

CSIR in Media



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News Bulletin

01 to 05 May 2020



UT starts sending samples to IMTECH, conducts pool testing

CSIR –IMTECH

05 May, 2020

AS PART of efforts to ramp up COVID-19 testing in Chandigarh, a red zone area where more than a 100 patients have already tested positive, the UT administration has started sending samples to the Institute of Microbial Technology (IMTECH), which has a bio safety level 3 lab that can test around 500 samples a day now. Government testing laboratories in the UT, including IMTECH and the Government Medical College and Hospital (GMCH) in Sector 32 have also begun pool testing on days that they receive a large number of samples.

Health Secretary Arun Kumar Gupta said, they began sending samples to IMTECH Saturday. The IMTECH laboratory began testing samples in the first week of April, and since then it has increased testing capacity to between 500 and 700 tests a day. It mostly receives samples from the tri-city and the neighboring states of Punjab and Haryana. According to an IMTECH spokesperson, more than a 1,000 tests have been conducted in IMTECH as of Monday night. “We use to receive about 30-40 samples in the beginning and in the last week or so started receiving over 100 samples a day. We also conducted pool testing as per ICMR,” said the spokesperson.

According to ICMR guidelines, pooling of tests should be conducted in places with positivity rates of less than 5 per cent only and preferably five samples should be pooled at a time. Pool testing is a useful surveillance tool in place of the rapid antibody tests, which have been deemed as inaccurate and unreliable by the Centre. “We began pool tests after receiving samples at full capacity since the outbreak at Bapu Dham,” said a doctor at GMCH-32.

After Bapu Dham Colony and Sector 30 B cropped up as hotspots, and the number of cases rose, the hospital received samples beyond its capacity and began pooling samples and testing them in batches of five.

UT's testing capacity

In total, GMCH 32 and PGI can test 300 samples a day if tested individually. However, the UT can ramp up testing by sending samples to IMTECH, which it has began doing. When samples sent to IMTECH exceed capacity, samples can also be sent to PU and IISER, increasing the capacity by 200.

CSIR's IGIB, Tata Sons sign MoU for knowhow of COVID-19 diagnostic kit

CSIR –IGIB,CCMB

05 May, 2020

New Delhi, May 5 (PTI) The CSIR's Institute of Genomics and Integrative Biology (IGIB) and Tata Sons have signed an agreement for licensing of the knowhow of a COVID-19 diagnostic kit which can be used for testing on ground by the month-end, a statement said on Tuesday.

In another development, CSIR's Centre for Cellular and Molecular Biology (CCMB), Hyderabad has tied up with a Bengaluru-based company, Eystem Research Private Limited, to grow novel coronavirus in human cell lines, which will enable in vitro testing of potential drugs and vaccines against COVID-19.

The Council for Scientific and Industrial Research (CSIR), a premier organisation under the Ministry of Science and Technology, has 38 institutes and laboratories under it. Most of them are currently involved in developing aids linked to battling COVID-19.

The IGIB has developed FNCAS9 Editor Linked Uniform Detection Assay (FELUDA) for low cost and rapid diagnosis of COVID-19.

"The licence shall include transfer of the knowledge for scaling up the knowhow in the form of a kit that can be deployed for COVID-19 testing on ground as early as end of May," the statement added.

A completely indigenous scientific invention, FELUDA for COVID-19 has been designed for mitigating the ongoing COVID-19 situation and cater to mass testing. Its main advantages are its affordability, relative ease of use and non-dependency on expensive RT-PCR machines.

Commenting on the agreement, Banmali Agrawala, President - Infrastructure and Defence & Aerospace, Tata Sons said, "This innovative CRISPR "Feluda" test uses cutting edge CRISPR technology for detection of genomic sequence of novel coronavirus.

"It uses a test protocol that is simple to administer and easy to interpret enabling results to be made available to the medical fraternity in relatively lesser time, as compared to other test protocols. We believe that CRISPR is futuristic technology that can also be configured for detection of multiple other pathogens in the future."

With regards to collaboration between CCMB and Eystem, the research team will use the latter's human lung epithelial cell culture system provided as part of its Anti-COVID Screening (ACS) platform to understand the molecular and pathological characteristics of the novel coronavirus.

This will help in establishing a rational basis for testing potential drugs in vitro, CCMB scientists said.

"Culturing the virus outside the human host is a technological challenge that needs to be overcome. Eystem's cell culture system expresses the ACE2 receptor and other genes that are key determinants of viral entry and replication.

"We hope that employing this system will allow the CCMB team led by Dr Krishnan Harshan to grow the virus predictably and thereby open up the potential for the drug screening and vaccine development strategies," said Dr. Rakesh Mishra, Director, CCMB.
PTI PR ZMN

Hyderabad's CSIR-IICT develops low-cost COVID-19 testing kit, to seek ICMR approval

CSIR -IICT

05 May, 2020

The Council of Scientific and Industrial Research - Indian Institute of Chemical Technology (CSIR-IICT) has developed low-cost kits for testing COVID-19. The premier research organisation has partnered with Hyderabad-based Genomix Biotech to help develop and market the real-time polymerase chain reaction (RT-PCR) testing kits.

Speaking to TNM, Dr Anthony Addlagatta, leading the team of researchers at CSIR-IICT, said that the price of the testing kit developed by his team would be much cheaper than the testing kits currently in use to test suspected COVID-19 cases.

“Earlier, we used to import three of the key protein-based enzymes required to develop such tests. Now, with the lockdown, we realised that it is important we develop these components within the country. We have enough material to develop 5 lakh testing kits to start, with a capacity to produce material for 2 lakh kits per week,” says the Senior Principal Scientist.

CSIR-IICT will soon approach the Indian Council of Medical Research (ICMR) for approval of these diagnostic kits. The product will be validated and launched in a couple of weeks, informed Dr S Chandrasekhar, Director of CSIR-IICT.

In March this year, ICMR had placed an order for 5 lakh SARS-CoV-2 antibody testing kits by the Chinese firm Wondfo at a rate of Rs 600 per kit, an order value of Rs 30 crore. The testing kit was imported for a cost of Rs 245 per kit and was sold to ICMR at Rs 600 per kit. Subsequently, the Delhi High Court capped the price at Rs 400.

“Our testing kits will be considerably low-priced as we don't have a profit motive, we are a government research agency,” said Dr Anthony. “The final price will be decided in

consultation with Genomix Biotech,” he added.

The research scientist stated that the testing kits being developed by IICT could also be used for diagnosis of disease in animals and plants too. “This is a multi-purpose testing kit and is not restricted to test COVID-19 alone, but is poised to bring down the overall cost of RT-PCR-based diagnosis,” he added.

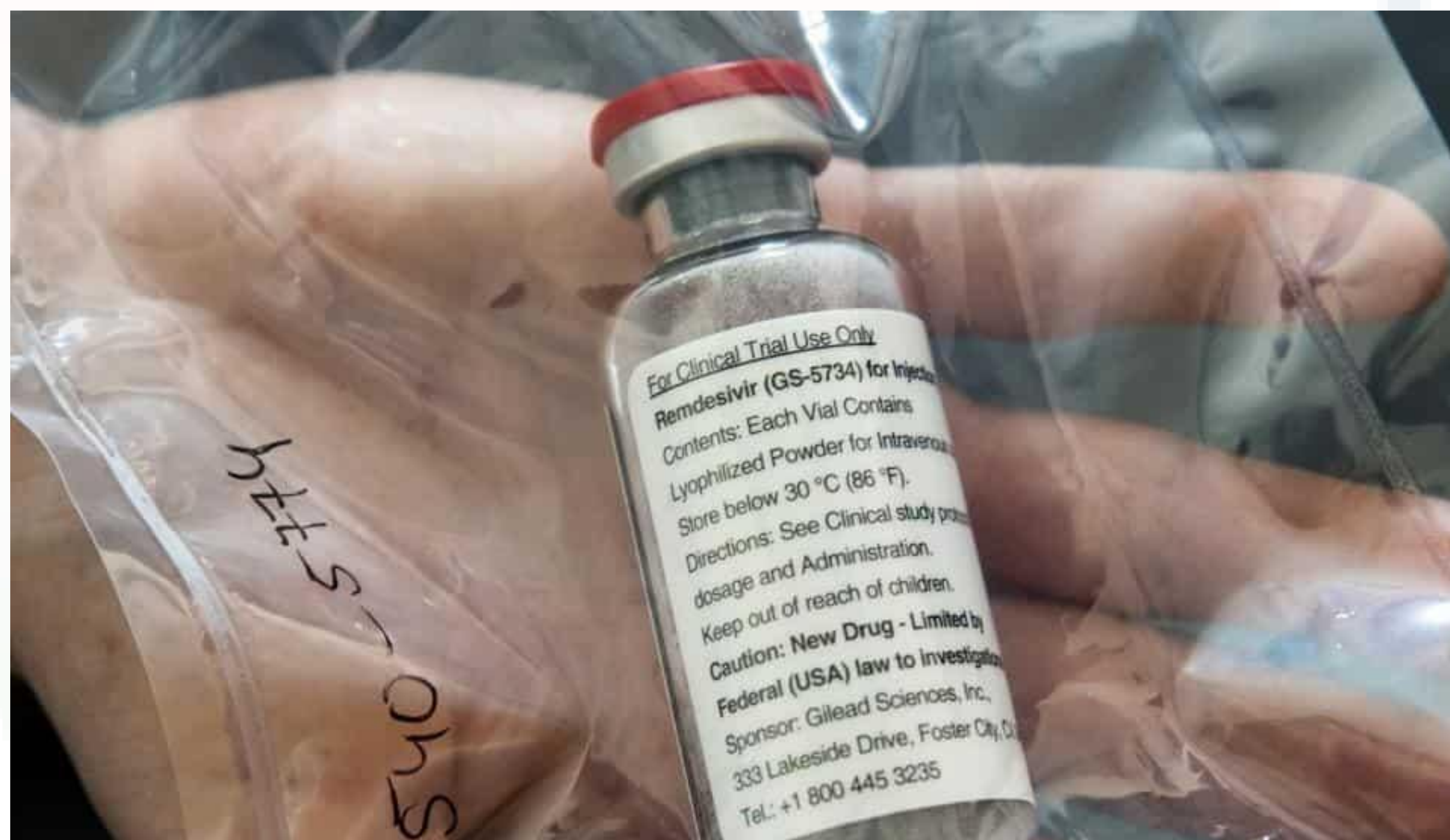
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[The newsminute](https://www.thenewsminute.com)

India a step closer to making key drug to treat Covid-19

CSIR-IICT

05 May, 2020



The Hyderabad based Indian Institute of Chemical Technology (CSIR-IICT) has synthesised the key starting materials (KSMs) for Remdesivir, the first step to develop the active pharmaceutical ingredient in a drug.

IICT has also begun so-called technology demonstrations for drug manufacturers such as Cipla so that manufacturing can begin in India, if needed. Remdesivir, manufactured by Gilead Sciences, is the first drug to treat Covid-19 approved for emergency use in the US based on clinical data .

Gilead Sciences has a patent on the drug but

patent laws allow for the drug to be developed solely for research purposes and not for commercial manufacturing. Remdesivir, when administered by an intravenous infusion helped patients recover on an average in 11 days, compared to 15 days taken by those on placebo according to US clinical trial results.

India is part of the World Health Organisation's Solidarity Trials for the cure of Covid-19 and has received 1000 doses of the drug for testing.

Harsh Vardhan, science and technology and health minister said in a statement on Monday that synthesis of KSMs has been achieved by CSIR-IICT and that technology demonstrations to Indian industry are happening. For Favipiravir, another promising drug to treat Covid19, CSIR is working with the private sector for clinical trials and a possible launch in India.

Remdesivir has three KSMs, Pyrrole, Furan and a Phosphate intermediate. Dr Srivari

Chandrasekhar, director of IICT said over phone from Hyderabad that synthesis of KSMs is an important stage in drug development.

“The synthesis of key starting materials (KSM) for any drug is the first step to develop an active pharmaceutical ingredient (API). These key starting materials for Remdesivir are available in India and chemical companies can manufacture these. Other reagents can be sourced from other countries. We started working on KSM for Remdesivir in January end, when trials had begun in China,” he said.

Gilead Sciences CEO, Daniel O’ Day in an open letter on April 29 said: “On the supply side, we are working to build a global consortium of pharmaceutical and chemical manufacturers to expand global capacity and production. It will be essential for countries to work together to create enough supply for people all over the world and we look forward to these collaborative efforts.”

Experts said the Indian government could request Gilead Sciences for grant of voluntary licenses to Indian private companies for a royalty. If not, India could use the compulsory licence option, under which it, or a generics manufacturer can manufacture patented drugs so as to protect the health of its citizens. The patent holder, however, gets paid for this.

“Because it is a patented drug, there are two options. One is that manufacturers obtain permission from the patent holder for a license to manufacture. The other option is that the Indian government allows two to three manufacturers to manufacture the drug on a compulsory license or a government use license. The manufacturers will need regulatory clearances which will be available only when more clinical data is available on the efficacy of the drug,” said KM Gopakumar, an intellectual property rights expert.

Published in:

[Hindustantimes](https://www.hindustantimes.com)

CSIR-IMMT

05 May, 2020



CSIR-IMMT, Jigsaw Mercantile inks pact

CSIR-Institute of Minerals & Materials Technology, Bhubaneswar said it has transferred alcohol-based formula for making hand sanitisers and coconut oil-based formula for making liquid soap to the MSME start-ups Jigsaw Mercantile. An agreement was signed and exchanged in this regard between the Jigsaw Mercantile managing director Ranjan Swain and CSIR-IMMT director Prof. Suddhasatwa Basu

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The New Indian Express

UT starts sending samples to IMTECH, conducts pool testing

CHAHAT RANA
CHANDIGARH, MAY 4

AS PART of efforts to ramp up COVID-19 testing in Chandigarh, a red zone area where more than a 100 patients have already tested positive, the UT administration has started sending samples to the Institute of Microbial Technology (IMTECH), which has a bio safety level 3 lab that can test around 500 samples a day now. Government testing laboratories in the UT, including IMTECH and the Government Medical College and Hospital (GMCH) in Sector 32 have also begun pool testing on days that they receive a large number of samples.

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The Indian Express

सुविधा • जहां पर कोरोना पॉजिटिव टेस्ट की संख्या दो फीसदी है, आईसीएमआर ने वहां दी है टेस्ट की परमिशन इमटेक शुरू करेगा पूल टेस्टिंग, मिली इजाजत

• सिर्फ कम प्रभावित इलाकों के लिए ही दी इजाजत, ज्यादा वालों के लिए होगी अलग टेस्टिंग

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इंडियन इंस्टीट्यूट फॉर माइक्रोबियल बायोटेक्नोलॉजी (इमटेक) अब चंडीगढ़ में कोविड 19 की पूल टेस्टिंग शुरू करेगा। इंडियन काउंसिल फॉर मेडिकल रिसर्च (आईसीएमआर) ने इसके लिए परमिशन देते हुए गाइडलाइंस भी जारी कर दी हैं। हालांकि, पूल टेस्टिंग की इजाजत सिर्फ

• यह है पूल टेस्टिंग...

गले या नाक से सैंपल लेने के बाद उन सैंपल के ग्रुप बना लिए जाएंगे। इसमें यदि 100 लोगों का टेस्ट करना है तो 10 ग्रुप में टेस्टिंग होगी। यदि इसमें से सात ग्रुप नेगेटिव आते हैं और तीन पॉजिटिव तो पॉजिटिव आने वाले सभी ग्रुप के सभी सैंपल वन टू वन चेक किए जाएंगे। ऐसे में लगभग 67 टेस्ट का खर्च बच जाएगा। मॉलिक्यूलर टेस्टिंग के खर्च को कम करने और लैब्स की कैपेसिटी बढ़ाने के लिए आईसीएमआर ने ये आदेश दिए हैं।

उन इलाकों में ही दी जा रही है जहां पर कोरोना पॉजिटिव टेस्ट की संख्या दो फीसदी है। ऐसे में बापूधाम कॉलोनी या सेक्टर-30

जैसे इलाकों के लिए इस सुविधा का उपयोग नहीं किया जा सकेगा। इमटेक प्रवक्ता के अनुसार सोमवार से इसकी शुरुआत कर दी गई है।

• ये हैं आईसीएमआर की सिफारिशें

पूल टेस्टिंग सिर्फ उन इलाकों के लिए की जाएगी, जहां पर आबादी से दो फीसदी या कम कोविड-19 पॉजिटिव मरीज हैं। ऐसे इलाकों में दो से लेकर पांच तक सैंपल की पूलिंग हो सकती है। ये पूलिंग उन कॉन्टैक्ट के साथ नहीं होगी जो कोविड 19 पॉजिटिव पेशेंट के सीधे संपर्क में आए हों। सिर्फ एंजिपेटेमेटिक सैंपल के लिए ये टेस्ट होगा। कोविड 19 के पांच फीसदी से अधिक आबादी वाले इलाकों में इसकी इजाजत कलाई नहीं दी जा रही है।

इससे रिसोर्सेज की बचत होगी और बड़ी आबादी के टेस्ट संभव हो सकेंगे। वर्ल्ड हेल्थ ऑर्गेनाइजेशन (डब्ल्यूएचओ) ने भारत में टेस्ट

ज्यादा कराने को कहा है। इमटेक के डायरेक्टर डॉ. संजीव खोसला ने कहा कि पूल टेस्टिंग की शुरुआत से बड़ी आबादी के टेस्ट संभव हो सकेंगे।

उन्होंने बताया कि टेस्टिंग सिर्फ आईसीएमआर की गाइडलाइंस के अनुसार ही होगी। डीएचआर, आईसीएमआर वायरस रिसर्च और किंग जॉर्ज मेडिकल यूनिवर्सिटी (केजीएमयू) लखनऊ की डायग्नोस्टिक लैब में इसके लिए रिसर्च की गई थी। कम से कम पांच सैंपल को पूल करके टेस्ट किए गए और इसी रिसर्च के आधार पर आईसीएमआर ने ये रिसर्च की है।

Scientists to culture novel coronavirus in human lung epithelial cell

CSIR -CCMB

04 May, 2020

New Delhi, Centre for Cellular and Molecular Biology (CCMB), Hyderabad has tied up with a Bengaluru-based company, Eyestem Research Private Limited, to take up research activities on COVID-19. Through this research collaboration, an attempt will be made to grow novel coronavirus in human cell lines, which will enable in vitro testing of potential drugs and vaccines against the COVID-19.

The research team will use Eyestem's human lung epithelial cell culture system provided as part of its Anti-COVID Screening (ACS) platform to understand the molecular and pathological characteristics of the novel coronavirus, with a view of establishing a rational basis for testing potential drugs in vitro, said CCMB scientists.

"Culturing the virus outside the human host is a technological challenge that needs to be overcome. Eyestem's cell culture system expresses the ACE2 receptor and other genes that are key determinants of viral entry and replication. We hope that employing this system will allow the CCMB team led by Dr. Krishnan Harshan to grow the virus predictably and thereby open up the potential for the drug screening and vaccine development strategies", said Dr. Rakesh Mishra, Director, CCMB.

CCMB is a constituent laboratory of the Council of Scientific and Industrial Research (CSIR) known for its cutting-edge research work on cellular and molecular biology. Eyestem Research Private Limited is a cell therapy start-up incubated at the Centre for Cellular and Molecular Platforms (C-CAMP), Bengaluru. C-CAMP is an initiative of the Department of Biotechnology, Ministry of Science and Technology.

Dr. Jogin Desai, CEO, Eyestem, expressed hope that CCMB will be able to leverage its

platform and advance COVID-19 research that will help the country. “The ACS platform has been developed by Dr. Rajarshi Pal and his team and is a testament to our depth and expertise in cell therapy and disease modeling,” he said.

Eyestem is working to democratize access to cell therapy as well as disease modeling platforms and bring their benefit to a large section of humanity, added Dr. Desai.

CSIR-NEIST

04 May, 2020

By Our Staff Reporter

IMPHAL, May 4: Marjing Hand Sanitizer, an alcohol-based herbal hand sanitizer manufactured by Marjing Industries Private Limited using CSIR-NEIST technology was launched today

During the simple function held at CSIR-NEIST complex in Lamphelpat, Lok Sabha MP Dr RK Ranjan said that producing such sanitizer by State-based industries to encourage people of regular handwashing is indeed a proud moment.

The programme was also attended by Senior Principal Scientist of CSIR-NEIST, Lamphelpat, Dr H Birkumar Singh; CEO, Kwaklei and Khonggunmelei Orchids Pvt. Ltd, Dr RK Kishore, Vice-Chancellor, CAU Imphal Prof M Premjit Singh and HoD South-East Asian Studies, Prof Amar Yumnam.

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लॉकडाउन में अवसाद और तनाव को मापेगा ऑनलाइन सिस्टम

लखनऊ। कोरोना की वजह से हुए लॉकडाउन में लोग करीब 40 दिन से अपने घर तक सीमित हो गए हैं। इसका असर उनके मानसिक स्वास्थ्य पर पड़ रहा है। ऐसे में लोगों की मदद के लिए सेंट्रल ड्रग रिसर्च इंस्टीट्यूट (सीडीआरआई) के वैज्ञानिकों ने एक ऑनलाइन सेल्फ असेसमेंट सिस्टम तैयार किया है। यह सिस्टम कुछ सवालों के जवाब के आधार पर लोगों के मानसिक स्वास्थ्य का हाल बता देगा।



सीडीआरआई के वैज्ञानिक डॉ. संजीव यादव का कहना है कि सिस्टम को इस तरह तैयार किया गया है कि लोगों को उनके मानसिक स्वास्थ्य के अलावा जरूरी उपचार बताया जा सके। जरूरी होने

**वैज्ञानिक संस्थान
सीडीआरआई ने तैयार
किया सेल्फ
असेसमेंट सिस्टम**

पर काउंसलिंग भी सीडीआरआई की विशेषज्ञ टीम करेगी। इसके लिए टीम में न्यूरो साइंटिस्ट डॉ. शुभा शुक्ला और न्यूरो साइकिएट्रिस्ट डॉ. एसएस लाल श्रीवास्तव को शामिल किया गया है। दोनों का रोल सवाल तय करने से लेकर उनके जवाब के आधार पर परिणाम तय करना है।

जवाब देते ही मिलेगा परिणाम : इस असेसमेंट को खुद से सीडीआरआई की वेबसाइट पर जाकर वहां दिए गए लिंक पर रजिस्टर करना होगा। यहां 27 सवालों के जवाब पूछे जाएंगे। इनके जवाब सबमिट करते ही परिणाम और जरूरी सुझाव तत्काल मिल जाएगा। विशेषज्ञ टीम इस डाटा को गोपनीय रखते हुए आंकलन करेगी। जरूरी होने पर काउंसलिंग के लिए व्यक्ति से संपर्क किया जाएगा। <https://cdri.res.in/surveymha> लिंक से कर सकते हैं अपना असेसमेंट।

KGMU, CDRI join hands for corona vaccine

CSIR -CDRI

04 May, 2020

LUCKNOW: After becoming the first institute in the state to start convalescent plasma therapy, King George's Medical University (KGMU) has now joined hands with Central Drug Research Institute (CDRI) for three major research projects, including development of a vaccine for the Covid-19. The university, which is conducting highest number of Covid-19 tests in the state, has also been approached for use of natural herbal products in treatment of the disease by the central AYUSH ministry.

This is in addition to five more research proposals on the anvil to study the virus and cause of disease for finding treatment methodologies and drugs to cure the infection.

KGMU vice-chancellor Prof MLB Bhatt said there are at least seven research projects initiates simultaneously by KGMU in collaboration with other scientific institutes.

"With CDRI we have three research projects - one is a molecular research to know the reasons for disease causation, second one is for finding treatment methodologies and a third project is to develop a vaccine for the virus. We have also submitted confidential proposals on novel coronavirus to ICMR for its approval," he said.

CSIR-CEERI

04 May, 2020

प्रयास: सीरी के वैज्ञानिक सस्ता इंस्टेंट स्क्रीनिंग सिस्टम बनाने में जुटे

पिलानी में तैयार हो रही है कोरोना की त्वरित जांच किट

उत्पल शर्मा
patrika.com

पिलानी (झुंझुनू) . वैज्ञानिक एवं औद्योगिक अनुसंधान परिषद (सीएसआइआर) की संघटक प्रयोगशाला केन्द्रीय इलेक्ट्रॉनिकी अभियांत्रिकी अनुसंधान संस्थान (सीरी) के वैज्ञानिक कोरोना जांच की सस्ती किट बनाने में जुटे हैं। स्वदेशी तकनीक से विकसित किट निर्माण कार्य अंतिम चरण में है।

सीरी के वरिष्ठ प्रधान वैज्ञानिक

डा. अजय अग्रवाल के नेतृत्व में संस्थान के युवा वैज्ञानिक ऋषि शर्मा, टी. ईश्वर तथा आशीष कुमार की टीम जिस किट को तैयार कर रही है, वह कम कीमत की होने के साथ ही सटीक परिणाम देगी। इसके अलावा वैज्ञानिक राहुल प्रजेश, विजय चटर्जी एवं रंजन कुमार मौर्य की दूसरी टीम कोरोना जांच के लिए पोर्टेबल तथा कम लागत के माइक्रो पीसीआर सिस्टम बनाने में जुटी है।



पोर्टेबल यूवी-सी
सेनेटाइजर सिस्टम भी

वैज्ञानिक पोर्टेबल यूवी-सी सेनेटाइजर सिस्टम भी विकसित कर रहे हैं। सीरी के वैज्ञानिक सीएसआइआर की चंडीगढ़ स्थित प्रयोगशाला सूक्ष्मजीव प्रौद्योगिकी संस्थान के साथ मिलकर एंटीबॉडी-एंटीजन आधारित संसूचक पोर्टेबल इलेक्ट्रो केमिकल सेंसर प्रणाली विकसित करने में भी जुटे हैं।

होगी आसानी

माइक्रो पीसीआर सिस्टम, यूवी सी सेनेटाइजर सिस्टम के आरंभिक परिणाम उत्साहवर्धक हैं। प्रोटेक्टिव जैकेट प्रदर्शित करेंगे। इससे घरों में सेनेटाइजेशन आसानी से हो सकेगा।



डॉ. अजय अग्रवाल, वरिष्ठ प्रधान वैज्ञानिक, सीरी

Published in:

Rajasthan Patrika

City's 'Dhruv', first private lab in region authorised to test Covid-19 samples

CSIR -NEERI

03 May, 2020

In the wake of rise in number of persons with symptoms of novel coronavirus in State, Maharashtra government has authorised 24 private laboratories to shoulder the responsibility of testing the samples. Dhruv Pathology and Molecular Diagnostic Laboratory of Nagpur became the first private laboratory in the region recognised by Indian Council for Medical Research (ICMR) for Covid-19 testing by Real Time Polymerase Chain Reaction (RT-PCR).

This is the sixth laboratory in Nagpur to have Covid-19 testing facility. Currently five laboratories are functioning in Nagpur including Government Medical College and Hospital (GMCH), Indira Gandhi Government Medical College and Hospital (IGGMCH), All India Institute of Medical Sciences (AIIMS), Centre for Zoonosis of Nagpur Veterinary College (affiliated to Maharashtra Animal and Fisheries Sciences University (MAFSU) and National Environmental and Engineering Research Institute (NEERI). With increase in COVID-19 suspects daily, the load on the laboratory at Indira Gandhi Government Medical College and Hospital (IGGMCH) has also increased. IGGMCH laboratory staff was doing it single-handedly.

Initially, in Maharashtra, National Institute of Virology (NIV) at Pune was authorised to test samples received from across the State. All the samples of any viral diseases were to be sent to NIV. During swine flu outbreak, Government came up with the decision of setting up of another laboratory at IGGMCH. The laboratory was developed on the basis of standard norms prescribed by NIV, Pune.

During swine flu outbreak, IGGMCH shouldered the responsibility well. When load increased further, the State government authorised some private laboratories including

Dhruv Pathology run by Dr Shailendra Mundhada and Dr Madhavi Deshmukh in Nagpur to conduct the tests. Recently, Dhruva Pathology had sent proposal to ICMR which after examining the details asked the laboratory to do some modifications. In the next inspection, ICMR finally gave approval and its latest notification included it in the list. It is the only private laboratory in Central India to get the permission to test samples for COVID-19. The testing facility at AIIMS, Nagpur is doing well, mostly doing testing of the samples of persons from Vidarbha area--Yavatmal, Amravati and Nagpur too.

The testing facility at Centre for Zoonosis at Nagpur Veterinary College has all the facilities for examining the samples for coronavirus. The laboratory has been conducting tests since long. Machines at zoonosis centre are different than the ones at IGGMCH or AIIMS and was given approval due to its compatibility by IGGMCH. GMCH has got the machine and got approval from ICMR. NEERI too was added in the list. All India Institute of Medical Sciences (AIIMS), Nagpur, has been designated 'Mentor Institute' by ICMR, to handhold and mentor medical colleges and to facilitate the establishment of COVID-19 diagnostic facilities for the state of Maharashtra, Goa, Daman and Diu and Dadra and Nagar Haveli. It does not include GMCH at Nagpur, Mumbai, Pune. Mahatma Gandhi Institute of Medical Sciences, Sevagram, Wardha is another laboratory in Vidarbha that was approved by ICMR for testing sample for COVID-19. Apart from NEERI, the other five institutes affiliated to CSIR are conducting tests of samples to determine COVID-19 cases. There are total six CSIR institutes doing the yeoman's work and contributing to contain coronavirus.

Published in:

[Thehitavada](http://Thehitavada.com)

● కరోనా కట్టడి మందులపై ఐఐసీటీ డైరెక్టర్ ఎస్.చంద్రశేఖర్ వెల్లడి

ఈనాడు, హైదరాబాద్: కొవిడ్-19 మహమ్మారిని తుదముట్టించే ఔషధాలపై ప్రపంచవ్యాప్తంగా పరిశోధనలు సాగుతున్నాయని తాము కూడా దృష్టి సారించామని హైదరాబాద్ లోని ఇండియన్ ఇన్స్టిట్యూట్ ఆఫ్ కెమికల్ టెక్నాలజీ (ఐఐసీటీ) డైరెక్టర్ డాక్టర్ ఎస్.చంద్రశేఖర్ పేర్కొన్నారు. కరోనా నివారణకు వాడుతున్న 25 ఔషధాలను కొస్టల్ ఆఫ్ సైంటిఫిక్ ఆండ్ ఇండస్ట్రియల్ రీసెర్చ్ (సీఎస్ఐఆర్) ఇప్పటివరకు గుర్తించిందని తెలిపారు. 'కొవిడ్-19పై సీఎస్ఐఆర్ పోరాటం' అంశంపై శనివారం నిర్వహించిన ఫేస్బుక్ లైవ్లో ఆయన మాట్లాడారు. 25 ఔషధాల్లో పావిపిరవిర్ అత్యంత ఆశాజనక ఔషధాల్లో ఒకటన్నారు. ఈ ఔషధానికి సంబంధించిన యాక్టివ్ ఫార్మాస్యూటికల్ ఇన్ గ్రేడియంట్ (ఏపీఐ)ని తాము అభివృద్ధి చేసి ప్రముఖ ఫార్మా కంపెనీకి బదిలీ చేసినట్లు పేర్కొన్నారు. రెగ్యులేటరీ అధారిటీ అనుమతుల దశలో ఉందన్నారు. కొవిడ్ రోగులపై



ఎస్.చంద్రశేఖర్



రాకేశ్ మిశ్ర

తయారీకి మరో ఫార్మా సంస్థతో భాగస్వామ్యం చేసుకున్నామన్నారు. కొవిడ్కు కొత్త ఔషధం కనుగొనాలంటే సంవత్సరాలు పడుతుందని.. అందుకే ఉన్న ఔషధాలపై ప్రపంచంతో పాటు సీఎస్ఐఆర్, ప్రత్యేకించి ఐఐసీటీ పనిచేస్తోందని తెలిపారు. ఔషధాలకు అవసరమైన ముడిసరకు కోసం విదేశాలపై ఆధారపడటాన్ని తగ్గించే దిశగా ఐఐసీటీ పరిశ్రమలతో కలిసి బృందంగా పనిచేస్తోందన్నారు. ఫేస్బుక్ లైవ్లో సీసీఎంబీ డైరెక్టర్ డాక్టర్ రాకేశ్ మిశ్ర, సీఎస్ఐఆర్ డైరెక్టర్ జనరల్ డాక్టర్ శేఖర్ సీ మండే, ఇతర ప్రయో

కరోనా పరీక్షలకు దేశీయ కిట్

• అభివృద్ధి చేసిన ఐఐసీటీ

ఈనాడు, హైదరాబాద్: హైదరాబాద్ లోని ఐండియన్ ఇన్స్టిట్యూట్ ఆఫ్ కెమికల్ టెక్నాలజీ (ఐఐసీటీ) దేశీయ పరిష్కారంతో కరోనా కిట్లను అభివృద్ధి చేసింది. ప్రస్తుతం ఉపయోగిస్తున్న కిట్లు చాలావరకు విదేశాల నుంచి దిగుమతి చేసుకున్నవే. వీటి దర ఎక్కువ ఉండటమే కాదు కొరత సైతం వేదిస్తున్న విషయం విదితమే. ఐఐసీటీ తమ ప్రయోగశాలలో ఆర్టీ-పీసీఆర్ కరోనా కిట్లలో వాడే రివర్స్ ట్రాన్స్క్రిప్టేస్ తో సహా మూడు రకాల ఎంజైమ్లు, ఇతర రసాయనాలను తయారు చేసింది. పరీక్ష కిట్లో ఉపయోగించే తక్మాన్ ప్రోబ్ తయారీకి జినోమిక్స్ బయోటెక్ సంస్థతో లాగ స్వామ్యం కుదుర్చుకుంది. కిట్ల పనితీరుపై ఇరు సంస్థలు సంతృప్తి వ్యక్తం చేశాయి. వీటిని



ఐఐసీటీ ప్రయోగశాలలో సీనియర్ ప్రిన్సిపల్ శాస్త్రవేత్త డాక్టర్ అంటోని అడ్లగట్టతో పరిశోధక విద్యార్థులు

వాణిజ్య స్థాయిలో ఉత్పత్తి చేసేముందు భారతీయ వైద్య పరిశోధన మండలి (ఐసీఎంఆర్) ద్రువీకరణ పొందాల్సి ఉంటుంది. కిట్ల ద్రువీకరణ వేగంగా పూర్తి చేసేందుకు సీసీఎంబీ వంటి

సంస్థలకు ఐసీఎంఆర్ ఆధికారం ఇచ్చిన సంగతి తెలిసిందే. ఐసీఎంఆర్ లేదా సీసీఎంబీ వీటి పనితీరును పరీక్షించి అనుమతి ఇచ్చే ప్రక్రియ కొన్ని వారాల్లోనే పూర్తవుతుందని ఐఐసీటీ శాస్త్రవేత్తలు పేర్కొంటున్నారు. ద్రువీకరణ రాగానే వారంలో రెండున్నర లక్షల కిట్లకు అవసరమైన ఎంజైమ్లు, రసాయనాలు ఉత్పత్తి చేసే సామర్థ్యం ఐఐసీటీకి ఉందని పరిశోధనలో పాల్గొన్న సీనియర్ ప్రిన్సిపల్ శాస్త్రవేత్త డాక్టర్ అంటోని అడ్లగట్ట 'ఈనాడు'కు తెలిపారు. ప్రస్తుతం తమ ప్రయోగశాలలో 2 లక్షల కిట్లకు సరిపడా ఎంజైమ్లు, రసాయనాలు ఉన్నాయన్నారు. కరోనాకే కాకుండా మలేరియా, టీబీ, క్యాన్సర్ తో పాటు ఆర్టీ-పీసీఆర్ పై చేసే ఇతర వ్యాధి నిర్ధారణలో కూడా ఈ కిట్ ఉపయోగపడుతుందని వివరించారు. జుతువులు, మొక్కల వ్యాధి నిర్ధారణలోనూ ఉపయోగించుకోవచ్చని పేర్కొన్నారు.

CSIR-IIP to set up viral testing facility to fight Covid-19

CSIR –IIP,IGIB,CCMB,IMTECH

02 May, 2020

The Indian Institute of Petroleum (IIP) is establishing an RT-PCR-based Covid-19 testing facility in its Dehradun campus. Indian Institute of Petroleum (IIP) is a constituent laboratory of Council of Scientific and Industrial Research (CSIR).

CSIR has planned a community testing strategy to keep track of new outbreaks and thus restrict them from spreading further. “CSIR-Indian Institute of Petroleum (IIP) has always believed in working for national causes. Testing samples for Covid-19 is another opportunity where we assure our full commitment in line with protocols and standard operating procedures defined by the Indian Council of Medical Research (ICMR). This new Covid-19 testing facility will process at least 30 patient samples per day with appropriately trained manpower and adequate biosafety precautions”, said Dr Anjan Ray, Director, CSIR-IIP.

The Biochemistry and Biotechnology team at CSIR-IIP is receiving continuous expert guidance from CSIR's specialized biological sciences laboratories such as CSIR-Institute of Genomics and Integrative Biology (IGIB) (Delhi), CSIR-Institute of Microbial Technology (IMTECH) (Chandigarh) and CSIR-Centre for Cellular and Molecular Biology (CCMB) (Hyderabad) to enable their active participation in the fight against coronavirus.

CSIR-IIP is in constant touch with Uttarakhand state health ministry and all government hospitals to make the facility fully operational and initiate testing by mid-May. This state-of-the-art testing facility will be available for the long term as a state resource centre for viral testing, as well as a key part of the planned environmental biotechnology centre of excellence at CSIR-IIP.

“This effort will augment the capacity of the limited public testing facilities across

Uttarakhand and help share a load of patient samples from the populous Dehradun district, which is currently supported for testing only by AIIMS (Rishikesh) and Doon Hospital. Additionally, CSIR-IIP is also planning to adopt a faster micro RT-PCR-based analysis method for sample screening under the technical supervision of CSIR-IGIB”, said Dr Ray.

Health experts believe that more testing can help in surveillance of Covid-19 outbreak. One of the commonly accepted methods of diagnosis approved by the World Health Organization (WHO) is through the real-time reverse transcription PCR (RT-PCR) technique, wherein the researchers extract nucleic acid from the collected samples from individuals (typically either a nasal or throat swab, or saliva) and amplify parts of the viral genome via RT-PCR. The test is positive if the samples harbour any viral RNA and return a negative result if the viral RNA is absent.

Other than this testing effort, CSIR-IIP is providing the free supply of in-house produced hand sanitizer in bulk to local hospitals and police stations, and masks to sanitation workers and needy migrants. The Institute is also developing a low-cost oxygen concentrator for medical use, using the lab's industry-proven capability of adsorptive gas separation.

Published in:

Thehindubusinessline

Kisan Sabha App by CSIR-CRRI to Provide Most Economical and Timely Logistics Support to Farmers

CSIR -CRRI

02 May, 2020

In present situation of COVID 19, farmers are looking for help so that their harvest reaches the market and procurement of seed/ fertilizer, etc. A robust supply chain management is urgently required to facilitate the timely delivery of the produce at the best possible prices. Kisan Sabha App developed by CSIR-Central Road Research Institute (CSIR-CRRI), New Delhi to connect farmers to supply chain and freight transportation management system was remotely launched today, by DG, ICAR and Secretary DARE, Dr. Trilochan Mohapatra.

Dr Mohapatra complimented CSIR on developing this portal as a one stop solution for farmers, transporters and other entities engaged in the agriculture Industry and offered that ICAR can work together with CSIR and use the Krishi Vigyan Kendra's (KVK) networks for implementation.

DG CSIR and Secretary DSIR, Dr Shekar C Mande, present on the occasion, noted that "The development and launch of the App reiterates the commitment of CSIR in supporting the farmers in these critical times in the country. We look forward to partnering with ICAR, Industry, MSMEs, the trucker and farming community and all stakeholders to take this initiative forward", he said.

The launch of the app was witnessed remotely by representatives of industry, farmers, team of CSIR-CRRI and other senior scientists of CSIR. Dr Satish Chandra, Director of CSIR-CRRI highlighted that as the overall agriculture market is not well organized and lot of produce gets wasted or is being sold at a very low rates, a detailed primary study was undertaken wherein 500+ farmers, were interviewed and 6-day long survey with dealers, transporters and farmers was conducted in Asia's biggest AzadpurMandi to understand the

various issues and gaps in the current environment. Based on this study and the current prevailing situation, the Kisan Sabha App was developed.

The portal connects the farmers, transporters, Service providers (like pesticides/ fertilizer/ dealers, cold store and warehouse owner), mandi dealers, customers (like big retail outlets, online stores, institutional buyers) and other related entities for timely and effective solution.

The portal acts as a single stop for every entity related to agriculture, be they a farmer who needs better price for the crops or mandi dealer who wants to connect to more farmers or truckers who invariably go empty from the mandis.

KisanSabha also works for people in agriculture services sector such as dealers of fertilizers/ pesticides, who can reach out to more farmers for their services.

It would also prove to be useful for those associated with cold store(s) or godown(s). KisanSabha also provides a platform for people who want to buy directly from the farmers.

Kisan Sabha has 6 major modules taking care of Farmers/Mandi Dealers/Transporters/Mandi Board Members/ Service Providers/Consumers.

Kisan Sabha aims to provide the most economical and timely logistics support to the farmers and increase their profit margins by minimizing interference of middlemen and directly connecting with the institutional buyers. It will also help in providing best market rates of crops by comparing nearest mandis, booking of freight vehicle at cheapest cost thereby giving maximum benefit to the farmers.

Published in:

[Krishijagran](#)

IITR has now taken up three verticals against Covid-19

CSIR -IITR

02 May, 2020

Testing is the key component in the fight against Covid-19. It helps to monitor and restrict the spread of this coronavirus. This is the reason why there is a constant emphasis on increasing the number of testing for Covid-19. Lucknow-based Indian Institute of Toxicology Research (IITR) is now working on three verticals, out of five taken up by CSIR against the coronavirus, which includes a new Covid-19 testing facility being started from May 2.

CSIR has devised a five-pronged strategy in the fight against Covid-19. The five verticals to fight Covid-19 are Surveillance, Rapid and Cheap Diagnosis, Development of New Therapies (including Repurposing of Drugs and New Drugs), Hospital Assistive Devices and Supply Chain and Logistics. Among these verticals, CSIR-IITR is participating in the three verticals, namely prevention, diagnostics and therapeutics.

CSIR-IITR has distributed over 2500 litres of hand sanitizer to frontline workers involved in the fight against Corona at Lucknow, Varanasi and Raebarely. This initiative was accomplished with the Corporate Social Responsibility contributions of various corporates. In the second vertical, CSIR-IITR has set up a state-of-the-art facility for Covid-19 testing as per national norms. A team of about 24 personnel will be participating in this exercise and have been imparted training by the Department of Microbiology, King George's Medical University (KGMU) on issues related to biosafety and handling of samples.

In a meeting held with Suresh Khanna, Minister of Medical Education, and Chief Secretary, Government of Uttar Pradesh, Professor Alok Dhawan, Director, CSIR-IITR, apprised them of the Institute's full preparedness for testing and assured support to the state to enhance the testing capacity for Covid-19.

Principal Secretary, Medical Education, has informed that the samples will be sent to CSIR-IITR from 2nd of May. Initially, the institute shall be performing test on 50 samples per day as per the suggestion of KGMU, which will be ramped up in a week or so.

Director-General of CSIR and Secretary, Department of Scientific and Industrial Research (DSIR), as well as the Indian Council of Medical Research (ICMR), Ministry of Health and Family Welfare, have given their approval for testing of Covid-19 at CSIR-IITR.

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CCMB employing several tools & approaches in country's fight against COVID-19

CSIR -CCMB

02 May, 2020

Council of Scientific and Industrial Research, CSIR's constituent leading biology lab, Centre for Cellular and Molecular Biology (CCMB) in Hyderabad is employing several tools and approaches in the country's fight against COVID-19.

Speaking exclusively to AIR News, Director of the premier laboratory, Dr Rakesh Mishra said, CCMB is doing Next Generation Sequencing and analysis to map out the whole genome sequence of the Novel Coronavirus.

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CDRI, IITR and BSIP to begin corona testing from today: Yogi

CSIR –CDRI,IITR

02 May, 2020

Chief minister Yogi Adityanath on Friday said microbiologists and other manpower have been made available to Central Drug Research Institute (CDRI), Indian Institute of Toxicology Research (IITR) and Birbal Sahni Institute of Palaeosciences (BSIP) and testing for Covid-19 samples would begin there from Saturday.

Giving their consent to carry out Covid-19 testing, the premier research institutes had recently requested the government for microbiologists and other manpower for the job.

Reviewing the lockdown situation at a meeting here on Friday, Yogi also gave directives for pool testing and said world-class quality test kits for coronavirus should be considered to expedite testing work in the state.

The chief minister directed sending of additional administrative officers and dedicated medical teams to Agra and Kanpur Nagar and said protecting medical teams from infection was a must to defeat the virus. He said police was working in the forefront in the battle against coronavirus and arrangements for their training should be made to protect them. He said PPE kits and N-95 masks etc should also be given to them for protection. He said master trainers should be appointed to carry out training work and added that patients should be admitted to L-1, L-2 and L-3 Covid hospitals after making an assessment of their condition.

Yogi said emergency health services should be started in all districts and list of government and private doctors for consultation should be published in newspapers. He said masks and gloves should be provided to UPSRTC drivers bringing migrant labourers back to UP. He said the state government was committed to bringing back migrant labourers/workers and steps have been taken for their return to the state in a phased manner.

The chief minister said about 4 lakh migrant labourers/workers have returned from Delhi while 12,000 have been brought back from Haryana. He said the state government would ensure that migrants from other states, too, returned safely. He said steps should be taken to bring back migrant labourers/workers from one state at a time and name and contact numbers of all those returning must be recorded. He said all those returning should be tested and mandatorily be put in quarantine. He said adequate arrangements for quarantine centres and community kitchens should be made for the labourers.

Yogi said Uttar Pradesh's border with other states should remain sealed and no entry should be allowed from there. He said the chief minister's help line should connect with village pradhans and corporators to ensure that no one returned without giving proper information as such people may be possible corona carriers.

He said digital banking should be promoted to avoid crowding in banks and added that RuPay card should be encouraged for digital transactions.

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CSIR-IICT

02 May, 2020

IICT builds Covid testing kits

**SANJAY SAMUEL
PAUL I DC**
HYDERABAD, MAY 2

The city-based Indian Institute of Chemical Technology (IICT), in partnership with a private biotech company, said it was all set to launch a new and affordable RT-PCR kit for testing samples for determining Covid-19.

IICT senior principal scientist Dr Anthony

● **IICT PARTNERED** with Genomix Biotech in the development of the kit that can also be used in testing for various other disease diagnostics in humans, animals and plants.

Addlagatta, who heads the team behind the new kit, said the design and development process was complete.

Two lakh kits can be produced in one week which can be scaled up to four lakh based on demand. He said the

price would be much lower than those in the market.

IICT partnered with Genomix Biotech in the development of the kit that can also be used in testing for various other disease diagnostics in humans,

animals and plants. They will seek validation from an Indian Council for Medical Research-recognised laboratory and hope that this process would be completed in two weeks.

Genomix Biotech will optimise the kit for Covid-19 diagnosis by adding the Taqman probes that increase the specificity of quantitative PCR tests.

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कोरोना की व्यूहरचना

डा अशोक कुमार तिवारी

विगत करीबन चार पांच माह से विश्व के लगभग हर देश का शासनिक-प्रशासनिक, चिकित्सक-परिचारक, वैज्ञानिक और शिक्षक से लेकर आम आदमी तक जहां देखें वहां कोरोना संक्रमण से लड़ाई की चर्चा और जहोजहद। इसके संक्रमण की भयावहता पूरे विश्व में हाहाकार मचा रही है। दुनिया ने इसे कोरोना संक्रमण के खिलाफ युद्ध की संज्ञा दे रखी है। संकट निश्चय ही बड़ा भयावह है। फिलहाल, सिवाय बचाव के इसका कोई ठोस उपाय किसी के पास नहीं है। दरअसल, यह संकट एकाएक विश्व मानव समुदाय के समक्ष आ खड़ा हुआ। और युद्ध शुरू हो गया। शास्त्र सम्मत युद्ध नीति कहती है कि युद्ध में जाने से पहले योद्धा को शत्रु के बलाबल, अस्त्र शस्त्र, रणनीति, रणकौशल एवं व्यूहरचना की पर्याप्त जानकारी रख लेनी चाहिए। शत्रु कोई भी हो वाइरस ही क्यों नहीं, सब पर यह बात लागू होती है। वैज्ञानिक इस रोग कारक वाइरस के संक्रमण की प्रक्रिया, उसका निदान, बचाव के उपाय और संक्रमित व्यक्ति के उपचार हेतु दवाइयों के आविष्कार तथा भविष्य में हम इस तरह के वाइरस संक्रमण से कैसे बचें, इसके लिए वैक्सिन के विकास में तन्मयता से लगे हुए हैं। इन कार्यों को सम्पादित करने के लिए उन्हें रोग कारक के बारे में कुछ मूलभूत जानकारियों की आवश्यकता होती है। जैसे ज्योतिष शास्त्र में जन्म-कुंडली के आधार पर ज्योतिषी मनुष्य के चाल चरित्र, कार्य व्यवहार एवं भविष्य कथन को उजागर करते हैं, उसी प्रकार वैज्ञानिक जीव या यहां कहें तो वाइरस के जीनोम को पढ़कर उसके कार्य प्रणाली की जानकारी करने की क्षमता विकसित कर चुके हैं। कोरोना वाइरस (सार्स-कोवि-2 या कोविड-19) के कूटबीज लेखन और उस गूढ़लिपि को समझने की प्रक्रिया को शुरुआत हो चुकी है। वैसे तो जैसे जैसे कोरोना विश्व के अलग-अलग हिस्सों में फैल रहा है, इसके कई रूपांतर और पाठ भेद सामने आ रहे हैं, लेकिन मूलतः इसके जीनोम का कूटलेखन बता रहा है कि इसमें वाइरस की संरचना में आर एन ए (आर एन ए जिसे राइबो न्यूक्लिक एसिड कहते हैं, वाइरस का जेनेटिक मैटीरियल होता है) को बंधने वाली पेटिका, आवरण, झिल्ली, एवं कील (स्पाइक) मुख्य संरचनात्मक प्रोटीन हैं। इसके अलावा कई तरह की गैर-संरचनात्मक और पूरक संक्रामक

प्रोटीन्स हैं। इन प्रोटीनों का काम आश्रयी कोशिका (आश्रयी कोशिका का मतलब है जिस व्यक्ति में वाइरस का संक्रमण हो रहा है उसकी कोशिका) में प्रवेश कर वाइरस संक्रमण को तेजी से बढ़ाना और आश्रयी कोशिका की मशीनरी को अपने कब्जे में कर लेना है। आश्रयी-कोशिका को बंधक बनाकर वाइरस अपने न्यूक्लिक एसिड (आर एन ए) के तंतु को उसके अंदर घुसेड़ देता है। यह कार्य वाइरस की स्पाइक्स (कीलें) करती हैं। यह कार्य कीलें आश्रयी कोशिका की सतह पर उपस्थित एसीई-2 अंतर्ग्रहीतकों से मिलकर करते हैं। अंतर्ग्रहीतक कोशिका की सतह पर उपस्थित वे विशेष बिंदु हैं जिनका सहारा लेकर वाइरस कोशिका के अंदर प्रवेश करता है। मुख्यतया, ये अंतर्ग्रहीतक मनुष्य की श्वसन प्रणाली फेफड़ों की सतह पर होते हैं। इनसे सांठगांठ कर वाइरस की कील प्रोटीन लक्ष्य कोशिका के अंदर वाइरस के जीनोम को घुसेड़ देती है। वाइरस संक्रमण का यह पहला बिंदु है। अगर लक्ष्य कोशिका के पास इस अनजान शत्रु (एंटीजन) को पहचानने का माध्यम होता, जिसे एंटीबॉडी कहते हैं, तो संक्रमण यहीं रुक जाता।

चूंकि यह वाइरस नया है, हमारे शरीर में इसको पहचानने का यंत्र नहीं था इसलिए यह अंदर घुस गया। वैक्सिन विकास के लिए यह जगह एक अहम बिंदु है। वाइरस जीनोम के अंदर घुसने के साथ ही कुछ अपरिभाषित उपांग वाइरल प्रोटीन भी कोशिका के अंदर घुस जाती हैं और वाइरस के अनुकूल अंदरूनी वातावरण बनाती हैं। जिससे कोशिका के अंदर वाइरस की प्रतिकृतियों को बनने का वातावरण तैयार हो सके। संक्रमण के इस बिंदु पर वाइरस और कोशिकीय रक्षा प्रणालियों के बीच संग्राम होता है। इस संग्राम के दौरान शरीर में जो अवांछनीय ऊष्मा उत्पन्न होती है उससे इन्फ्लेमेशन होता है और हम बुखार फीवर अनुभव करते हैं। कोविड-19 संक्रमण का यह एक खतरनाक लक्षण है। वाइरस और हमारे बीच संग्राम का यही वो क्षण है जब हमारी इम्यूनोटी की परीक्षा होती है। अगर हमारा इम्यून सिस्टम तगड़ा है, तो हम वाइरस संक्रमण को यहीं दबा कर रोक सकते हैं। अगर लड़ाई कटे की हुई, तो क्वरंटाइन की नीबत और दवाइयों का सहारा। अर्थात् कम से कम चौदह दिन का

एकान्तवास। यदि वाइरस हावी, तो आप समझ सकते हैं। इसीलिए कहा जाता है, अपने स्वास्थ्य के प्रति सचेत रहें। इम्यूनोटी बढ़ायें। अपना खानपान आहार पौष्टिक रखें। योगासन प्राणायाम करें। शरीर को तंदुरुस्त मजबूत रखें। वैज्ञानिकों का मानना है कि संक्रमित मानव कोशिका के अंदर जो पहली वाइरस प्रोटीन बनती है वह करीबन सोलह लड़ियों की आपस में जुड़ी हुई प्रोटीन होती है। यह प्रोटीन कोशिका के अंदर कैची का काम करती हुई कोशिकीय प्रोटीनों के जोड़ों को कुतरती चली जाती है। अतः वास्तविक कोशिकीय प्रोटीन अपना कार्य नहीं कर पाती। इसी दौरान वाइरस की एक अन्य गैर-संरचनात्मक प्रोटीन जिसे कोशिकीय विध्वंसक प्रोटीन कहते हैं, संक्रमित कोशिका में कोशिकीय प्रोटीनों के निर्माण कार्य को प्रभावित कर बलपूर्वक कोशिका से अपनी प्रोटीनों का निर्माण करवाना शुरू करती है और साथ ही साथ संक्रमित कोशिका में अपने लिए प्रतिकारक (एंटीवाइरल) प्रोटीनों को इकट्ठा होने से रोकती है। जब संक्रमित कोशिका में वाइरस प्रोटीनों का निर्माण शुरू हो जाता है तो एक और बड़ी सौ गैर-संरचनात्मक वाइरल प्रोटीन अपना काम शुरू करती है। इसका काम होता है कोशिका के अंदर बन रही वाइरस प्रोटीनों को काटकर ढीला करते रहना जिससे कि वे अपने कामों को अंजाम देती रहें और साथ ही साथ संक्रमित कोशिका की प्रोटीनों में बदलाव करती रहें जिससे कि कोशिका की वाइरस से युद्धक क्षमता प्रभावित हो। कुछ गैर-संरचनात्मक वाइरल प्रोटीन संक्रमित कोशिका में तरल-भरे बबुलों का निर्माण करती हैं जिनके अंदर वाइरस की नयी प्रतिकृतियों के हिस्से होते हैं। संभवतः ये वही वाइरस भरे सूक्ष्म तरल बबुल्स हैं जो संक्रमित व्यक्ति के खांसने, छींकने और थूकने से दूसरे व्यक्तियों को संक्रमित करते हैं। गैर-संरचनात्मक वाइरल प्रोटीन में कुछ प्रतिरिपिक प्रोटीन भी होती हैं जो वाइरस आर एन ए जीनोम की नयी प्रतिरिपिची बनाती रहती हैं। मनुष्य की कोशिकाओं में वाइरस प्रतिरोधक प्रोटीन्स होती हैं। ये प्रोटीन्स वाइरस आर एन ए को खोज कर फेक देती हैं। लेकिन वाइरस भी बहुत चालाक होता है। वाइरस की एक अन्य गैर-संरचनात्मक प्रोटीन छद्मवाचन से वाइरस के जीन को आच्छादित किए रहती है जिससे कि मानव कोशिका में उपस्थित वाइरस प्रतिरोधी प्रोटीन उसपर आक्रमण

न कर पाए। वाइरस की एक अन्य गैर-संरचनात्मक प्रोटीनों में एक प्रोटीन कापी मशीन का काम करती है। यह मशीन वाइरस के जेनेटिक अक्षरों को एकत्रित करती रहती है और नये वाइरस जीनोम का निर्माण करती है, और संक्रमित कोशिका इसके बनाए अनुक्रमों को पढ़ने लगती है। अनुसंधानकर्ताओं का मानना है कि एंटीवाइरल ड्रग्स जैसे कि रेमडेसिविर, इसी नवजीनोम निर्माण की प्रक्रिया में विघ्न डालकर वाइरस के संक्रमण को फैलने से रोकती है। मजेदार बात यह है कि कापी मशीन नये वाइरस जीनोम बनाने के दौरान कभी कभी कहीं कहीं गलत अक्षरों को भी घुसा देती है। इसलिए वाइरस अपने साथ प्रूफरीडर प्रोटीन भी लिए रहता है। यह प्रूफरीडर गलत अक्षरों को निकालता रहता है जिससे कि सही अक्षर नवजीनोम में जुड़ते रहें। वाइरस संक्रमित मानव कोशिका में वाइरस प्रोटीनों के उपरोक्त कार्य कलापों के दौरान जाहिर है कूड़े कचरे भी उत्पन्न होंगे। अतः वाइरस अपने साथ झाड़ू लगाने वाली प्रोटीन भी साथ रखता है। ये प्रोटीन छूटे छूटे वाइरस आर एन ए को काटकर छुपाने की कोशिश करते रहते हैं। जिससे कि संक्रमित मानव कोशिका की वाइरस प्रतिरोधी रक्षा प्रणाली की नजर इन पर न पड़े। कुछ अन्य छद्मवाचनधारी वाइरस प्रोटीन्स संक्रमित मानव कोशिका में वाइरस के जीन को छुपाकर रखने का काम करती हैं जिससे कि कोशिका की रक्षा प्रोटीन्स इन्हें काट पीट कर फेक न दें। वाइरस का यह छद्म चरित्र बहुत ही खतरनाक है। जिसकी वजह से वह पुनः आक्रमण कर सकता है। अतः हमें लंबे समय तक सावधानी बरतने की जरूरत है। इस तरह से हमने देखा कि हमारी कोशिका के अंदर संक्रमण फैलते हुए भी वाइरस कितना सचेत और सावधानी पूर्वक काम करता है। इसलिए अगर हमारा इम्यून सिस्टम चौकन्ना रहे, इम्यूनोटी तगड़ी रहे, रक्षा तंत्र मजबूत रहें तो हम वाइरस से लड़ाई जीत सकते हैं। और वाइरस हमारा कुछ भी बिगाड़ नहीं सकता। इसके लिए हमारी पारम्परिक चिकित्सा पद्धति में बहुत से रसायन और नुस्खे उपलब्ध हैं जिनके सेवन से हम अपनी इम्यूनोटी मजबूत बनाकर अपनी शारीरिक प्रतिरक्षा तंत्र को मजबूत बनाए रख सकते हैं।

(लेखक सीएसईआर प्रयोगशाला भारतीय रासायनिक प्रौद्योगिकी में वरिष्ठ वैज्ञानिक हैं)

CCMB to start genome research on samples of COVID-19 patients

CSIR –CCMB

01 May, 2020

The Centre for Cellular and Molecular Biology (CCMB), Hyderabad, is all set to start genome research on the samples of Covid-positive patients in the State.

HYDERABAD: The Centre for Cellular and Molecular Biology (CCMB), Hyderabad, is all set to start genome research on the samples of COVID-19-positive patients in the State. This is to study why close to 60 per cent of the patients in Telangana were asymptomatic, while the rest require intensive treatment

Dr Rakesh Mishra, Director of CCMB, told Express, “The COVID-19-19 pandemic has affected lakhs of people across the globe. In Telangana, we have noted that while 60 per cent of the people who are affected by the virus are asymptomatic in nature, while the rest have symptoms and require treatment. So, the research will help us understand one of the two things -- is the virus different in the 40 per cent of people, or do 60 per cent of people have some differences in their genes as compared to the rest of the positive patients.”

He further added, “This process, however, cannot be accomplished within days or weeks. We may need a minimum of two months to come to any sort of conclusion. However, the research, if successful, will be able to point out a certain group of people who can go out, work, and be a part of social life, and the group of people who should take precautions, once the lockdown is lifted.”

The CCMB started testing COVID-19-positive samples close to a month ago. Will the samples of the positive patients be used for the research? “Yes. For the research to be successful, we will require all the data related to every patient, their treatment, history, and their samples. Thus, we have contacted all the hospitals and authorities involved and signed

documents related to research ethics, and the process will be started soon.”

Vaccine for virus

Asked if the research would help in the development of vaccine or a treatment for Coronavirus, he said, “We have not thought that far yet. However, I feel it would not be very helpful. It may definitely help us understand the dynamic nature of the virus and how it changes inside a host, and that information may be helpful in the development of a vaccine. But all of this will depend on the result of our research.”

Understanding the virus better

The research is to study why close to 60 per cent of the patients in Telangana are asymptomatic, while the rest of the 40 per cent require intensive treatment. It may help in understanding the dynamic nature of the virus and that information may be helpful in developing a vaccine

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