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BIOTECH EXPRESS

Startup Event
FABA's Whale Tank

India's Clinical Trial Registry might disappear soon and so the history of pharma records

SII's Cervevac:
The new DCGI approved vaccine without published clinical trial results

Anthony Fauci, Controversial US Top-doc FINALLY, To Retire By Year-end

Deaths due Covid-19 vaccines should be compensated by vaccine makers: Expert hope on Kerala HC remark

Dolo-650, pandemic's 'magic pill', faces income tax searches and PIL

Nearly Half of Pregnant Women in Pfizer COVID vaccine Trial Miscarried

India ranks globally 3rd in Start-Up ecosystem and also in terms of number of Unicorns: Dr Jitendra Singh

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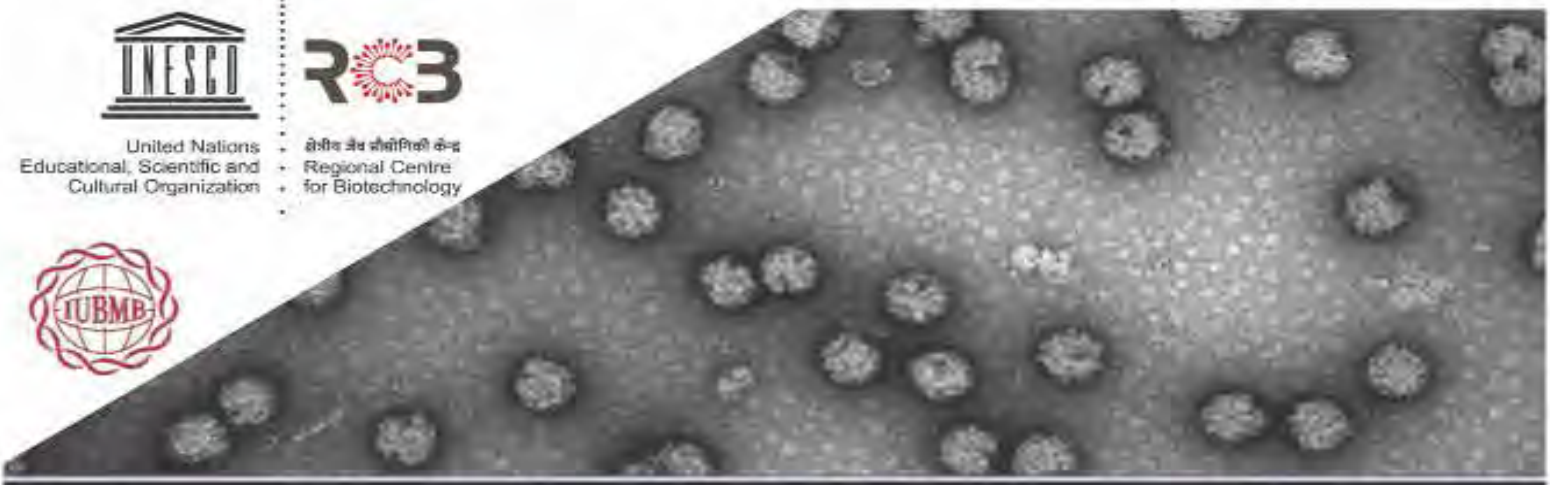

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News...

Volume 10 | Issue 109 | August 2022

Featured BioNews | p26

Biotech Research News | p20

Bad Research | p50

Biotech Industry News | p38

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Editorial

Deaths due Covid-19 vaccines should be compensated by vaccine makers: Expert hope on Kerala HC remark

Kamal Pratap Singh

The Kerala High Court on August 11, 2022 has made serious observations on deaths or adverse events related to Covid-19 vaccines. The court was hearing the case of Sayeeda KA vs Union of India. The Court called for urgent action from the Central Government and the National Disaster Management Authority (NDMA). Court said, they should formulate guidelines for disbursement of compensation to the families of people who died due to reactions to the Covid-19 vaccine. The Court was hearing the petition of a woman who lost her husband, following the administering of the Covid-19 vaccine in August 2021.

This is not the new thing, many such cases are pending in different state high courts, a vaccine expert from the sector said on being anonymous. He added that the compensation ought to be provided by vaccine maker and not government as it should not be tax payers' money. As we have seen earlier also how the government played with the compensation of COVID deaths, first it was 4 lakhs, later it was reduced to 50,000 and then the deaths were reduced in database so to save the compensation money, the reasons for deaths were given COVID while declaring COVID deaths, though in early pandemic co-morbidities were considered as COVID.

Most of adverse event and deaths due to vaccines are because due to COVISHIELD, however covaxin cannot be neglected. It was already well established much before that Astrazeneca vaccine which Serum Institute of India was making had some fatal effects, clots were reported and that is what exactly has been reported in AEFI India data. Majority of deaths are reported after Covishield

shot and most of them are because of clots in parts of the body.

Now there are many reports coming in prestigious journals that vaccine do not provide any kind of immunity not they reduce the transmission but they were approved in hurry and now we can see how in non-emergency situation people have lost their lives.

Coming back to compensation, vaccine makers can easily make payments, they have made billions of rupees and had millions of funding. For example only Serum Institute's net worth sky rocketed after selling COVID vaccine. In 2020, Serum Institute's founder Poonawalla had a net worth of $8.2 billion, which has risen by $17.8 billion over the last two covid hit years.

There are serious issues with the vaccine because the companies have made their profits but the deceased and their family members have suffered. They were not ready to take vaccine but government imposed restrictions like ration, job security etc. to forcefully inoculate them the vaccine that already had reported adverse events.

The Kerala High Court said, "This is a national calamity which we faced. Of course, I do understand the case is very genuine and it has to be dealt with. As far as the Central government is concerned, similar issues are cropping up in other states also. There has to be an effort to formulate a proper guideline, a proper scheme for compensating these persons and that is being done. Let them bring on record what steps have been taken so that I can pass a reasoned and considered order, rather than an order in vacuum. It is not a laughing matter, I consider it to be very serious", the judge orally observed.

Most of adverse event and deaths due to vaccines are because of COVISHIELD however COVAXIN also cannot be neglected.

The Court deeply acknowledged the seriousness of the petition. The submission made by the petitioner sought the pacing of the procedure of redeeming compensation, as the people are facing severe consequences owing to the death of the earning member of the family.

There are identical issues pertaining in various states informed the Central Government Counsel. The cases of adverse effects following inoculation of Covid-19 vaccines have popped up throughout India.

In the previous article of April 2022, Biotech Express reported total 70,102 adverse events after vaccination in India in which Covishield comprised 63,315 cases, followed by Covaxin at 6,757 and Sputnik at 30. Out of the total cases a total 1,013 fatalities were reported following the COVID-19 vaccines, 921 were after Covishield, 92 after Covaxin, and Sputnik reported zero such incidents.

Compensation in other countries

In 2011, Merck pleaded guilty to criminal charges related to the marketing and sales of Vioxx. One agency scientist, Dr. David Graham, estimated that the use of Vioxx may have contributed to more than 27,000 heart attacks or deaths. The company

agreed to pay the U.S. Department of Justice $950 million to resolve its misconduct.

And Merck settled with tens of thousands of injured patients in 2007. Merck agreed to pay $4.85 billion to plaintiffs and their families.

In 2012, GlaxoSmithKline (GSK) agreed to a $3 billion settlement. It was the largest health care fraud settlement in U.S. history. The charges stemmed from certain prescription drugs, including Paxil, Wellbutrin and Avandia.

Johnson & Johnson paid $2.2 billion in 2013 for improperly marketing its drug Risperdal.

A jury ordered Takeda Pharmaceuticals and Eli Lilly to pay $9 billion in 2014. The award went to an Actos user who developed bladder cancer.

Table: Some of the biggest compensation paid by pharma companies

Company	Amount of penalties	Year
McKesson Corporation, Amerisource-Bergen Corporation, Cardinal Health Incorporation, and Johnson & Johnson	$26 billion	2022
GlaxoSmithKline	$3 billion	2012
Pfizer	$2.3 billion	2009
Johnson & Johnson	$2.2 billion	2013
Abbott	$1.5 billion	2012
Eli Lilly	$1.42 billion	2009
Merck	$950 million	2011
Amgen	$762 million	2012
AstraZeneca	$520 million	2010
Actelion	$360 million	2018

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Editorial

SII's Cervevac: The new DCGI approved vaccine without published clinical trial results

by Seema Pavgi Upadhye

According to a recent news, the Indian government is planning to include Serum Institute of India's indigenously-developed Quadrivalent Human Papillomavirus vaccine (qHPV) against cervical cancer in the National Immunization Programme.

As per views of a vaccine expert who is furious after this news said, there is no clinical trial study available in public domain to study the benefits or harmful effects of the proposed vaccine but system is in hurry to launch this product while not making data transparent for public scrutiny. We have seen earlier also that how Covishield which was developed by Astrazeneca and manufactured by Serum Institute in India has caused serious adverse events including deaths from blood clots, as per AEFI data. Apart from Indian scenario now data from Pfizer is also telling us the hidden picture of adverse events that are coming after right to information (RTI) request. The Pfizer covid vaccine has affected to large extent and it was in the knowledge of FDA but they kept pushing it.

Cervical cancer vaccine Hesitancy

Questions about cervical cancer vaccine efficacy, safety and affordability have dominated the debate since it was introduced in 2006 in the USA.

In one study the researchers in USA looked at results from a large,

CDC-led survey of parents of teens aged 13 to 17. From 2015 to 2018, more than 39,000 caregivers of teens who had not received the HPV vaccine responded to the survey and selected 1 of 31 reasons for declining the vaccine.

The top five selected reasons were:

"Safety concerns"
"Not recommended"
"Lack of knowledge"
"Not sexually active"
"Not needed or not necessary"

In 2015, 13% of parents had cited safety concerns as the main reason for declining the HPV vaccine. But by 2018, that percentage had risen to 23%. During the same period, there was a drop in the percentage of parents citing three of the other most common reasons for declining or delaying the HPV vaccine.

According to a research published in January 2020, publications originating from Italy, Japan, Australia, Columbia, India, Ireland, Denmark, Mexico, Norway, Sweden, Canada, France, the USA, and the United Kingdom have reported post-HPV vaccination phenomena that share overlapping clinical features with chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME), fibromyalgia (FM), postural orthostatic tachycardia syndrome (POTS), complex regional pain syndrome (CRPS), small fiber neuropathy (SFN), and autonomic dysfunction (AD).

Typical symptoms include (but are not limited to) prolonged generalized fatigue, chronic headaches, widespread generalized pain, tremors, orthostatic fainting, postural tachycardia, alterations in gastrointestinal motility, gait disturbance, anxiety, paresthesia's, sleep disturbance, learning impairment, difficulty in concentration, and other cognitive phenomena. These reported phenomena have created hesitation by some parents to have HPV vaccination administered to their teenage children.

Currently two companies in the world are making cervical cancer vaccine, they are GlaxoSmithKIine and Merck & Co. The two companies' respective vaccines — the former's Cervarix and the latter's Gardasil — were widely marketed as the best available prophylactic, or preventive, for cervical cancer but have also gained huge criticism.

Gardasil, also known as Gardasil-4 or quadrivalent human papillomavirus recombinant vaccine, was approved for use in 2006. It protects against two high-risk HPV types (types 16 and 18) and two low-risk types (types 6 and 11). Gardasil-9, also known as human papillomavirus 9-valent recombinant vaccine, was approved in 2014. It protects against two low-risk HPV types (types 6 and 11) and seven high-risk types (types 16, 18, 31, 33, 45, 52, and 58).

Cervarix, also known as human papillomavirus bivalent vaccine recombinant, was approved in 2009. It protects against two high-risk HPV types (types 16 and 18).

Legal Suits against Vaccine maker Merck in USA

In USA, HPV vaccine lawyers for a group of victims filed a motion in federal court for an MDL HPV class action lawsuit for the long-term side effects caused by the Gardasil vaccine. Specifically, claims that Merck failed to properly warn of the dangerous side effect that include postural orthostatic tachycardia syndrome (POTS), autoimmune disorders, neurologic injuries, and other serious complications. The motion identified 34 pending Gardasil lawsuits in 25 different federal districts.

The number of HPV vaccine lawsuits will grow exponentially as more people learn about the serious long-term side effects the lawsuits allege were caused by Merck's HPV vaccinations. There are also another 91 Gardasil cases currently pending in "Vaccine Court" in the U.S. Court of Claims. These HPV lawsuits will convert to traditional tort cases once the vaccine proceeding is finished.

According to lawyers, Merck obtained approval for Gardasil in 2006 with "deceptive research trials" which overstated the benefits and vastly understated the risks and side effects of the vaccine.

Merck aggressively marketed Gardasil utilizing scare tactics, false advertising, and political lobbyists to induce millions of parents to vaccinate their adolescent girls with Gardasil.

Now thousands of girls who received the Gardasil vaccine are experiencing serious adverse health consequences and hundreds have died as a result of vaccine complications.

Merck obtained a fast-track FDA approval for Gardasil in June 2006. During the fast-track approval process, Merck concealed material facts about the effectiveness (or lack thereof) and safety of Gardasil. Merck also failed to perform full and appropriate medical investigations and studies during the preapproval or post-approval stages. The clinical trials Merck undertook did not even examine Gardasil's potential to prevent cancer, rather, the trials only analyzed whether Gardasil could prevent potential precursor conditions. Merck then submitted misleading data suggesting that these "precursor conditions" inexorably result in cancer.

Before Gardasil, there was no HPV public health emergency in the U.S. and few women had even heard of HPV so there was little or no demand for an HPV vaccine. To ensure the financial success of its new "holy grail," Merk preceded its rollout of Gardasil with years of expensive HPV "disease awareness" marketing.

Once Gardasil was approved for pre-teen girls, Merck launched an aggressive propaganda campaign aimed at scaring and guilting parents who did not inoculate their daughters with Gardasil. Merk's campaign implied that "good parents" vaccinate their children with Gardasil.

In addition to its aggressive advertising campaign, Merk also used political lobbyists and financial incentives to get state legislatures to make the Gardasil vaccine mandatory for all school children. Starting in 2004, Merck pumped millions into political lobbying organizations such as Women in Government and NACCHO. These organizations then started aggressively pushing legislators around the country to mandate Gardasil vaccines for all 6th-grade girls.

In January 2020, a study from the UK raised significant doubts about whether the Gardasil vaccine prevented cervical cancer as claimed by Merck. The study highlights the fact that Gardasil has never been proven to prevent cervical cancer (or any other type of cancer).

Contrary to Merck's representations, Gardasil may increase the risk of cervical and other cancers, not prevent them, according to lawyers. Several studies (including one from the CDC who has still stood by the vaccine so far) have found that by suppressing certain HPV strains, Gardasil vaccines may promote mutagenetic changes in the virus that can lead to cancer. Public health data seems to support the conclusion that Gardasil may be increasing the rate of cervical cancer. After the introduction of the HPV Vaccine in Britain, cervical cancer rates among young women aged 25 to 29 increased by 54%. In Australia, 13 years after Gardasil was released and pushed upon teenagers, there has been a 16% increase in women 25-29 and a 30% increase for women 30-34. Meanwhile, rates are decreasing for older women (who have not been vaccinated).

This is the information which is available with Miller & Zois, Attorneys at Law in USA.

Let's come back to India

The Cervavac vaccine which is currently approved has completed clinical trial (http://ctri.nic.in/Clinicaltrials/pmaindet2.php?trialid=26674&EncHid=&userName=serum%20institute) according to company sources but still I am not able to find neither any published research about this vaccine nor any data on CDSCO website, expert added.

According to PTI, Prime Minister Narendra Modi was likely to make an announcement on August 15 but did not after Biotech Express brought this issue to public on twitter. It suggested why inclusion of vaccine in national immunization program and if he has learned that if something goes wrong how disastrous can the effect be. The trial data is not public in the country where many experts are avail-

able, but it was approved by some officials of govt only.

According to some press releases but not any published research, the phase 2/3 clinical trial of the vaccine has been completed with support of the Department of Biotechnology. The government's advisory panel NTAGI approved qHPV after reviewing clinical trial data of the vaccine.

In the application to the DCGI, Singh, from SII had stated that qHPV vaccine CERVAVAC has demonstrated robust antibody response that is nearly 1,000 times higher than the baseline against all targeted HPV types and in all dose and age groups, though it is just a statement not supported by scientific results, as far as information in public domain considered.

Going further, it is evident on the CTRI website that it has the registration of the trial but no publication record of the results, though it was recently modified on August 12, 2022.

Conclusion

If we see cervical cancer vaccine, they are surrounded by controversies and according to some reports they are not effective at all, infact they may show serious side effects including deaths and other lifelong ailments. It is also evident that currently approved SII cervical cancer vaccine trial data is not available in public domain and thus whole issue raise serious questions about approval of vaccine. Why it is not made public by SII if they have done good research and why not by DCGI if they believe they passed a great product or DBT if they think their funding has given fruitful results. In current scenario it is not possible to comment more about approval or denial of vaccine but the trial data should be made public and till then the vaccine should not be pushed for national immunization as it can create disaster among women who are lifeline of the country.

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Editorial

India's Clinical Trial Registry might disappear soon and so the history of pharma record

Kamal Pratap Singh

The CTRI is a database of more than 45,000 registered clinical trials that is entirely paperless. Now, it has been revealed that the clinical trial registry 'doesn't exist' and that 'ghost staff' runs the tests after June 30th 2022.

The existing staff of CTRI also have not been given any further extension beyond June 30th2022, but the supposedly non-existent ghost staff has registered over 1,060 clinical trials from July 1 till August 5.

The CTRI is a database of more than 45,000 registered clinical trials that is entirely paperless. It is accessible to the public, searchable, and is kept up to date by a small group of data entry workers, researchers, and statisticians.

Since its initial launch as a three-year pilot project in 2007, the registry—which is physically hosted at the National Institute of Medical Statistics (NIMS)—has operated in project mode with periodic extensions rather than being awarded a permanent status.

This is despite the Drug Controller General of India mandating the registration of all clinical studies beginning September 15, 2009, and a 2013 revision to the Drugs and Cosmetics Rules 1945 requiring clinical trials to be registered with CTRI before recruiting the first participant in any research. Several ethics boards, as well as the editors of Indian biomedical publications, require trial registration before contemplating publication of trial data.

However, in a lawsuit brought in the Delhi High Court by CTRI employees requesting that the registry be made a permanent function of NIMS and also that their services be regularized. The government sustained that the CTRI was not a permanent feature of NIMS, which falls under ICMR, and that it was an initiative that was "extended from time to time." It acknowledged that CTRI was now completely financed by ICMR, with funding originating from the health ministry. Making a project permanent or not is an executive role and hence a policy decision, according to the NIMS affidavit, which also asked if the court would intervene at all under the circumstances.

According to official correspondence that is attached to the petition, ICMR agreed to ensure the project's continuation after the pilot years, and over time, the commitment was to make CTRI a regular activity of NIMS and to create positions at the institute for CTRI. Registration of clinical trials is referred to as "perennial activity" in a lot of ICMR correspondence.

Director of NIMS, M. Vishnu Vardhana Rao wrote the ICMR DG in a May 2021 letter and stated: "Considering the highly specialized and time bound nature of the work in CTRI, there is a need to accord five-year extension to the trained CTRI scientists and staff who have been working in the project for many years now in a reliable and consistent manner."

"During the pandemic, including the lockdown phase, the CTRI staff continued to work 24/7, all days of the week to enable COVID studies to be registered at the earliest (often on the same day), providing hand holding as per need of the hour," stated Rao's letter.

EVENT

Pitch your Start-up to National/International Venture Capitalists - first ever opportunity provided to Bio-Start-ups by FABA

Federation of Asian Biotech Associations (FABA) in association with the leading incubation centres in the country in the biotech sector organized "Whale Tank Event, a Venture Capital – Biotech Startup Connect", which held virtually on the 18th & 19th of August 2022.

This Whale Tank event gathered amazing start-ups, venture capitalists, pharma and biotech firms, and leading incubation centres together on one platform.

The purpose of this event was to facilitate potential investments in Bio start-ups and nurture the start-up ecosystem in the life sciences space in India. It was an excellent opportunity for startups in Bio or Life Sciences, including MedTech, AgriTech, FemTech, Digital Health, eHealth and Health-Tech.

This two-day program provided exceptional opportunity for big Pharma and Biotech companies to evaluate and make smart investments into technologies/products.

For the participating startup, it gave a chance to demonstrate their product/technology to global industry leaders and promote their

technologies and explore funding from prestigious VCs. The Venture Capitalists at the event include Genome Capital, Indian Angel Network, BioAngels, Oyster Venture Partners, Technology Development Board - GoI, IdeaSpring, etc.

This event was brought by the esteemed leaders of the Federation of Asian Biotech Associations (FABA), Hyderabad including Prof. P. Reddanna, Executive President, FABA and Director, Aspire BioNest; Dr. P. Ratnakar, Secretary General, FABA; Dr. Uday Saxena, Co-founder, ReaGene Biosciences; Dr. Ajith Kamath, Advisor, Pandorum Technologies, Dr. Jagadeesh Gandla, eLearning specialist, Technical University of Munich; and Dr. Prabhat Arya, Co-founder, Smagen.

Panel discussions are being arranged as part of this event on the topics "Challenges in building a successful startup incubation centre" by CEOs of leading incubation centres, and "Strategies for drawing synergies from the start-ups by Indian Biotech Industry". Apart from these, there were VC presentations, start-up pitches, and Fireside chats involving CEOs of successful start-ups.

At this event Dr. Renu Swarup, Former Secretary, Dept. of Biotechnology Ministry of Science & Technology, Government of India delivered the keynote address on "The Biotech Startup Ecosystem in India: Opportunities and Challenges in Making a Global Impact" on 18th August.
Mr. Sanjiv Navangul, MD & CEO, Bharat Serums and Vaccines (BSV) delivered another keynote address on 19th August and Valedictory address by Dr. Shirshendu Mukherjee, Mission Director, Biotechnology Industry Research Assistance Council (BIRAC).

This event has provided an opportunity and a platform for interaction among:

- Startups and Investors/Venture Capitalists for investments

- Startups and Big Pharma/Biopharma leaders for investments, outsourcing technologies/products and tie-ups

- Startups and CEOs of leading incubation centres for providing enabling environment Startups and Ecosystem enablers for laboratory supplies and equipment

- Startups and prospective entrepreneurs and students for internships/job opportunities and awareness of innovation and entrepreneurship

For more information visit:https://biofaba.org.in/whaletank/

Researchers develop Cellulose shoes made by bacteria

09 August 2022

The shoe's upper is made by bacteria that naturally produce nanocellulose—Komagataeibacterrhaeticus—and can be further genetically engineered to also self-dye by producing melanin for color.

Keane, a designer at Central Saint Martins School of Art and Design in London, and synthetic biologist Reeve, then at Imperial College London, set up Modern Synthetics in 2020 to pursue 'microbial weaving'. Their goal is to produce a new class of material, a hybrid/composite that will replace animal- and petrochemical-made sneakers with a biodegradable, yet durable, alternative.

The process begins with a two-dimensional yarn scaffold shaped by robotics, which the scientists submerge in fermentation medium containing the cellulose-producing bacteria.

The K. rhaeticus 'weave' the sneaker upper by depositing the biomaterial on the scaffold. Once the sheets emerge from their microbial baths, they are shaped on shoe lasts following traditional footwear techniques.

"It's more than the sum of its parts," Reeves says of the biocomposite. "Initially the scaffold helps the bacteria grow, then the microbial yarn reinforces the material: it holds the scaffold together." Once the shoe is made, it is sterilized and the bacteria are washed out.

Bacterial cellulose, Reeves explains, is already used in foods and in artificial skin and blood vessels, as well as for other industrial uses. "You don't need particularly expensive equipment, and you can aim for more localized manufacturing, the goal of the circular bioeconomy," says Reeve. To ensure this shoe has a chance to compete commercially, Modern Synthesis is working to build multigene systems into the high-cellulose-producing bacteria to add strength, stability and greater speed to the beta sheets they manufacture. "We have modelled it to be competitive with animal leather, eventually to be cheaper," says Reeve, who reveals that Modern Synthesis is in talks with a major sportswear manufacturer. The project was made possible by The Mills Fabrica of Hong Kong, Hong Kong Inno Space and Tom Ellis's lab at Imperial College London.

Extra Copy of Gene in Rice Helps Yield 40% More Grains

July 27, 2022

An extra copy of the OsDREB1C gene in rice boosted its nitrogen intake, resulting in more efficient photosynthesis and 40% more in grain yield. The Chinese scientists who conducted the research are now looking at the possibility of doing the same for other plants like wheat.

Scientists from the Chinese Academy of Sciences started investigating 118 rice and maize regulatory genes that encode transcription factors previously identified to be important to photosynthesis.

Particularly, they wanted to focus on genes that were activated when the plant is grown in low-nitrogen soil as these might help increase the plant growth activity and draw in more nitrogen to produce more grain. They narrowed the selection down to 13, of which five led to a significant amount of nitrogen intake.

They then selected the OsDREB1C gene and used it in a rice variety typically used for research – some had extra copies of the gene inserted into it while others had the gene knocked out. The plants were then subjected to greenhouse conditions where the scientist found that those with extra copies of the OsDREB1c gene grew faster as seedlings while those that had it knocked out were outgrown by control plants.

Results indicated that the plants with extra copies of the OsDREB1C took in more nitrogen through their roots and transported it to the shoots, and were better at photosynthesis.The researchers then tested their method on a high-yielding rice variety and it was here that they recorded bigger grains as well as up to 40% more grain production per plot of the transgenic rice when compared to the control plants. They also noted that the plants flowered sooner than expected which also contributed to the increased yield.

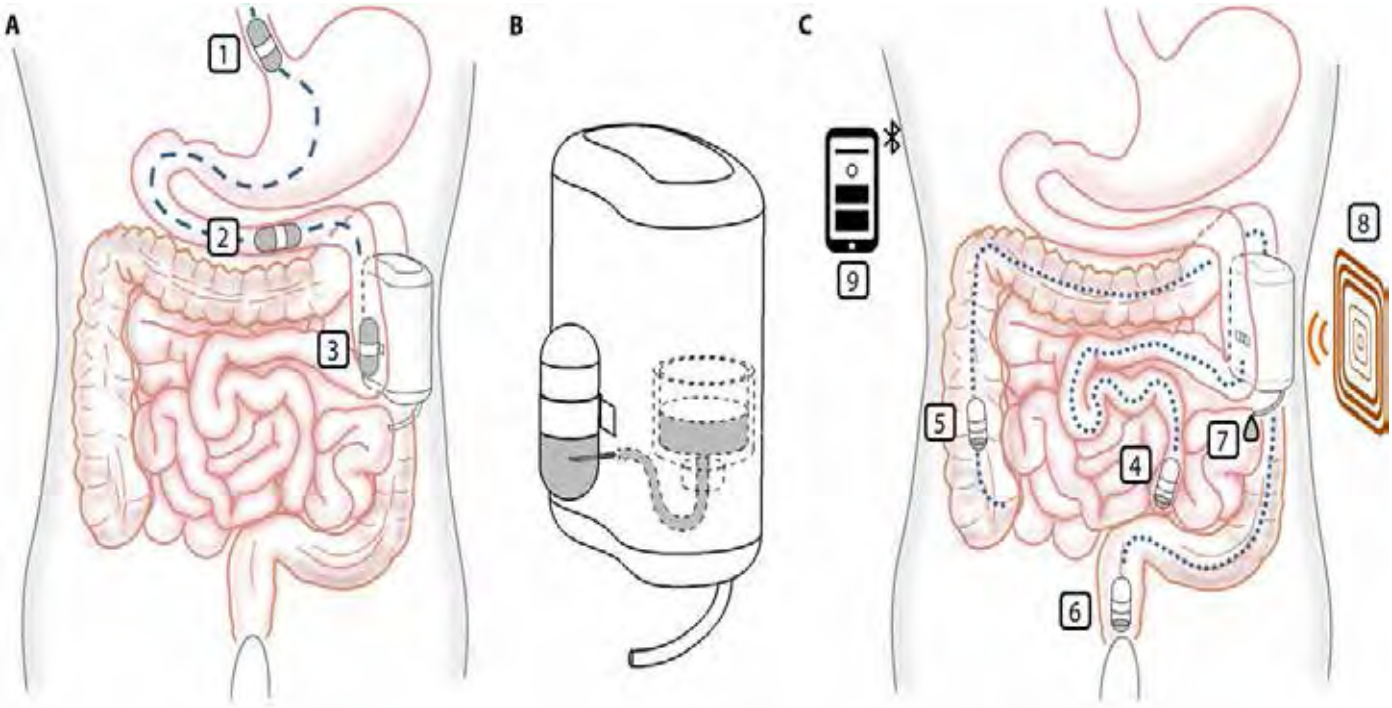
The OsDREB1C gene and other similar genes are also present in wheat, some grasses like rice, and broad-leaved plants. The data gathered from the transgenic rice study may support other researchers that aim to boost yields of other crops using the same type of modification.

MIT researchers developed implantable insulin device

Aug 10, 2022

Research engineers from the Massachusetts Institute of Technology have found a way to prevent scar tissue from disabling implantable devices. If established as safe and effective in humans, this technology could prove transformative in treating many diseases, such as diabetes.

The device, detailed in a Nature Communications publication, is called STAR, short for soft transport augmenting reservoir, and is being devel-



oped in collaboration with the Washington University School of Medicine.

In type 1 diabetes, many patients inject themselves with insulin daily. In most cases, patients need more than one dose daily and start with two insulin injections.

Some patients eventually grow to need three or four daily shots. Over time, this self-administered mode of delivery can cause problems for the patient, with repeated injections leading to sore spots in the body. It also becomes difficult to optimize the timing of the insulin shots.

To address these issues, researchers have long tried to develop an implantable device that could automatically secrete insulin into the blood when the body needs it.

But these efforts have hit a common roadblock: the body recognizes the implant as foreign and activates an immune response against it, encasing it in a fibrous scar capsule. Most insulin-releasing implants die out within weeks or months.

The MIT team's solution was to develop a soft robotic device consisting of two chambers.

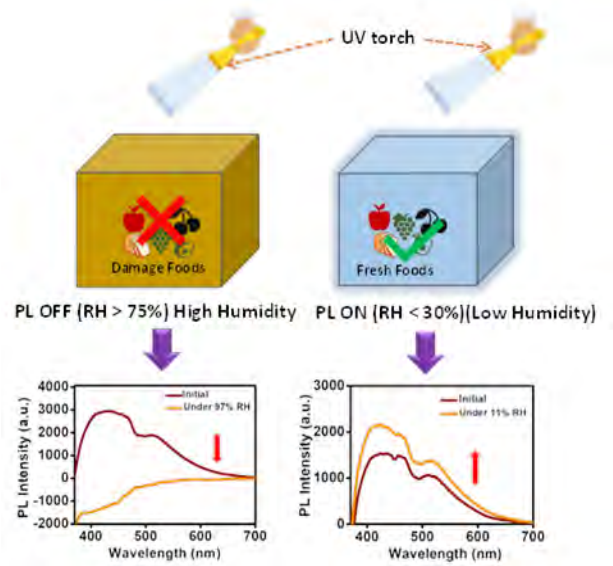
The first chamber carries the drug they want to be delivered, while the second is an inflatable reservoir the engineers could control from outside the body. By steadily inflating and deflating the second chamber for five minutes every 12 hours, the researchers saw that neutrophils in mice stayed away from their implant.

While STAR was able to resist scar formation, it wasn't able to prevent it completely, and fibrous tissue did eventually settle around the device. Still, the researchers found that scars around STAR were different. Instead of a messy tangle, collagen fibers were more neatly aligned—a feature that the team hypothesized would help drugs seep through better.

When they tested this out in mice, the team indeed saw that STAR could deliver insulin and reduce blood glucose, despite being slowly encased in scar tissue, though as the fibrous capsule grew thicker, insulin delivery became less efficient. In mice where the inflate-deflate mechanism was not activated, STAR started to show signs of dysfunction after two weeks. When used, however, the mechanism could maintain insulin delivery for up to eight weeks.

According to the team, while STAR is still mainly in the proof-of-concept stage, it holds big potential for treating human diseases, particularly as it addresses the innate foreign body response without needing drugs to suppress immune cells.

Biodegradable nanobiopolymer that detects relative humidity can monitor packed food freshness



August 12, 2022

The food industry has an increasing need for non-toxic, biodegradable, low-cost, and environmentally friendly material for use as packaging material to replace petroleum-based material like plastics. Besides, it also needs smart and active packaging materials to detect and report food quality in a real-time fashion. Such smart and active packaging systems respond to signals while interacting with the food packaging environment. Perishable packed foods are easily damaged by the change in relative humidity.

Scientists from the Institute of Advanced Study in Science and Technology (IASST), an autonomous institute of the Department of Science and Technology led by Prof. Devasish Chowdhury, Professor in the Physical Sciences Division, and his INSPIRE Senior Research Fellow (SRF) student Mr. Sazzadur Rahman have developed a smart biodegradable biopolymer nanocomposite which can detect relative humidity. In this, two biopolymers, Guar Gum (a variety of beans obtained from plant) and Alginate (obtained from brown algae), were blended with carbon dots (nanomaterial) to make a nanocomposite film that was successfully used to detect relative humidity. The fabricated nanocomposite film was an excellent smart sensor based on the fluorescence 'on-off' mechanisms against humidity. Their research has been published in the International Journal of Biological Macromolecules.

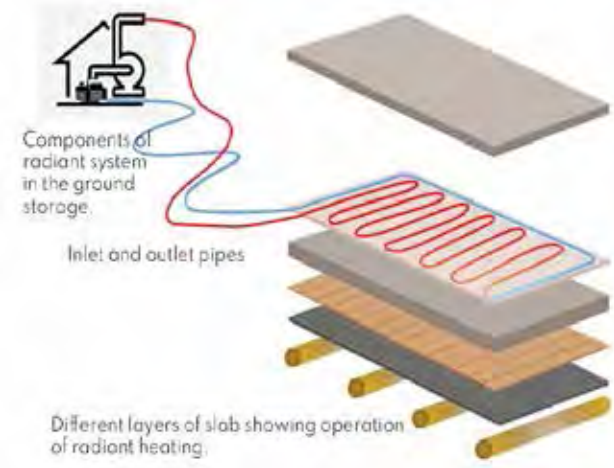
New bio-gas-based radiant floor heating system to bring warmth to Leh village in India

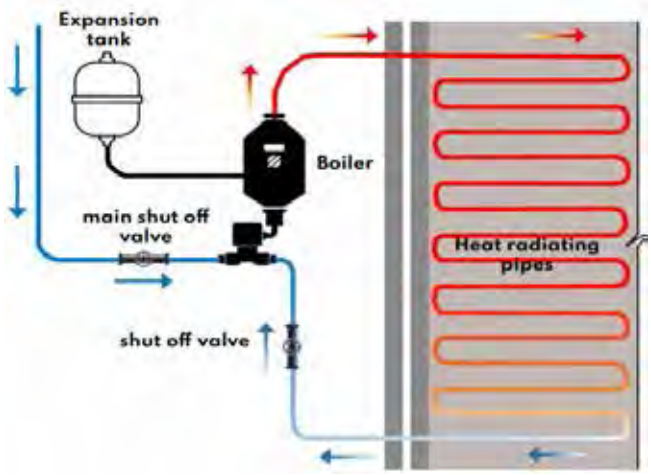
August 13, 2022

In a small freezing cold village called Thiksey in Leh, the extremely cold temperatures at the place has led people to cut down trees in large amount to obtain wood for burning in cold winters. Electricity generation through solar panels is well suited in summers, but during winters, the absence of sunlight hampers the production of solar power.

A new sustainable technology solution called Nilaya housing may soon bring them some comfort from the cold without worries of incurring high energy loads and costs of heating during the cruel winter months when the temperature hits the mark of -30 deg celcius in winters.

The technology developed by SMEF's Brick School of Architecture and Pimpri Chinchwad College of Engineering is a radiant heating system that uses biogas to heat water in a closed system of pipes. The water transfers heat by circulation and is accompanied with





a radiant floor heating system. The technology has received the Solar Decathlon Award by the IUSSTF, an autonomous bilateral organization jointly funded by both the Governments of India and the USA that promotes Science, Technology, Engineering and Innovation for which the Department of Science & Technology, Government of India, and the U.S. Department of State are the respective nodal departments.

Developed mainly to overcome the extreme cold temperatures of Leh – Ladakh, the innovation will obviate the need to cut down trees in Leh Ladakh, to purchase the wood in bulk for heating the Bukhari, and also prevent any greenhouse effect generated due to burning of coal and emitting out carbon on higher level.

The mechanism of the radiant heating system involves supply of generated greywater to the boiler with an external source. This water is then heated inside the boiler with biogas as eco-fuel. The water is heated up to 60 deg maximum and then transferred to the pipes that are laid under the floor in the spaces. The pipes carrying the hot water get heated and radiate the heat upwards. Here, the flooring system also plays an important role. The radian pipes are covered with materials with high conductivity from top, and the layer beneath the pipes has a material with low conductivity so that the heat does not radiate to the ground in the opposite direction. The water in the pipes, after dissipating all its heat to the space, is collected into the boiler tank with the help of pump. This is carried out with a thermostat that turns the pump on, which again transports the water back to the boiler. The same water is used in the cycle for 15-20 days.

The radiant floor heating systems currently used in the area utilise electricity to heat up the water at frequent intervals to keep the indoor environment warmed up. This increases the usage of electricity and hence leads to increase in the demand load of the building. In the new system, electricity was replaced with biogas for a more sustainable solution to the heating problem, as abundant amount of cow dung is locally available.

The net-zero structure will need a digester tank with a connection to the burner that will help passage of the gas and also skilled workers to lay down the pipes under the floor and to connect these pipes to the thermostat and water heating system.

SMEF's Brick School of Architecture and Pimpri Chinchwad College of Engineering is working with an NGO called ASEEM Foundation to implement the technology in Leh.

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Featured News

US Military Doctor Testifies under Oath That She Was ORDERED To 'Cover up' COVID Vaccine Injuries

JULY 24, 2022

Dr. Theresa Long, medical officer with the United States military, has testified in court that she was ordered by a superior to suppress Covid-19 vaccine injuries following the Biden regime's mandate.
Dr. Long also testified that the data is showing that deaths of military members from the vaccines exceed deaths from COVID-19 itself.

Founder and Chairman of Liberty Counsel Mat Staver said in an interview with the Blaze's Daniel Horowitz that there have been three hearings in this case, and the DoD has not yet offered a single witness. Instead of witnesses, the government "sends these declarations," Staver explained. He said the judge has urged them to bring live witnesses to court so they can be cross examined, but they just refuse to do it. "So they send these declarations that some JAG attorney writes, and somebody in the military signs off on them."

Dr. Theresa Long, a flight surgeon who holds a master's degree in Public Health and is specially trained in the DMED, gave emotional testimony on March 10, 2022.She and two other flight surgeons reviewed DMED last year and made some stunning discoveries about the high incidence of apparent vaccine injuries among members of the military.According to the whistleblowers, certain disorders spiked after the vaccine mandate went into effect, including miscarriages and cancers, and neurological problems which increased by 1000 percent.

Dr. Long testified that she was contacted by high level officer the night before the hearing, and told not to discuss her findings regarding the explosive military medical data in court. The whistleblower reportedly said she felt threatened after she tried to get her superiors to address the findings, "fearing for her life and for the safety of her children."

Long reportedly paused and choked back tears as she told the judge: "I have so many soldiers being destroyed by this vaccine. Not a single member of my senior command has discussed my concerns with me … I have nothing to gain and everything to lose by talking about it. I'm OK with that because I am watching people get absolutely destroyed."

The doctor said she is constantly contacted by people who have been injured by the genetic vaccines, and that many of those injured are pilots, who are expected to meet high fitness standards. Long told Staver that in just one afternoon she heard from four pilots who had just gotten MRIs back showing that they had myocarditis.

Morale is tanking in the military, she testified, with soldiers are in despair over the pressure to get the vaccine, and some are even having suicidal thoughts.Long said she was aware of at least two people who have committed suicide over the pressure, and the threat of punishment for refusal.

Kerala High Court calls for urgent action on compensation for persons who died due to Covid-19 vaccine

August 10, 2022

The Kerala High Court recently has made serious observations on deaths or adverse events related to Covid-19 vaccines. The court was hearing the case of Sayeeda KA vs Union of India. The Court called for urgent action from the Central Government and the National Disaster Management Authority (NDMA).They should formulate guidelines for disbursement of compensation to the families of people who died due to reactions to the Covid-19 vaccine, the court said.

According to court, "This is a national calamity which we faced. Of course, I do understand the case is very genuine and it has to be dealt with. As far as the Central government is concerned, similar issues are cropping up in other states also. There has to be an effort to formulate a proper guideline, a proper scheme for compensating these persons and that is being done. Let them bring on record what steps have been taken so that I can pass a reasoned and considered order, rather than an order in vacuum. It is not a laughing matter, I consider it to be very serious", he orally observed.

The Court deeply acknowledged the seriousness of the petition. The submission made by the petitioner sought the pacing of the procedure of redeeming compensation. As the people are facing severe consequences owing to the death of the earning member of the family.

"I find the apprehension expressed by the learned counsel to be well founded. The situation requires urgent action on the part of the National Disaster Management Authority", the Court said in its order.

The Court was hearing the petition of a woman who lost her husband, following the administering of the Covid-19 vaccine in August 2021. The petitioner sought that the Court should issue directions to NDMA for issuing guidelines within a fixed timeframe. The reason being there are many others who are stuck in a similar situation as the petitioner.

There are identical issues pertaining in various states informed the Central Government Counsel. The cases of adverse effects following inoculation of Covid-19 vaccines have popped up throughout India.The counsel further informed that the Ministry of Health and Family Welfare is in the process of formulation. He said that the guidelines will be placed before the court within a period of two weeks.

The matter will be up in court on August 30.

Anthony Fauci, Controversial US Top-doc FINALLY, To Retire By Year-end

Dr Anthony Fauci, United States top infectious disease expert announced that he will depart from the federal government in December.

August 20, 2022

Dr Anthony Fauci, United States top infectious disease expert who became a household name during the COVID-19 pandemic, announced that he will depart from the federal government in December. In service for more than five decades, the chief medical advisor of US President Joe Biden has served as the director of the National Institute of Allergy and Infectious Diseases and chief of the NIAID Laboratory of Immunoregulation. He was a leader in the federal response to HIV/AIDS and other infectious diseases even before the Coronavirus hit.

Fauci & COVID: Wuhan mystery & leaked emails

'He has touched all Americans' lives with his work,"- Biden said in a few words for Dr Fauci, who made headlines not just in the US daily but across the world post-March 2020. The role of NIAID, headed by Dr Fauci, was questioned for connection with labs in Wuhan that allegedly carried out research on the SARS-CoV-2 virus. Multiple reports had claimed that Wuhan Institute of Virology researchers had been conducting experiments since 2016 which involved RaTG13, the bat coronavirus identified by the WIV in January 2020 as the closest sample to the virus.

Rekindling the debate on the origin of the Coronavirus pandemic and the underlying COVID-19 virus, noted science writer and author Nicholas Wade in May 2021, shared his take on whether the NIAID which has been helmed by Dr

Anthony Fauci since 1984, funded research into the Coronavirus at the Wuhan Institute of Virology. Wade's self-published two scientific articles re-ignited the discourse on whether the deadly virus was developed in a lab or whether it was naturally transmitted to humans from bats, as claimed thus far.

Speaking exclusively to Republic TV, Wade claimed that the NIAID possibly had knowledge of what was being researched in the Wuhan Institute of Virology as it had funded two separate tranches of grants to further research of Coronavirus. The Wuhan lab has long been thought to be a potential place of origin for the virus, if not the wet market where the other 'natural transfer' theory pegs it first infected humans.

Months thereafter, to everyone's surprise, several media outlets in the US released thousands of emails sent and received by Fauci when the Coronavirus infection was just on the rise. In one such email, an executive at EcoHealth which funded research at China's Wuhan Institute of Virology into the COVID-19 origin thanked Dr. Fauci for publicly stating that scientific evidence supports a 'natural origin' for the Coronavirus and not a lab leak.

Fauci became a passionate advocate of mask-wearing, also pressing the public to engage in all kinds of social distancing measures. When criticized for supporting lockdowns, mask mandates, and other COVID-19 mitigation efforts, he has claimed that he only offered guidance, and did not personally authorize the relevant government orders.

"Fauci's resignation will not prevent a full-throated investigation into the origins of the pandemic,"

"Fauci's resignation will not prevent a full-throated investigation into the origins of the pandemic," Paul wrote on Twitter Monday. "He will be asked to testify under oath regarding any discussions he participated in concerning the lab leak."

"In January, a GOP Congress should hold Fauci fully accountable for his dishonesty, corruption, abuse of power, and multiple lies under oath," chimed in Sen. Ted Cruz (R-Texas), who has also accused Fauci of lying before Congress. "Never in our nation's history has one arrogant bureaucrat destroyed more people's lives."

Rep. Buddy Carter (R-Ga.) greeted Fauci's retirement by saying "good riddance." "While it's convenient that his retirement will come just one month before House Republicans can launch a full investigation into the origins of COVID-19," he said, "it's past time to get political ideology out of immunology. The path to restoring the public's trust in our government's public health guidance begins the day he retires."

"While I'm sure your retirement will comprise maskless baseball games, more photo shoots, a Netflix documentary, & probably a contributorship on CNN — retirement from the govt' does NOT mean you'll get off scot-free," Rep. Byron Donalds (R-Fla.) tweeted. "The @HouseGOP has A LOT of questions, be ready to answer them."

"Dr. Fauci is conveniently resigning from his position in December before House Republicans have an opportunity to hold him accountable for destroying our country over these past three years," Arizona Rep. Andy Biggs wrote. "This guy is a coward."

If everything goes fine in future, even after he exits federal employment, Fauci will still earn a large salary, courtesy of U.S. taxpayers. He is currently the highest-paid federal official, making more money than the president, military generals, and even Cabinet officials. His salary in 2020 was $434,000, though he likely made more in 2021 and 2022. According to Open the Books, an oversight and transparency organization, Fauci will be entitled to a pension that yields roughly 80 percent of his salary, so at least $350,000 per year.

Maker of Dolo-650, pandemic's 'magic pill', faces income tax searches and PIL petitions

August 20, 2022

Nicknamed "COVID-pandemic's favourite snack" and the source of multiple social media memes, Dolo-650 mg, which registered a sales of over ₹500 crores during the COVID pandemic since March 2020, is back in the news following the public interest litigation in Supreme Court by the Federation of Medical and Sales Representatives Association of India (FMRAI), a national trade union, that sought enforcement of Right to Life under Article 21 of the Constitution.

In its petition, FMRAI has alleged mounting instances of unethical marketing practices by pharma companies in their dealings with healthcare professionals, which in turn has a negative effect on the health of those who are already unwell.

The advocate explained that government price control is applicable till 500 mg of the paracetamol salt. "The idea of Dolo-650 and freebie caught on because it is so widely used especially during COVID. Also it was in the news in July," she added.

Dolo-650 is one brand of paracetamol, also known as acetaminophen, and used to treat fever and mild to moderate pain. It is manufactured by Micro Labs Ltd. and is no different from other brands like Crocin, Calpol, Pacimol etc. However, unlike Dolo-650 mg, most other brands sell their paracetamol brand with 500 mg salt. Data from IQVIA also show that Dolo-650 and Calpol (manufactured by GSK Pharmaceuticals) are the key brands driving the paracetamol segment.

The Central Board of Direct Taxes (CBDT), the administrative body for the I-T department, in July had accused the makers of the widely-used Dolo-650 tablet of indulging in "unethical practices" and distributing freebies of about ₹1,000 crore to doctors and medical professionals in exchange for promoting its products.

The Income Tax department had on July 6 raided 36 premises of Bengaluru-based Micro Labs Ltd. across nine states.

DCGI approves AstraZeneca's Lynparza as monotherapy for patients with high-risk

August 21, 2022

AstraZeneca India on Friday announced that it has received the Drugs Controller General of India (DCGI) approval to market its drug Lynparza (Olaparib) as a monotherapy for the adjuvant treatment of adult patients with BRCA-mutated HER2-negative high-risk early breast cancer, who have previously been treated with neoadjuvant or adjuvant chemotherapy.

According to the company's press statement, the approval was based on results from the OlympiA Phase III trial, which suggested that Olaparib demonstrated a statistically significant and clinically meaningful improvement, with an overall survival benefit.

With the DCGI's approval, Lynparza is now approved in the US, EU, Japan, India and several other countries for the treatment, the company claims. Currently, Lynparza is the first and only approved medicine targeting BRCA mutations in early-stage breast cancer, the company stated.

"We are constantly pushing the boundaries of science to change the practice of medicine and transform the lives of patients living with cancer. At AstraZeneca, the larger impetus is on redefining the treatment paradigm to eliminate the terminal nature of the disease. The regulatory approval of Lynparza, the first and only drug targeting BRCA mutations in early breast cancer, reinforces our growing capabilities in innovation and clinical research for providing holistic solutions for cancer treatment in India," Gagandeep Singh, Managing Director and Country President, AstraZeneca India, said in a statement on Friday.

With an estimated 2.3 million patients diagnosed per year, Breast cancer is one of the most diagnosed cancer worldwide. According to experts, early diagnosis and biomarker testing play a critical role in identifying high-risk patients and improving patient outcomes by preventing disease recurrence.

Earlier this month, AstraZeneca's drug Lynparza, developed with U.S.-based Merck & Co, was approved by the European Union as an adjuvant treatment for patients with a form of genetically mutated early-stage breast cancer.AstraZeneca's Lynparza gets EU approval for treatment of early-stage breast cancer

Bill Gates, whose foundation funds polio vaccines, warns that the disease's re-emergence in New York is 'a threat to us all'

August 9, 2022

A once-eradicated disease has re-emerged in New York, and it's spooking health officials and billionaire philanthropist Bill Gates.

On Aug. 4, New York health authorities announced they had detected polio in wastewater samples from two counties north of New York City. Officials called the results, along with a confirmed case of polio in New York's Rockland County in July, the "tip of the iceberg" for a wider polio outbreak of the disease that can cause paralysis.

"The global eradication strategy must be fully supported to protect people everywhere," wrote Gates, a Microsoft cofounder and the world's fifth-richest man with a net worth of $118 billion.

Gates tweeted a similar warning about the threat of polio in July, after New York health authorities announced the discovery of a single case of paralytic polio in an unvaccinated young adult.

Gates, through the Bill & Melinda Gates Foundation, has been a vocal advocate for eradicating polio for years. The foundation is one of several partners in the Polio Global Eradication Initiative (PGEI), alongside organizations like the World Health Organization, the U.S. Centers for Disease Control and Prevention, and the United Nations Children's Fund (Unicef). The PGEI hopes to eradicate polio in the wild by 2026.

The Gates Foundation has donated $4.2 billion to the GPEI, and in 2020 alone provided about 47% of the initiative's total funds, making it the largest donor ahead of the U.S. government.

Despite new evidence of polio in New York, the campaign to eradicate the disease has been one of the world's most successful public health initiatives. There were 350,000 cases of polio in 1988, when the GPEI was founded. That total has fallen to 688 in 2021. Two of polio's three strains have been eradicated.

Nearly Half of Pregnant Women in Pfizer Trial Miscarried

August 10, 2022

According to Dr. Naomi Wolf, who runs a crowdsourced project to analyze 300,000 Pfizer documents released via a FOIA request, 44 percent of pregnant women who participated in the drug maker's COVID-19 vaccine trial lost their babies.

As first reported by American Greatness, research released by feminist activist and author Dr. Naomi Wolf through her website The Daily Clout indicates that 44 percent of pregnant women in Pfizer's COVID-19 vaccine trial lost their babies.

Wolf, who runs a crowd-sourced analysis project of 300,000 pages of Pfizer documents ordered released in a January ruling by U.S. District Judge Mark Pittman of the Northern District of Texas, appeared on Steve Bannon's show "War Room" on Tuesday.

"Women will understand how tragic this is. Pfizer took those deaths of babies, those spontaneous abortions and miscarriages, and recategorized them as 'recovered result adverse effects.' In other words, if you lost your baby, it was categorized by Pfizer as a resolved adverse event, like a headache that got better," Wolf told Bannon in an emotional interview.

She explained that as far as she knew, the documents released through a Freedom of Information Act request did not include emails and other communications between Pfizer and other entities or officials, such as the Food and Drug Administration and Dr. Anthony Fauci.

On its website, the CDC still recommends that pregnant women get vaccinated:

"COVID-19 vaccination is recommended for all people 6 months and older. This includes people who are pregnant, breastfeeding, trying to get pregnant now, or might become pregnant in the future. CDC also recommends COVID-19 vaccines for infants 6 months and older who's [sic] mother was vaccinated or had a COVID infection before or while pregnant."

Tech millionaire Steve Kirsch, founder of Vaccine Safety Research Foundation, claimed in a post on Monday that around 12 million people worldwide have been "killed by their governments" as a result of taking one of the COVID-19 vaccines.

Over 50,000 Corbevax doses wasted in 5 months due to low turnout of children

August 12, 2022

Almost five months after Corbevax vaccines were rolled out for children, as many as 51,042 doses have been wasted in Mumbai due to low turnout. The vaccination centres are not getting enough children to use the full 10ml vial of Corbevax.
An analysis of the data provided by the Brihanmumbai Municipal Corporation (BMC) shows that since the introduction of Corbevax on March 16, more than 10,000 doses were wasted on an average every month in the city.

This in sharp contrast to the other two available vaccines — Covishield and Covaxin. In Mumbai since the beginning of the mass immunization programme in March 2021, a total of 48,040 doses have been wasted, which comes down to a comparitively smaller wastage of 2,825 doses per month. Due to the higher demand for Covishield, the civic body did not record any wastage. Many vaccination centres have been able to inoculate eleven beneficiaries from a 5 ml vial of Covishield, which is meant for ten people.

A 10 ml vial of Corbevax is meant for 20 children. Once opened, the vial has to be used within four hours. But due to the low turnout, the vaccination centres are unable to use the full vials, which is causing wastage of doses.

"If only one or two people turn up for vaccination at a centre, it may waste the remaining doses in a vial. So, to save doses, we wait for enough beneficiaries, but as the demand for vaccination has dropped with the flattening of the pandemic curve, not many show up for the jab. As we can't return them back without inoculating, so we have to open the vials, which causes wastage," said a public health officer. "Sometimes, parents leave the centres if we make them wait more than 30 minutes to get more beneficiaries," said the officer.

Vaccine wastage can occur due to lack of proper storage and exposure to heat can spoil a vaccine. Vaccine wastage can also occur when transportation and storage temperature is improper.

"The hesitancy parents are showing about the vaccine for children is likely due to their perception that few children have tested Covid-19 positive. Also, there have been relatively fewer severe cases as most patients had moderate symptoms…children should be given vaccines as and when they are available as these vaccines are investigated by experts before being recommended to the public," said Dr Asmita Mahajan, consultant npeonatologist and paediatrician, SL Raheja Hospital, Mahim.

Biological E. Limited's CORBEVAX "booster shot" approved for 18 years and above despite huge wastage

August 10, 2022

The Central government has approved Biological E's Corbevax for restricted use in an emergency as a heterologous booster dose, official sources. Last month the National Technical Advisory Group on Immunisation (NTAGI) recommended Biological E's CORBEVAX as a heterologous booster for adults above 18 yrs old.

On June 4, this year Biological E. Limited (BE), a Hyderabad-based pharmaceutical and vaccines company announced that its CORBEVAX COVID-19 vaccine has been approved by the Drug Controller General of India (DCGI) as a heterologous booster dose after 6 months of administration of primary jabs of Covaxin or Covishield vaccines for restricted use in the emergency situation for the individuals aged 18 years and above.

"BE's CORBEVAX is the first such vaccine in India to be approved as a heterologous COVID-19 booster. Recently, BE has furnished its clinical trials data to the DCGI who after a detailed evaluation and deliberations with the Subject Experts Committee, granted their approval for administering the Corbevax vaccine as a heterologous booster dose to people who have already taken two doses of either Covishield or Covaxin," an official statement from BE read.

"BE's clinical trial data showed that Corbevax booster dose provided significant enhancement in immune response and excellent safety profile required for an effective booster," it added.

Mahima Datla, Managing Director, Biological E. Limited, said, "We are very happy with this approval, which will address the need for COVID-19 booster doses in India. We have crossed yet-another milestone in our COVID-19 vaccination journey. This approval reflects that once again sustained world-class safety standards and high immunogenicity of Corbevax."

"BE has conducted a multicentre Phase III placebo-controlled heterologous booster clinical trial in 416 subjects from 18 to 80 years of age who were previously vaccinated with two doses of either COVISHIELD or COVAXIN at least 6 months prior to the administration of Corbevax as a booster dose," the statement read further.

"The booster dose of Corbevax increased the neutralizing antibody titers in the Covishield and Covaxin groups significantly when compared to the placebo," it added.

AVRA Technology Award – 2021 presented to Dr Krishna Ella

August 4, 2022

The AVRA Technology Award – 2021 was presented to Dr Krishna M Ella, Chairman, Bharat Biotech, at CSIR-Indian Institute of Chemical Technology, Hyderabad, on Monday. Dr Ella while delivering the award lecture, said there was a requirement to create an ecosystem where India should innovate and not copy from other countries and encourage start-ups. He also recalled the challenges and tremendous efforts to produce India's indigenous vaccine, Covaxin.

Dr D Srinivasa Reddy, director, CSIR-IICT, said in his welcome address that CSIR-IICT played a significant role in the progress of Covaxin with the development of a crucial adjuvant for the vaccine. He said two Padma Bhushan Awardees – Dr AV Rama Rao and Dr Krishna M Ella, the awardee, have excelled in achieving the same goal, providing low cost and indigenous healthcare solutions in our country and world over.

The award is instituted in honour of Dr AV Rama Rao, former director of CSIR-IICT, and Founder of AVRA Laboratories, while CSIR-IICT sponsored the award. The award carries a cash award of Rs one lakh and a memento. It is given to an eminent scientist/technologist who has contributed significantly to the national objectives in the domain of science and technology.

Some of the earlier award recipients include Prof. Sandeep Verma, Secretary, Science, and Engineering Research Board, Department of Science and Technology, Prof UR Rao, former chairman of ISRO, Prof MS Swaminathan, Prof MM Sharma, and Dr Sam Pitroda.

Indian government Plans To Include SII's qHPV Vaccine Against Cervical Cancer In National Immunization Programme

August 12, 2022

The government is planning to include Serum Institute of India's indigenously-developed Quadrivalent Human Papillomavirus vaccine (qHPV) against cervical cancer in the National Immunization Programme. At present, the country is fully dependent on foreign manufacturers for the HPV vaccine.

Three foreign companies manufacture the HPV vaccine of which two firms sell their vaccines in India. Each dose of the jab available in the market cost over Rs 4,000, the sources said. SII's vaccine is likely to be available at a much affordable rate.

"The health ministry is planning to roll out qHPV for girls aged 9-14 years under the National Immunization Programme. The roll out may take up to six months," a source told PTI.

Cervical cancer in India ranks as the second most frequent cancer among women between 15 and 44 years of age. Globally, 6,04,000 women are affected by cervical cancer and 3,42,000 women die. In India every year, 1,22,844 women are affected with cervical cancer of which 67,477 women die.

Cervical cancer can be prevented by vaccinating girls in the age group of 9-14 years with HPV vaccine, the sources said. The Drugs Controller General of India (DCGI) on July 12 granted market authorisation to SII to manufacture qHPV.

The phase 2/3 clinical trial of the vaccine has been completed with support of the Department of Biotechnology. The government's advisory panel NTAGI recently approved qHPV after reviewing clinical trial data of the vaccine.

In the application to the DCGI, Singh had stated that qHPV vaccine CERVAVAC has demonstrated robust antibody response that is nearly 1,000 times higher than the baseline against all targeted HPV types and in all dose and age groups.

Biotech Industry News

Biocon Sdn. Bhd. Enters Malaysia Book of Records as the First & the Largest Integrated Insulin Manufacturing Facility

August 5, 2022

Biocon Sdn. Bhd., Malaysia, a subsidiary of Biocon Biologics Ltd (BBL), announced that it has entered the prestigious Malaysia Book of Records.The 562,000 sq. ft. facility has been recognized as the first and largest integrated insulin manufacturer in Malaysia by MBR, which officially recognizes record-creating and record-breaking achievements in the fields of human endeavour, building & structures, transportation, arts & entertainment, business, sports & games, science & technology, nature etc. in Malaysia.

Kiran Kumar Gandhirajan, Site Head, Malaysia, said: "We are extremely proud and honoured to be named in the Malaysia Book of Records, which is a recognition of the scale of our operations in the region. As the only insulin manufacturer in Malaysia, we have been able to achieve insulin self-sufficiency and improve insulin access while providing savings to our partner, Ministry of Health (MoH), Malaysia. Through the insulins manufactured at this facility, Biocon Biologics is also making a difference to the lives of millions of people with diabetes worldwide in line with our aspiration of taking our biosimilar insulins to 'one in five' insulin-dependent patients."

Biocon Biologics has created a Center of Excellence (CoE) for insulins in Malaysia with end-to-end capabilities to manufacture a broad portfolio of regular, basal and rapid insulins. The state-of-the-art insulins facility in Johor is the first and only biopharmaceutical sterile injectables facility in Malaysia to receive U.S. Food and Drug Administration (FDA) and European Medicines Agency approvals. More recently, Biocon's biosimilar insulin Glargine made at Malaysia received a U.S. FDA approval as the 'first interchangeable biosimilar'.

Mathai Mammen, M.D., Ph.D., Leaves Position as Executive Vice President, Pharmaceuticals, R&D, Johnson & Johnson

Aug. 9, 2022

Mathai Mammen, Johnson & Johnson's head of pharmaceutical research and development, is leaving the company to pursue opportunities elsewhere, J&J said in a brief announcement.

Mammen's departure is an abrupt shift; just eight months ago J&J appointed him, along with several other company leaders, to its executive committee alongside a CEO transition that promoted Joaquin Duato to succeed J&J's longtime chief Alex Gorsky. The appointment came with a new title, making Mammen executive vice president of pharma R&D. William Hait, currently J&J's external innovation chief, will replace Mammen on an interim basis while the company searches for a permanent successor.

Mammen, 54, joined J&J in 2017 after a brief stint leading Merck & Co.'s cardiovascular and metabolic disease R&D. Previously he had spent nearly two decades as head of R&D at Theravance, a biotechnology company he cofounded with former Merck CEO Roy Vagelos.

At J&J, Mammen first led R&D at J&J's Janssen unit, the heart of much of the company's pharmaceutical work. In his role overseeing all of J&J's R&D, he managed a budget that neared $12 billion last year.

He leaves J&J as the company works to split itself in two, separating its consumer health division from its medical device and pharma arms. Along with the change in CEO, Paul Stoffels, the company's influential and long-serving chief scientific officer, retired from J&J last fall. Stoffels now leads Galapagos, a Belgian biotech company.

Intranasal Covid-19 vaccine: Bharat Bio completes clinical development for phase 3, booster doses

August 15, 2022

Biotech International Ltd's intranasal Covid-19 vaccine, BBV154, has proven to be "safe, well-tolerated, and immunogenic" in subjects in controlled clinical trials, it said in a statement. BBV154 is a recombinant replication-deficient adenovirus vectored vaccine with a pre-fusion stabilised spike protein.

Vectored vaccines also enable faster development of targeted vaccines in response to emerging variants of concern, she added. Data from both phase III human clinical trials have been submitted for approval to National Regulatory Authorities. This vaccine candidate was evaluated earlier in phase I and II clinical trials with successful results. BBV154 has been specifically formulated to allow intranasal delivery.

In addition, the nasal delivery system has been designed and developed to be cost-effective in low and middle-income countries. BBV154 was developed in partnership with Washington University St Louis, which had designed and developed the recombinant adenoviral vectored constructs and evaluated them in preclinical studies for efficacy.

The government of India partly funded product development and clinical trials through the Department of Biotechnology's 'Covid Suraksha programme'.

Two separate and simultaneous clinical trials were conducted to evaluate BBV154 as a primary dose (2-dose) schedule and a heterologous booster dose for subjects who have previously received 2 doses of the two commonly administered Covid vaccines in India.

Immunogenicity was evaluated through serum neutralising antibodies by PRNT assays and serum IgG's through ELISA's. To assess vaccine response through the intranasal route, secretory IgA's were evaluated by ELISA in serum and saliva. The evaluation was also carried out for the ability of BBV154 to elicit long-term memory T and B cell responses against the ancestral and omicron variants.

BBV154 is stable at 2-8°C for easy storage and distribution. Bharat Biotech has established large manufacturing capabilities at multiple sites across India, including Gujarat, Karnataka, Maharashtra, and Telangana, with operations pan India, the release added.

India ranks globally 3rd in Start-Up eco-system and also in terms of number of Unicorns: Dr Jitendra Singh

August 21, 2022

India ranks globally 3rd in Start-Up ecosystem and also in terms of number of Unicorns. As per the latest data, there are currently 105 unicorns, out of which 44 were born in 2021 and 19 in 2022.

This was stated today by Union Minister of State (Independent Charge) Science & Technology; Minister of State (Independent Charge) Earth Sciences; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr Jitendra Singh while delivering keynote address at "DST StartUp Utsav" at Dr Ambedkar International Centre here

The Minister said, the decade 2021-30 is expected to bring transformational changes for Indian Science, Technology and Innovation (STI).

Dr Jitendra Singh said, under Prime Minister Narendra Modi, India has increased the Gross Expenditure on R&D (GERD) more than three times in the last few years. He said, as per the latest data, India has over 5 lakh R&D personnel, the number that has shown a 40-50% increase in the last 8 years.

In the last 8 years, Dr Jitendra Singh said, women's participation in extramural R&D has also doubled and now India occupies 3rd rank in terms of number of PhDs awarded in Science and Engi-

neering (S&E) after the USA and China. With the shifting global powers and technology becoming the epicentre of international engagements and rulemaking, India under Modi is living up to global benchmarks.

Referring to Prime Minister Modi's launch of StartUp India from the ramparts of Red Fort in 2015, Dr Jitendra Singh said, India in its 75th year of Independence is now home to as many as 75,000 Start-Ups. The Minister said, Modi's special focus on Science, Technology and Innovation has fired the imagination of the youth in the country to innovate and solve problems with new ideas. He also pointed out that India's startups today are not limited to only metros or big cities and added that 49 per cent of the start-ups are from tier-2 and tier-3 cities. He said, we have start-ups emerging in the fields like IT, agriculture, aviation, education, energy, health and space sectors.

Dr Jitendra Singh also released 4 publications featuring promising Start-ups under various components of NIDHI including flagship program of Technology Business Incubator (TBI) and a coffee table book of 51 CAWACH funded start-ups.

Dr Jitendra Singh said, India ranks third among the most attractive investment destinations for technology transactions in the world as it has a strong focus on science and technology. He said, India is among the topmost countries in the world in the field of scientific research, positioned as one of the top five nations in the field for space exploration and also actively engaged in emerging technologies such as quantum technologies, artificial intelligence etc.

Dr Jitendra Singh said, that the Centre for Augmenting WAR with COVID-19 Health Crisis (CAWACH) program carved out in a record time by DST just when Covid hit, was the first program by any department of Government of India to support Startups working on Covid products and solutions. He said, overall, the impact and outcome of DST's program on innovation and entrepreneurship has been significant: promoting 160 incubators, nurturing 12,000 startups including 1627 women led Startups, generating 1,31, 648 jobs.

Dr Jitendra Singh informed that India has created a massive jump in its global ranking of Global Innovation Index (GII) from 81st in the year 2015 to 46th in 2021 among 130 economies of the world.

India ranks 2nd among 34 lower middle-income economiesand 1st among 10 Central and Southern Asian economies in terms of GII. The consistent improvement in the GII ranking is owing to the immense knowledge capital, the vibrant start-up ecosystem, and some outstanding work done by the public and private research organisations, the Minister added.

Secretary, DST, Dr. S. Chandrasekhar said, India in recent 7-8 years made some unprecedented progress in STI areas and there has been a significant rise in the country's overall performance in terms of a number of publications (globally ranked 3rd now from 6th in 2013 based on National Science Foundation database), patents (globally ranked 9th in terms of resident patent filing) and quality of research publications (globally ranked 9th now from 13th in 2013) during the last 7 years. He pointed out that the NIDHI program of DST has swiftly processed the much-needed support to start-ups, catalysing the active support of Business Incubators and other business support providers.

75 impactful incubated startups supported under NIDHI from across the country from various sectors were showcased in 50 physical as well as 25 digital mode in the DST Startup Expo (5 Startups from NM-ICPS Technology Innovation Hubs were also part of 50 Stalls of Startups).

Dr Jitendra Singh congratulated the organisers, Team DST, Champions of innovation from all over the country - Startups, Incubators, Incubator Association ISBA and wish them a grand success for their ongoing efforts to catalyse the growth story of our great country and making the DST Startup Utsav a great success.

Notifications

India-Canada Joint Call for Proposals (CFP)2022 On

BUILDING RESILIENT AND CARBON-NEUTRAL COMMUNITIES POST COVID

India and Canada have continuously worked in partnership with researchers of both the sides to develop and deploy low-cost solutions to support healthy communities. In this JointCallfor Proposals, DST, DBT from India and IC-IMPACTS from Canada are seeking joint applications aimed at addressing the issues faced by remote and rural communities in the post COVID world.

The following 4 areas are proposed under this Joint Call:

Agritech and Food Security (DBT andIC-IMPACTS)
Carbon Reduction in Our Built Environment (DST andIC-IMPACTS)
Water (DST andIC-IMPACTS)
Health, Post COVID Health Issues and Long COVID(DBT andIC-IMPACTS)

Important Dates o Launch of CFP on IC-IMPACTS, DBT and DST websites: July 15, 2022

Deadline to submit Full Application: August 31, 2022(5:30 PMIST) o Review and evaluation: September, 2022 o Announcement of final result:October 2022

Contact Information For any questions regarding this funding opportunity, please contact:

Department of Science and Technology (DST) Dr. Charu Agarwal Scientist 'C' International Cooperation Division Department of Science and Technology
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Department of Biotechnology (DBT) Dr. Vinita Nitin Chaudhary Scientist 'E' International Cooperation Division-Bilateral Programs Department of Biotechnology
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IC-IMPACTS Ms. FeryaMoayedi Manager of Operations IC-IMPACTS
info@ic-impacts.com

Ministry of Science & Technology Department of Science & Technology R&D Infrastructure Division

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"Sophisticated Analytical and Technical Help Institutes (SATHI) Program – 2022" (Through Networking and Cluster Approach)\

Proposals are invited through online for consideration of support under the Scheme "Sophisticated Analytical and Technical Help Institutes (SATHI)" of the Department of Science & Technology (DST), Government of India. SATHI Scheme is largely aiming at: (a) acquiring of high-end equipment and research infrastructure (RI) / facilities necessary for research/ testing/ manufacturing/ fabrication and to cater service by understanding the demands of researchers, scientists, students, start-ups, manufacturing units, industries and R&D Labs, (b) to provide access and sharing of scientific equipment and research infrastructure (RI), (c) Capacity building of scientific & technical manpower d) Monitoring of usage of expensive scientific research facilities for its maximum utilization and to be a part of 'Atmanirbhar Bharat Abhiyan' (Self Reliant India Campaign).

Duration: The duration of support for SATHI Project will be for a period not exceeding 4 years.

Eligibility: Both Government and Non-Government academic Institutions / DSIR recognized R&D centres / Organizations are eligible to apply in cluster, while fulfilling other criteria as mentioned in the format & check-list of SATHI. For University / Degree awarding Academic Institutions / DSIR recognized R&D centres / organizations, the support will be considered for that region in a cluster approach (at national level, if supported). The Government and Non-Government Academic Institutions / Organization enjoying the previous support of SAIF/ PURSE grant of DST, has to either merge those facilities with SATHI project or forgo the SAIF/ PURSE grant, if recommended recently, before implementing the SATHI grant. PRIVATE Academic University/ Institution / Organization under Not-for-Profit status would be considered as Academic Institutions (Private) option during the process of online submission of proposal.

LAST DATE FOR RECEIPT OF APPLICATIONS:
Online Application must be submitted by 30th September 2022 (up to 17.00 hours), after which the weblink will be AUTOMATICALLY disabled FOR ANY USAGE. For any enquiry, contact: Dr. Pravakar Mohanty; Email id: pravakar.mohanty@gov.in

Indo-US Clinical Research Ethics Fellowship

Under the aegis of

Indo –US Vaccine Action Programme (VAP)

Request for Proposal

under

National Biopharma Mission
(Program co-funded by World Bank loan)
Biotechnology Industry Research Assistance Council (BIRAC)

a PSU of Department of Biotechnology,
Ministry of Science & Technology, Government of India

&

Department of Bioethics

National Institutes of Health (NIH), USA

RFP Publication: 01st July 2022 till 29th August 2022 (05:30 pm)
Closing of Application: 8 weeks (60 days) from date of publication of RFP.

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE & TECHNOLOGY

INDIA-JAPAN COOPERATIVE SCIENCE PROGRAMME (IJCSP)
CALL FOR PROPOSALS-2021

The Department of Science and Technology (DST), Ministry of Science & Technology, Government of India, New Delhi and the Japan Society for the Promotion of Science (JSPS) conduct the India-Japan Co-operative Science Programme (IJCSP) to promote bilateral scientific collaboration between Indian and Japanese scientists. Applications are invited from eligible Indian researchers /scientists to submit proposals for Joint Research Projects and Joint Workshops/Seminars under IJCSP.

Areas of cooperation: The support is available to the following scientific areas:

(a) Physical Sciences
(b) Chemical Sciences
(c) Life Science & Agriculture
(d) Mathematics & Computational Science
(e) Astronomy & Earth Science
(f) Materials & Engineering
(g) COVID-19 related (Pre and post COVID)

Contact Information
For more details, applicants may contact:

Dr. (Mrs.) Ujjwala Tripti Tirkey,
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Room No. 19 B, S & T Block –I, Department of Science and Technology, Ministry of Science and Technology, Technology Bhavan, New Mehrauli Road, New Delhi-110016
Tel: +91 (0)11 2659 0377; +91 (0)11 2686 4642
Email: ujjwala@nic.in

For detailed guidelines and format, please visit International Cooperation (Bilateral) at
https://onlinedst.gov.in/Projectproposalformat.aspx

LAST DATE FOR SUBMISSION OF PROPOSALS: 2nd September, 2021

Ministry of Science and Technology Request for Applications (RFA)

Background:
The Government of India has placed high priority for 'TB Mukt Bharat' by 2025, the high disease burden of Tuberculosis and associated societal and economic impact. Efforts are being undertaken by the Department of Biotechnology (DBT) to aid the country's vision of a TB free India. DBT has been supporting basic and applied research on TB over the past three decades with major focus on disease biology, drug discovery and vaccine development.

The Department has launched Data Driven Research to Eradicate TB –"Dare2eraD" an umbrella TB program of DBT on World TB Day.

Scope of this Call:
The Department of Biotechnology invites applications under the Data Driven Research to Eradicate TB –"Dare2eraD TB" program, for developing and advancing host directed therapies against Tuberculosis. The purpose of this RFA is to support research proposals for lead optimization, preclinical studies, development of clinical trial protocols and conduct of proof-of-concept clinical trials for TB treatment using host- directed agents. Of particular interest will be proposals aimed at shortening of TB therapy using adjunct host-directed therapies.

Eligibility criteria:
i. Eligible Organizations
a. Central/State Govt. Institutions of higher education and research.
b. Private Institutions of higher education and research.
ii. Required Registrations
a. The institution must be recognized by DSIR as a Scientific and Industrial Research Organization (SIRO).
b. Private institutions/ NGOs should also be registered with Darpan Portal, Niti Aayog.

For any queries please contact:
Dr. Jyoti M Logani, Scientist-F, DBT (Decision Unit Head- Infectious Disease Biology): jyoti.logani@nic.in
Dr. Varshneya Singh, Scientist-C, DBT (Program Officer- Infectious Disease Biology-1 (Bacterial & Fungal): varshneya.singh@dbt.nic.in

Timeline:

Call for Proposal opens: 1.08.2022
Call for Proposal closes: 15.09.2022

JAM 2023

Joint Admission test for Ma

संयुक्त स्नातकोत्तर उपाधि प्रवेश परीक्षा

JAM 2023 Examination

- JAM 2023 is a Computer Based Test to be conducted in **SEVEN** Test Papers at the undergraduate level.
- Test Papers will have three objective type of questions: (i) Multiple Choice Questions (MCQ), (ii) Multiple Select Questions (MSQ), and (iii) Numerical Answer Type (NAT).
- Candidates may appear in ONE or TWO Test Papers.
- Candidates who wish to appear in two Test Papers must ensure that both are not scheduled in the same session.
- Eligible for direct admission to around 3000 seats in various postgraduate programmes at IITs.
- Candidates who have completed an undergraduate degree or currently studying in the final year of undergraduate programme are eligible to apply for JAM 2023 examination.
- Foreign Nationals with Indian degree are eligible to apply, subject to the policy of the Admitting Institute.

Tentative Timeline

Date of Examination: February 12, 2023 (Sunday)		
	Forenoon	**Afternoon**
Test Papers (Paper Code)	Chemistry (CY) Geology (GG) Mathematics (MA)	Biotechnology (BT) Economics (EN) Mathematical Statistics (MS) Physics (PH)
Online Application Submission: September 7 to October 11, 2022		
Declaration of JAM 2023 Results: March 22, 2023		

Application Fees

Category	One Paper (₹)	Two Papers (₹)
Female and SC/ST/PwD	900/-	1250/-
All others	1800/-	2500/-

JAM 2023 Admissions

- **Admitting Institutes:** IIT Bhila IIT Bombay, IIT Delhi, IIT (ISM) IIT Guwahati, IIT Hyderabad, II IIT Jodhpur, IIT Kanpur, IIT Kha IIT Mandi, IIT Palakkad, IIT Pat IIT Tirupati, and IIT (BHU) Vara
- **Admission Programmes:** M.Sc M.Sc. - Ph.D., M.Sc. - Ph.D. Dual Dual Degree, M.S (R)
- JAM 2023 Score is also likely to IISERs, IIPE, JNCASR, and CFTI Shibpur, SLIET, and DIAT.

Admission Procedure

- Candidates who qualify in an will be eligible to apply for ac academic programmes subjec Eligibility Requirements and Qualifications (MEQs).
- Admission shall be given as p policy of Government of Indi seats.
- Proof of having passed the qu submitted by September 29,
- Candidates promoted withou produce a certificate stating semester/year duly signed by
- Additional details on MEQs ar JAM 2023 website.
- Qualifying in JAM 2023 does to postgraduate programmes financial assistance.











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Organizing Institute
Indian Institute of Technology Guwahati

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na, IIT Roorkee, IIT Ropar,
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Degree, M.Sc. - M.Tech.

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Zones	Tentative Examination Cities*
IISc Bangalore jam@iisc.ac.in +91 80 2293 2392	Belagavi/Belgaum, Bengaluru, Bidar, Gulbarga/Kalaburagi, Hassan, Hubballi, Hyderabad, Kannur, Kozhikode, Mangaluru, Mysuru (Mysore), Palakkad, Port Blair, Shimoga, Thrissur
IIT Bombay jam@iitb.ac.in +91 22 2576 7022	Ahmedabad, Ahmednagar, Akola, Amravati, Aurangabad, Goa, Jalgaon, Kolhapur, Mumbai, Nagpur, Nanded, Pune, Rajkot, Sangli, Satara, Solapur, Surat, Vadodara
IIT Delhi jam@admin.iitd.ac.in +91 11 2659 1749	Faridabad, Greater NOIDA, Gurugram, Indore, Jaipur, Jammu, Jodhpur, Mathura, New Delhi, Srinagar
IIT Guwahati jam2023@iitg.ac.in +91 361 258 6500	Agartala, Asansol-Durgapur, Dhanbad, Dibrugarh, Dimapur-Kohima, Guwahati, Jorhat, Kalyani, Patna, Shillong, Siliguri
IIT Kanpur jam@iitk.ac.in +91 512 259 7412	Agra, Aligarh, Bareilly, Bhopal, Gorakhpur, Jabalpur, Kanpur, Lucknow, Prayagraj (Allahabad), Varanasi
IIT Kharagpur jam@adm.iitkgp.ac.in +91 3222 282 091	Berhampur (Odisha), Bhubaneswar, Bilaspur, Kolkata, Raipur, Ranchi, Vijayawada, Visakhapatnam
IIT Madras jam@iitm.ac.in +91 44 2257 8200	Alappuzha, Chennai, Coimbatore, Ernakulam, Karimnagar, Kollam, Kottayam, Madurai, Puducherry, Salem, Thiruvananthapuram, Tiruchirappalli, Tirunelveli, Tirupati, Warangal
IIT Roorkee jam@iitr.ac.in +91 1332 284 531	Dehradun, Ghaziabad, Haldwani, Jalandhar, Meerut, Mohali, Moradabad, NOIDA, Patiala, Roorkee

Please check the website for the updated list

Information Brochure & Online Application at https://jam.iitg.ac.in

Bad Science

White House official banned from publishing in PNAS following retraction

Jane Lubchenco, the deputy director for climate and environment in the White House Office of Science and Technology Policy, has been banned from publishing in the Proceedings of the National Academy of Sciences (PNAS) and from other NAS activities for five years.

The move, first reported by Axios, comes ten months after PNAS retracted a paper that Lubchenco had edited despite the fact that one of the authors was her brother-in-law and that she had been his PhD advisor. The paper contained an error, but PNAS editor in chief May Berenbaum told us at the time that the conflict of interest would have been enough to prompt a retraction.

In January of this year, the American Accountability Foundation, which calls itself "a charitable and educational organization that conducts non-partisan governmental oversight research and fact-checking so Americans can hold their elected leaders accountable" and has also been called a "slime machine targeting dozens of Biden nominees" by The New Yorker, asked the NAS to investigate. Thomas Jones, the AAF's founder, wrote, in part:

While PNAS has had to retract articles in the past for more pedestrian reasons like errors, according to the extensive database compiled by the website Retraction Watch the retraction of the article Dr. Lubchenco reviewed was the first time in the history of the database that the editors have had to retract an article for conflict of interest.

The next month, Republican members of the House Committee on Science, Space and Technology asked the Biden White House to investigate the issues.

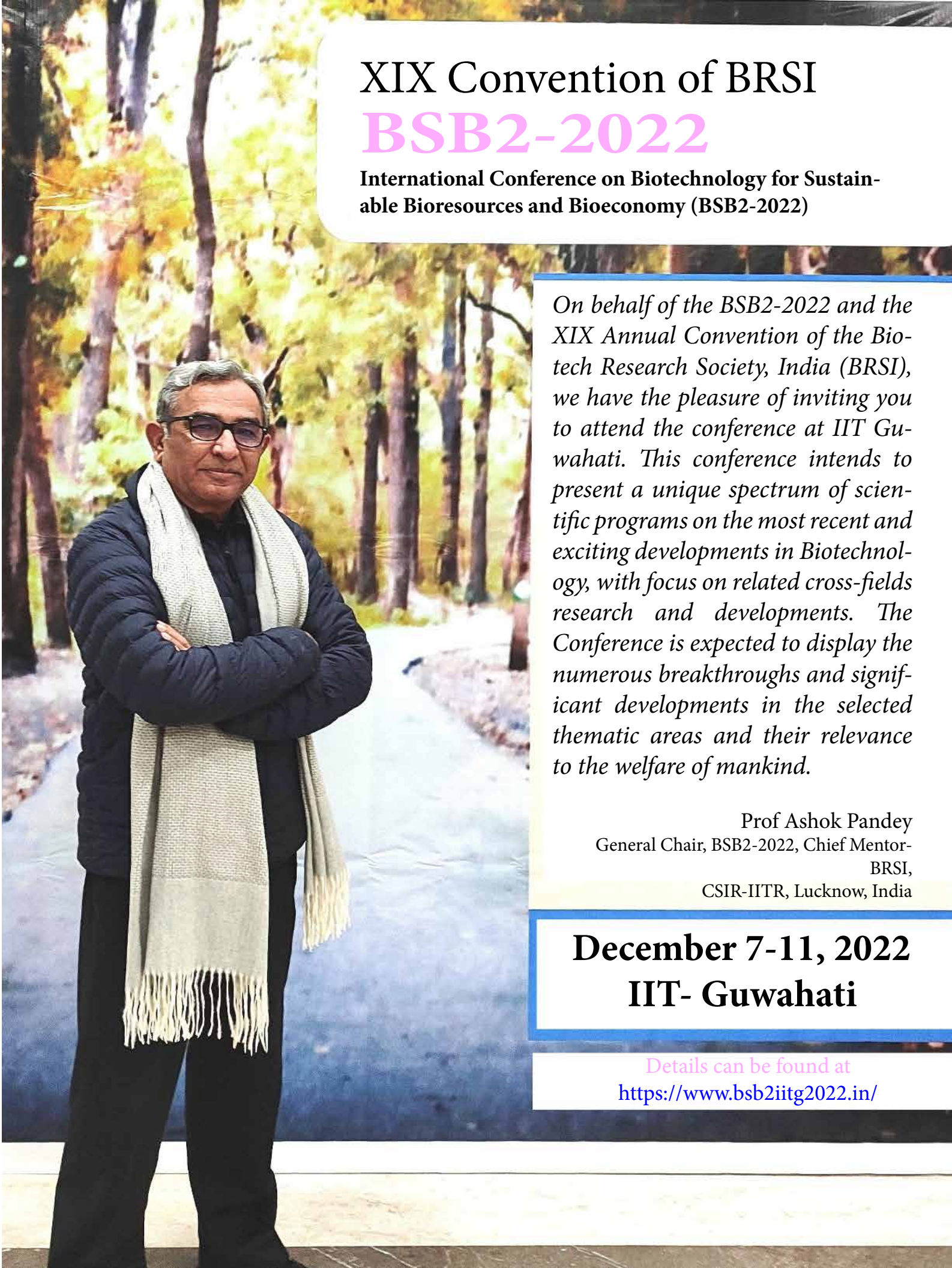
In an August 9 letter, NAS Home Secretary Susan Wessler wrote to the AAF's Jones:

I write to inform you that the conduct review process has been completed. Effective August 8, for a five-year period, the NAS Council has barred Jane Lubchenco from being involved in NAS publications; serving on or participating in NAS and NRC program activities; and receiving NAS honors or awards.

In a statement reported by Axios, Lubchenco said:

I accept these sanctions for my error in judgment in editing a paper authored by some of my research collaborators — an error for which I have publicly stated my regret.

Source: Retraction Watch



XIX Convention of BRSI

BSB2-2022

International Conference on Biotechnology for Sustainable Bioresources and Bioeconomy (BSB2-2022)

On behalf of the BSB2-2022 and the XIX Annual Convention of the Biotech Research Society, India (BRSI), we have the pleasure of inviting you to attend the conference at IIT Guwahati. This conference intends to present a unique spectrum of scientific programs on the most recent and exciting developments in Biotechnology, with focus on related cross-fields research and developments. The Conference is expected to display the numerous breakthroughs and significant developments in the selected thematic areas and their relevance to the welfare of mankind.

Prof Ashok Pandey
General Chair, BSB2-2022, Chief Mentor-BRSI,
CSIR-IITR, Lucknow, India

December 7-11, 2022
IIT- Guwahati

Details can be found at
https://www.bsb2iitg2022.in/

Biometra Thermal Cycler Family

Analytik Jena's Biometra thermal cycler family provides outstanding PCR technology.

The Biometra thermal cycler family offers a range of high-quality models to meet individual user needs.

The **Biometra TOne** is a high-performance system with a 96-well block, also available with a gradient function. The combination of excellent technical data and an attractive price makes it the right choice for many research and routine laboratories.

Users looking for a premium system will find their desired device in the **Biometra TAdvanced.** Its features include the combination of ultra-fast heating and cooling rates, the wide range of exchangeable block modules and the professional user management system.

The **Biometra TRIO** thermal cycler includes three independent blocks in one instrument. Both multiuser environments as well as users with lower sample numbers but different samples will enjoy this model. The three-block design and the specific Temperature Optimization Step function support the fast optimization of ideal annealing temperatures.

Biometra TRIO

Biometra TAdvanced Twin

Unique features of the Biometra thermal cycler family:

- **Fast Ramping, Best Accuracy, Block Control (RAC):** What you set is what you get
- **High-performance Smart Lid (HPSL):** Defined pressure control for highly reproducible results
- **Whisper Quiet:** Low noise emission of max. 45 dB
- **Linear Gradient Tool:** For easy gradient programming to identify the ideal annealing temperature