Jagrukta (H)
Website: https://www.indiascience.in/videos/covid-19-jagrukta-h

Science this week - Coronavirus and mental health (E)
Website: https://www.indiascience.in/videos/science-this-week-coronavirus-and-mental-health-e

Covid-19 Bulletin: 13 Apr 2020 (E)
Website: https://www.indiascience.in/videos/covid-19-bulletin-13-apr-2020-e

COVID-19 in News

Integrated geospatial platform to help area-specific strategies & decisions in COVID-19 outbreak

Website: https://egov.eletsonline.com/2020/04/integrated-geospatial-platform-to-help-area-specific-strategies-decisions-in-covid19-outbreak/

Innovative ideas invited by US India S&T Endowment Fund to address COVID-19 challenge

Website: https://egov.eletsonline.com/2020/04/innovative-ideas-invited-by-us-india-st-endowment-fund-to-address-covid19-challenge/

Website: https://economictimes.indiatimes.com/news/science/indo-us-st-forum-invites-joint-research-proposals-on-covid-19/articleshow/75119859.cms?from=mdr

Rural women in Assam prepare hand sanitisers, masks to combat Covid-19

Website: https://www.thehindubusinessline.com/news/rural-women-in-assam-prepare-hand-sanitisers-masks-to-combat-covid-19/article31328373.ece

Seagull BioSolutions gears up to prepare COVID-19 vaccine

Website: https://biospectrumindia.com/news/20/16212/seagull-biosolutions-gears-to-prepare-covid-19-vaccine.html

Fight against COVID-19: Rural women from Assam prepare hand sanitizer, masks

Website: https://nenow.in/north-east-news/assam/fight-against-covid-19-rural-women-from-assam-prepare-hand-sanitizer-masks.html

Know any Corona Asana? Govt will fund you

Website: https://www.telegraphindia.com/india/know-any-corona-asana-government-will-fund-you/cid/1764733

Chandigarh University delivers 500 liters hand sanitizer to AIIMS New Delhi

Website: https://www.aninews.in/news/business/chandigarh-university-delivers-500-liters-hand-sanitizer-to-aiims-new-delhi20200413121026/

Indo-US science forum is inviting scientists and engineers to research on COVID-19

Website: https://www.edexlive.com/news/2020/apr/13/indo-us-science-forum-is-inviting-scientists-and-engineers-to-research-on-covid-19-11278.html

कोहरे की इन सूक्ष्म बूंदों से उपचार रोक सकता है कोविड-१९ का विस्तार
https://www.prabhasakshi.com/proventhings/these-fog-droplets-may-prevent-treatment-by-expanding-covid19

https://yourstory.com/hindi/coronavirus-micro-drops-of-fog-can-stop-covid-19-pune-ncl-mist-sanitizer

https://pib.gov.in/PressReleasePage.aspx?PRID=1613217

https://hindi.webdunia.com/my-blog/mist-sanitizer-120041100044_1.html

https://www.prabhasakshi.com/proventhings/these-fog-droplets-may-prevent-treatment-by-expanding-covid19
https://yourstory.com/hindi/coronavirus-micro-drops-of-fog-can-stop-covid-19-pune-ncl-mist-sanitizer

https://pib.gov.in/PressReleasePage.aspx?PRID=1613217

https://hindi.webdunia.com/my-blog/mist-sanitizer-120041100044_1.html

NCL-supported start-up innovations join the fight against COVID-19

https://www.biovoicenews.com/ncl-supported-start-up-innovations-join-the-fight-against-covid-19/

https://delhipostnews.com/ncl-supported-start-up-innovations-join-the-fight-against-covid-19/

https://www.organiser.org/Encyc/2020/4/10/NCL-supported-start-up-innovations-join-the-fight-against-COVID-19.html

कोरोना से लड़ने में मददगार एनसीएल समर्थित स्टार्ट-अप नवाचार
https://www.swasthbharat.in/new-start-up-to-fight-corona/