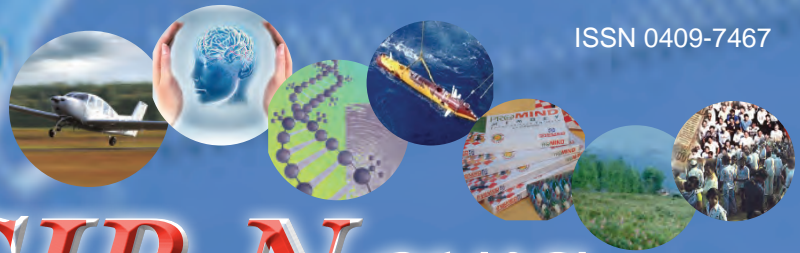




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In The News

Vice President of India Visits CSIR-NIO Calls for Tapping Enormous Potential of Blue Economy



Prof. Sunil Kumar Singh, Director, CSIR-NIO, felicitating the Hon'ble Vice President of India, Shri M. Venkiah Naidu

SHRI M. Venkiah Naidu, Hon'ble Vice President of India, visited CSIR-National Institute of Oceanography (NIO), Dona Paula, Goa, on 24 March 2019 to interact with scientists and staff and to understand the research activities being carried out at the institute.

“Oceans are of vital importance for the wealth and the well-being of the present and future generations. They hold 97 per cent of the planet's water, while two per cent is found in glaciers and ice caps and only one per cent comprises earth's fresh water,” said the Hon'ble

“Oceans are of vital importance for the wealth and the well-being of the present and future generations”, said the Hon’ble Vice President

Vice President.

Oceans produce more than 50 per cent of the world’s oxygen and absorb 40 per cent of the carbon dioxide, buffering the impact of global warming, underlining the crucial role played by them. Thus, they help in regulating the global climate, he added.

Keeping in mind the main aim of Blue Economy which is to promote smart, sustainable and inclusive growth and employment opportunities through maritime economic activities, the Vice President asked for appropriate programmes to be started for the sustainable harnessing of ocean resources.

During his interaction, he listened to all the scientific presentations pertaining to CSIR-NIO research activities with great interest and appreciated CSIR-NIO’s role in understanding the science of the North Indian Ocean such as dynamics of its circulation, basin-wide bio-geochemistry and tectonic framework of basin evolution.

Interacting with the scientists of the institute, Shri Naidu said that with India looking towards the oceans for economic growth through the Blue Economy, important institutions like CSIR-NIO will have to step up their research in areas such as ocean energy and marine

energy. Further, he pointed out that India is meeting most of its oil and gas requirements through imports. Scientists should study the potential of renewable energy derived from the ocean — from wind, wave and tidal sources.

Shri Naidu also asked the institute to act as a nodal centre for Blue Economy related research and technology development and said that there is a need to focus on ocean centric technology to harness the ocean resources economically for sustained growth of India. Development of technologies for deep-sea mining, underwater vehicles and underwater robotics for extraction of minerals should be initiated. Besides, he also suggested that NIO should also undertake research on the development of drugs from the sea.

In view of global warming, resource degradation, and marine pollution, the Hon’ble Vice President emphasised on the need to conserve and sustain our oceans as time was running out. Further, he added that CSIR-NIO should play a major role through dense ocean observations and high-resolution ocean models over the Indian Ocean to meet the challenges in understanding different ocean processes due to climate change.

The Vice President said that a focused approach in some of the areas such as minerals from the ocean and energy from the ocean can make India a global leader and serve our national goals. “However, while pursuing the blue growth, every effort must be made by all the stakeholders, including private and public sectors, to prevent further degradation of the



The Hon’ble Vice President delivering his address

ocean and its ecosystems,” the Vice President cautioned.

Shri Naidu appreciated CSIR-NIO for providing specialised services to society in addressing ocean-related problems. He also expressed happiness that two dedicated ocean-going vessels, RV Sindhu Sankalp and RV Sindhu Sadhana are managed by CSIR-NIO. “With these two dedicated vessels, CSIR-NIO will be able to carry out all the relevant studies in India’s Exclusive Economic Zone, which constitutes 2/3rd of our land area,” he said.

The Hon’ble Vice President also mentioned that the United Nations has taken steps to declare the period 2021–2030 as the Decade of Ocean Science for Sustainable Development. Further, the Sustainable Development Goal 14 (SDG-14) proposed by the UN, which deals with “life below the waters — 2019 World Wildlife Day Theme”, emphasises the importance of oceans in modulating and sustaining life. With this background, he urged prioritising the efforts in ocean science and technology to achieve the national goal of transforming India into the third largest economy in the coming 10-15 years.

Further, he stressed that “Ocean is our life support system. More than three billion people depend on marine and coastal resources for their livelihoods, this enhances more than 80 per cent of global trade. Marine and coastal environments constitute a key resource for economic development.”

He also highlighted that CSIR-NIO’s research on different

aspects of Oceans ranging from the impact of climate change, marine biodiversity, coastal hazards such as coastal erosion and storm surge, marine hazards like tectonics and slumping of the seabed, will help the country.

In his concluding remarks, he said that a focused approach in areas such as minerals and energy from the ocean, that have already progressed well, will make India a global leader and serve national goals. He further emphasised that CSIR-NIO has the potential to become the hub of the blue economy.

As a token of appreciation, the Director CSIR-NIO felicitated Shri M. Venkaiah Naidu, Hon’ble



Hon’ble Vice President during a Lab visit

In The News



Shri Naidu applauded the good work being done by the scientists and scholars of the Institute, especially in the field of conservation.

Vice President of India, with a shawl, coconut, memento and two books on oceanographic research.

The Vice President also visited the laboratories and exhibition galleries at CSIR-NIO. He applauded the good work being done by the scientists and scholars of the Institute, especially in the field of conservation.

He visited some of the laboratory facilities and observed keenly the Multi-Collector-Inductively Coupled Mass Spectrometry Laboratory (MC-ICP MS Lab), measuring the metal isotope ratio. Besides, the Hon'ble Vice President was also shown and



During the visit to the exhibition

explained some of the institute's exhibits including Marine coral ecosystem, Marine instruments, Sea Horse, Marine Minerals and Marine Archaeology.

Shri Sundaresh, Head PR&O proposed the vote of thanks to the members involved in making the event successful.



Dr Shekhar C. Mande, DG-CSIR, Delivers 59th CSIR-NEIST Foundation Day Lecture



Dr G. Narahari Sastry, Director, CSIR-NEIST, delivering the welcome address

CSIR-NEIST (North East Institute of Science & Technology), Jorhat, celebrated its 59th Foundation Day on 17 March 2019. The celebration was held on the eve of the Foundation Day i.e. 18 March.

The 59th Foundation Day was celebrated in the gracious presence of Dr Shekhar C. Mande, Director General, CSIR & Secretary, DSIR, Govt of India, who incidentally was also visiting CSIR-NEIST for the first time. Befitting the occasion, a special Foundation Day programme was held at the Dr J N Baruah auditorium where Dr Shekhar C. Mande graced the occasion as the Chief Guest and Dr G.N. Qazi, Chairman, Research Council, CSIR-NEIST, was the Guest of Honour. The event was attended by a galaxy of scientists, dignitaries, and invitees, besides CSIR-NEIST

fraternity. Notable among them were members of the Research Council of CSIR-NEIST.

In his welcome address, Dr G. Narahari Sastry, Director, CSIR-NEIST expressed his deep gratitude to the founding fathers and acknowledged the contribution of the past leaders & employees who steered the Institute to its present status. Sharing his vision for the Institute for the coming years, Dr Sastry stressed on creating knowledge for empowerment and converging the Institute's strength to create a new paradigm of science in the area of computational modelling and data sciences.

Delivering his Foundation Day Lecture on "Science & Technology in India — then and now.... Role of CSIR", Dr Shekhar C. Mande

Dr Sastry stressed on creating knowledge for empowerment and converging the Institute's strength to create a new paradigm of science in the area of computational modelling and data sciences.



Dr Shekhar C. Mande, DG, CSIR, during his interaction



Dr G.N. Qazi, Chairman-Research Council, CSIR-NEIST, delivering his speech



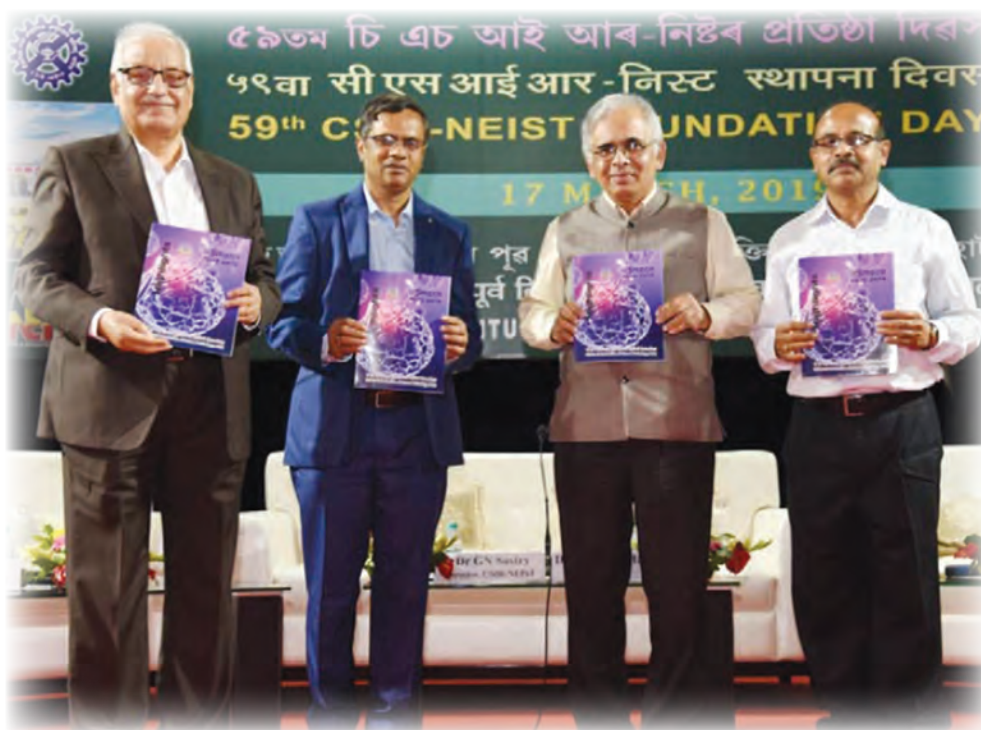
Online inauguration of Advanced Computation and Data Sciences Division

spoke about the technological and scientific journey of CSIR since its inception and discussed how CSIR has evolved over the years while building and nurturing India's S&T ecosystem. Dr Mande shared important insights into some CSIR's technological interventions such as DRISHTI — an Indigenous Visibility Measuring System which is now fully operational at various airports across the country.

Dr Mande also elaborated on CSIR's role in preservation, protection and documentation of India's rich Traditional Knowledge and urged everyone to preserve the country's rich heritage. He urged everyone to accelerate public engagement, develop cutting edge technologies, and strive to become a global S&T leader.

Dr Qazi emphasised the importance of plant breeding and aroma chemicals and mentioned the vast scope available in North East for generating newer materials. He said that CSIR-NEIST has potential to work in this line considering the immense biological resources of the region.

In an effort to leverage documentation, digitisation, deposition of data and data analysis by using machine learning and artificial intelligence applications, CSIR-NEIST created a new division



Release of Highlights 2018-19



christened, “Advanced Computation and Data Sciences Division” which was inaugurated by Dr Shekhar C. Mande on the occasion.

The annual publication, *Highlights 2018-19* of CSIR-NEIST was also released by the Chief Guest. Further, the employees who retired during March 2018 to February 2019 were felicitated with mementoes. Also, “Certificates of Appreciation” were awarded to employees for exemplary performance during 2018-19 in different categories.

The function concluded with a vote of thanks by Er S.C. Kalita, Chief Scientist & Chairman of the Organising Committee.

Earlier during the day, a tree plantation ceremony was held where



Dr Shekhar C. Mande inaugurating the “Kids’ world of Science”

Dr Shekhar C. Mande and other dignitaries planted tree saplings in the campus, followed by the inauguration of “Kids’ World of Science” in the presence of Director, CSIR-NEIST and Chairman & Members of the Research Council.

First of its Kind “Waste Management Park” Built at CSIR-NEERI

The main focus of the park is to make people aware of effective waste management by reducing, reusing, recycling and segregating the waste.



On the occasion of its 61st Foundation Day Celebration on 8 April 2019, CSIR-NEERI (National Environmental Engineering Research Institute), Nagpur, dedicated the first of its kind Waste Management Park to Nagpur.

The park has been established in partnership with an NGO Swachh Association and was inaugurated

by Dr Shekhar C. Mande, Director-General, CSIR. The main focus of the park is to make people aware of effective waste management by reducing, reusing, recycling and segregating the waste; the park is itself a desirable model for depicting how well waste can be converted into useful products.

The Waste Management Park exhibits how waste can be managed, reduced and beautified. The park has two huts that serve as a learning centre about how different kinds of wastes like hazardous waste, Construction and Demolition (C&D) waste, biomedical/reject waste, etc. can be treated and recycled and simultaneously highlight what a citizen can do to minimise waste generation.

Some of the attractions of the Park are a water fountain fabricated from old laboratory



Inauguration by Dr Shekhar C. Mande, DG-CSIR

sinks, flowerbed from scrapped fibre slide and a figurine of a lady from offcut iron. The Park also hosts a compost pit for converting organic waste into nutrient-rich material (compost). The Park also displays detailed information about wet, dry, hazardous and e-waste.



A view of the park

Public participation is important for a city

to become clean and CSIR-NEERI with this project has provided a better way to learn and involve in waste management by keeping it

open to the masses. People and most importantly, children visiting the park will get a message to say no to single bin.

72nd Foundation Day Celebration at CSIR-CLRI

CSIR-Central Leather Research Institute (CLRI), Chennai, celebrated its 72nd Foundation Day on 24 April 2019 at the Triple Helix Auditorium, CLRI. Dr Shekhar C. Mande, Director General, CSIR, was the Chief Guest of the occasion where he also delivered the Prof. BM Das Memorial Lecture. Dr B. Chandrasekaran, Director, CLRI extended a warm welcome to the Director-General on behalf of the entire fraternity.



On the occasion of the 72nd Foundation Day Celebrations, Dr Shekhar C. Mande, at CSIR-CLRI inaugurated the Biological Materials Laboratory, the Traditional

Knowledge Digital Library (TKDL) and the Knowledge Resource Centre (KRC) which houses a premium

Scientists at CSIR-CCMB (Centre for Cellular and Molecular Biology) Hyderabad, have discovered a new mechanism to inhibit bacterial growth, paving the way for novel antibiotics to fight against infections resistant to drugs.



collection in print version of over 13,700 books and 25,000 bound volumes of Journals, Abstracting & Indexing Databases, MTech & PhD dissertations and reports. The CSIR-CLRI Library has adopted the Koha Library Software, the world's first free and open source library system for its integrated library management practices.

CSIR-CLRI is setting up an International Hostel on its campus. A bhoomi pooja was performed in the presence of Dr Shekhar C. Mande, Director General and Dr B. Chandrasekaran, Director, CLRI.

Two events – Dr A.P. Mitra and Dr G.S. Sidhu Memorial Tournaments – were also inaugurated by the Chief Guest.

R&D

CSIR-CCMB Scientists Find Novel Way to Inhibit Bacterial Growth

Scientists at CSIR-CCMB (Centre for Cellular and Molecular Biology) Hyderabad, have discovered a new mechanism to inhibit bacterial growth, paving the way for novel antibiotics to fight against infections resistant to drugs.

The scientists isolated an Antimicrobial Protein (AMP) from the milk of a unique egg-laying mammal, namely, Echidna, also known as spiny anteaters found in

Australia and New Guinea. The extracted protein may serve as an alternative to antibiotics used on livestock. The Antimicrobial Protein (AMP) in the milk of the mammal can puncture the cell membranes of multiple bacterial species thereby destroying the infection.

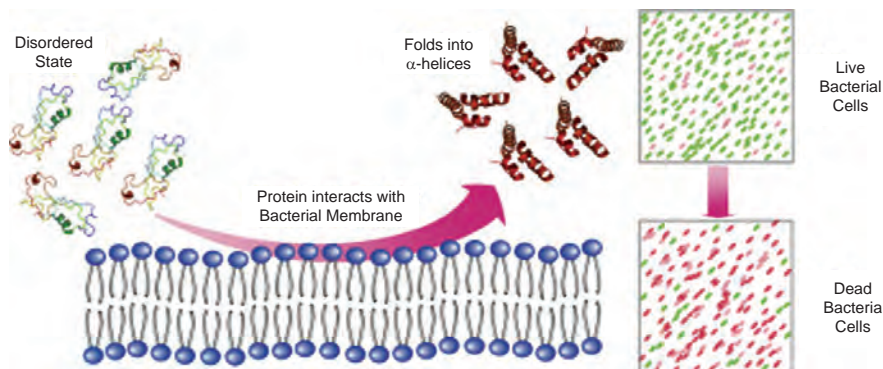
The study has been published in the journal *Biochimica et Biophysica Acta-Biomembranes* and the published abstract is given:

Structural and Mechanistic Insights into Echamp: An Antimicrobial Protein from the Echidna Milk

Alok Kumar, Sadiya Parveen, Isha Sharma, Himani Pathak, Mandar V. Deshmukh, Julie A.Sharp, Satish Kumar



ABSTRACT



Graphical Representation

Background

Antibiotic resistance is a problem that necessitates the identification of new antimicrobial molecules. Milk is known to have molecules with antimicrobial properties (AMPs). Echidna Antimicrobial Protein (EchAMP) is one such lactation specific AMP exclusively found in the milk of Echidna, an egg-laying mammal geographically restricted to Australia and New Guinea. Previous studies established that EchAMP exhibits substantial bacteriostatic activity against multiple bacterial genera. However, the subsequent structural and functional studies were hindered due to the unavailability of pure protein.

Results

In this study, we expressed EchAMP protein using a heterologous expression system and successfully purified it to >95% homogeneity. The purified recombinant protein exhibits bacteriolytic activity against both Gram-positive and Gram-negative bacteria as confirmed by live-dead staining and scanning electron microscopy. Structurally, this AMP belongs to the family of Intrinsically Disordered Proteins (IDPs) as deciphered by the circular-dichroism, tryptophan fluorescence, and NMR spectroscopy. Nonetheless, EchAMP has the propensity to acquire structure with amphipathic molecules, or membrane mimics like SDS, lipopolysaccharides, and liposomes as again observed through multiple spectroscopic techniques.

Conclusions

Recombinant EchAMP exhibits broad-spectrum bacteriolytic activity by compromising the bacterial cell membrane integrity. Hence, we propose that this intrinsically disordered antimicrobial protein interacts with the bacterial cell membrane and undergoes conformational changes to form channels in the membrane resulting in cell lysis.

Reference

<https://doi.org/10.1016/j.bbamem.2019.03.020>

Indian Navy Signs MoU with CSIR



Vice Admiral G.S. Pabby emphasised the necessity of such partnerships between the armed forces and world-class national institutions like CSIR which would allow the Indian Navy to leapfrog to the latest technologies as well as jointly engage under 'Make in India',

The Indian Navy and Council of Scientific & Industrial Research (CSIR) signed an MoU on 5 April 2019 to undertake joint research and development of advanced technologies for the Indian Navy. This will be a collaborative arrangement between the labs of the CSIR, the Indian Navy and Indian industry.

The Memorandum of Understanding (MoU) was signed by Vice Admiral G.S. Pabby PVSM, AVSM, VSM Chief of Materiel of Indian Navy and Dr Shekhar C. Mande, Secretary, DSIR and Director General, CSIR. The event was attended by Directors of seven CSIR Labs, Flag Officers and Heads of Directorates of Indian Navy and eminent scientists from CSIR Labs.

The MoU provides a formal framework for interaction between the Indian Navy and CSIR. It would

facilitate joint R&D activities in diverse fields of Mechanical, Electronics, Communication, Computer Science, Propulsion systems, Metallurgy and Nanotechnology.

Speaking on the occasion, Vice Admiral G.S. Pabby congratulated CSIR for its yeoman service to the nation in the field of

scientific research and development and noted some of the futuristic technologies being developed, which could be used for enhancing the operational availability and combat capabilities of Naval platforms.

He emphasised the necessity of such partnerships between the armed forces and world-class national institutions like CSIR which would allow the Indian Navy to leapfrog to the latest technologies as well as jointly engage under 'Make in India', and other innovative programmes of the Government. The signing of this MoU would form the foundation for the exchange of ideas and development of new technologies in the future, he added.

Dr Shekhar C. Mande complimented the joint efforts and emphasised that defence remain a priority area for CSIR with the aim of indigenisation and self-reliance in

advanced technologies.

Some of the immediate projects to be pursued under this MoU include the development of alternative desalination technologies,

installation of wireless MEMS-based sensors for remote operation, and Residual Life Assessment studies of Gas Turbine Generator blades to improve reliability.



Ministry of AYUSH and CSIR Sign MoU for Traditional Medicine



Earlier, CSIR jointly with the Department of AYUSH (presently Ministry) had developed the Traditional Knowledge Digital Library (TKDL), a globally recognised proprietary database on Indian systems of medicine for preventing bio-piracy and misappropriation of our traditional knowledge.

The Ministry of AYUSH and CSIR inked a Memorandum of Understanding (MoU) on 22 April 2019, for cooperation in research and education in the fields of traditional systems of medicine and interdisciplinary sciences that integrate/co-opt traditional systems of medicine and modern science.

The agreement was signed by Vaidya Rajesh Kotecha, Secretary,

Ministry of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homocopathy (AYUSH), New Delhi and Dr Shekhar C. Mande, Director General, CSIR and Secretary, DSIR, in the presence of senior officials from both the organisations.

A Working Group of CSIR-Ministry of AYUSH has been formed to take this cooperation forward. Earlier, CSIR jointly

Dr Shekhar C. Mande, DG, CSIR stated that enhancing the collaboration through joint R&D efforts ranging from fundamental science to validation and thereafter product development, will significantly help in the growth of Indian contributions to this important sector, not only nationally but internationally as well.

with the Department of AYUSH (presently Ministry) had developed the Traditional Knowledge Digital Library (TKDL), a globally recognised proprietary database on Indian systems of medicine for preventing bio-piracy and misappropriation of our traditional knowledge.

The constituent laboratories of CSIR and councils/institutes of the Ministry of AYUSH have also supported each other in the development of improved varieties and captive cultivation of medicinal plants including Rare, Endangered and Threatened (RET) species, Botanical Reference Standards and Pharmacopoeia standards, and Ayurgenomics, among many others.

In view of the upward surge in the use of herbal medicines and supplements globally, leveraging the complementary strengths of both organisations in traditional knowledge and modern science will help both the organisations to jointly address national objectives in healthcare and allied areas. Under the MoU, both organisations shall jointly endeavour to pursue R&D covering fundamental research; AYUSH specific diagnostic tools; linking microbiome, gene expression and Prakriti; multi-ingredient herbal formulations, including their standardisation; exploring modern scientific methods for integration with traditional Indian Systems of Medicine (ISM); linking disease signatures, etc.; Furthering the collaboration in preserving and protecting traditional knowledge related to the Indian systems of

healthcare, through the existing TKDL platform, and Development of international standardised terminologies (disease-morbidity codes) in Ayurveda, Siddha and Unani (ASU), Database on Medicinal plants, Foods, etc.

Speaking on the occasion, Secretary, Ministry of AYUSH stated due to the growing interest of traditional medicines worldwide, there is a need for multipronged and innovative approaches for the acceptance of this science. The proposed cooperation between CSIR and Ministry of AYUSH will definitely be instrumental in validation of evidence generated by AYUSH sciences.

Dr Shekhar C. Mande, DG, CSIR and Secretary, DSIR, appreciated the ongoing projects and programmes between the two organisations and expressed his keen interest to take the cooperation with the Ministry to the next level.

He stated that enhancing the collaboration through joint R&D efforts ranging from fundamental science to validation and thereafter product development, will significantly help in the growth of Indian contributions to this important sector, not only nationally but internationally as well.

Futuristic efforts of this inter-ministerial cooperation shall include the pursuit of Data mining & analytics and Artificial Intelligence to enable and facilitate concepts such as “Traditional knowledge inspired drug discovery and development” and “Food as Medicine”.

MoU Signed between CSIR-CCMB and IPC

An agreement has been signed between CSIR-CCMB (Centre for Cellular & Molecular Biology), Hyderabad and the Ghaziabad-based Indian Pharmacopoeia Commission (IPC) on 28 April 2019 to facilitate the regulatory process for biosimilars and herbal drugs. The collaboration will boost the biopharmaceutical industry by bringing authenticity and credibility to the industry and will enhance traditional knowledge.

Biosimilars are biological products which work as drugs against diseases. Both the institutions

will work together on documentation and characterisation of Indian herbal drugs, towards significant usage and export. They will also focus on the development of the biopharmaceutical reference standards and impurities therein, development of monographs for important Monoclonal Antibodies and DNA Barcode based identification of herbal drugs.

The MoU was signed by Dr Rakesh Mishra, Director, CSIR-CCMB and Dr G.N. Singh, Secretary-cum-Scientific Director, IPC.



Events

CSIR-NISCAIR Celebrates Earth Day

Earth Day, the global movement that embraces nature and its values, is celebrated by more than a billion people on April 22 every year. CSIR-NISCAIR joined the celebrations by organising a panel discussion on “Weather Forecast to Weather Smart” on 22 April 2019 at Vigyan Suchna Bhavan, S.V. Marg, New Delhi.

Noted experts, Dr S.D. Attri, DGM, Agromet Advisory Service Division, India Meteorological Department, New Delhi and Dr S.K. Varshney, Adviser



From left to right: Dr Manoj Kumar Patariya, Director, CSIR-NISCAIR; Dr S.D. Attri, DGM, Agromet Advisory Service Division, India Meteorological Department, New Delhi and Dr S.K. Varshney, Adviser & Head, International Bilateral Cooperation, Department of Science and Technology, New Delhi



& Head, International Bilateral Cooperation, Department of Science and Technology, New Delhi, joined the celebration.

Chairing the panel discussion, Dr Manoj Kumar Patariya, Director, CSIR-NISCAIR, stated that there is a need to empower farmers to help them understand the weather forecasts. He added that science communication can help farmers and even the general public to become weather smart.



“Humans are intolerant to other species,” said Dr S.K. Varshney, while sharing his views on the anthropogenic causes of global destruction. He discussed how international cooperation could bring effective solutions to problems like global warming and extreme climatic events. He highlighted India’s role in key international cooperation and treaties related to climate change and global warming as well as India’s technological advancements in early warning systems.

Dr S.D. Attri, through a graphical presentation, showed how impact based forecasting could be the smarter approach to weather forecasting. He discussed in detail about climate, weather, the causes of climate change, various mitigation policies, their effects and impacts. He shared some of the uncertainties in climate forecast such as our inability to predict local climate change.

The panel discussion was followed by an interactive question and answer session. The discussions shed light on the various aspects of weather, climate, climate change and about India’s position on global warming and other environmental



issues.

Students, researchers, enthusiasts, scientists, science communicators and media personnel took part in the event.

Dr G. Mahesh, Head, Information and Human Resources Division, CSIR-NISCAIR, proposed the vote of thanks.

The event was followed by planting of saplings in the campus.

M.R. Ragbul, AcSIR Student



Awards

Dr H.B. Singh from CSIR-NEIST Wins Two National Awards

Dr H.B. Singh, Scientist-in-Charge of the CSIR-NEIST Branch Laboratory, Imphal, has won two national awards (i) National Award for Outstanding Effort in Science & Technology Communication through Print Media-2018 which carries a Citation, Memento & a Cash award

of Rs 2.00 lakhs and (ii) Rajendra Prabhu Memorial Shield for Science Reporting 2018.

Both the awards were given by the National Council for Science & Technology Communication (NCSTC), Department of Science & Technology (DST), Ministry



of Science & Technology, Govt of India, on the occasion of the National Science Day i.e. 28 February 2019, at the Convention Centre of the Jawaharlal Nehru University, New Delhi.

The awards were handed over

to him by Prof. Ashutosh Sharma, Secretary, DST, in the presence of Prof. Jagadesh Kumar, Vice Chancellor, JNU, New Delhi, Dr Nisha Mendiratta, Head, NCSTC, DST & others.

Earlier, Dr H.B. Singh

has been awarded Fellow of Society of Ethnobotanists (FSE), CSIR-NBRI, Lucknow (2011); Fellowship by the United States Agency for International Development (USAID), USA; and Senior Research Fellowship by the Department of Space, Indian Institute of Remote Sensing at the GB Pant Institute of Himalayan Environment & Development, NE, Itanagar (2000).





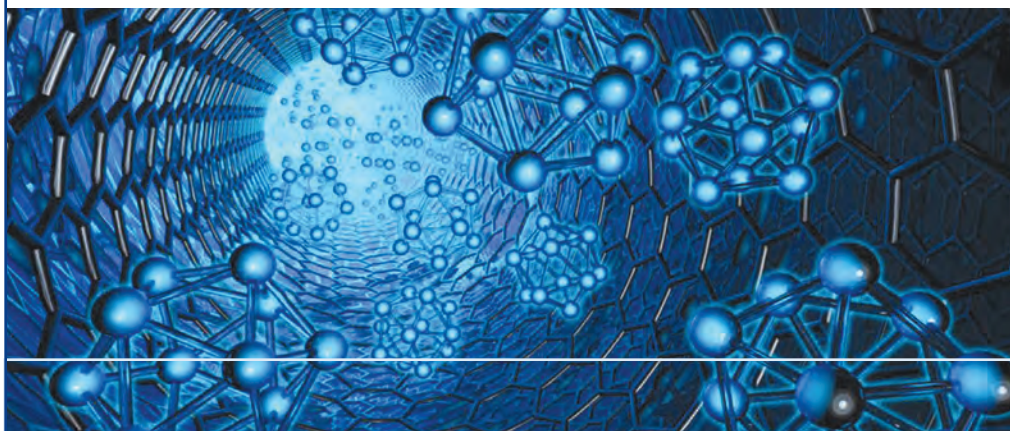
Asean-India Training Workshop 2019

Learn Together-Grow Together

Asean-India Training Workshop 2019 on Emerging Technologies for Young Biotech Professionals from Asean Countries (Fully Funded) is being organised by CSIR-IGIB (Institute of Genomics & Integrative Biology), FICCI (Federation of Indian Chambers of Commerce & Industry) and DST (Department of Science and Technology) during 20-28 September 2019.

The workshop will cover areas like Genomics & Applications, Nanotechnology, Antimicrobial Resistance: A Growing Threat, Advanced Microscopy, Artificial Intelligence, etc. The training workshop will provide a platform to young Biotechnologists and professionals to interact, share their ideas and learn more about emerging technologies.

Young Biotech researchers from ASEAN countries are eligible.



For more details please visit the institute's website (www.igib.res.in). Dr Hemant K. Gautam is the organiser of the workshop (hemant@igib.in).

Nominations are invited for

**G N Ramachandran Gold Medal
for Excellence in Biological Sciences
and Technology 2019**

The Council of Scientific & Industrial Research (CSIR) invites nominations for the **G N Ramachandran Gold Medal for Excellence in Biological Sciences and Technology for the year 2019**. The award is bestowed every year to an outstanding Indian scientist, who has made conspicuously important contributions, applied or fundamental, in the interdisciplinary subject/field of Biological Sciences and Technology. The award would be given for the work done primarily in India during ten years preceding the year of the award.

Nominations addressed to Scientist Incharge, SSB YSA Unit, Human Resource Development Group, CSIR Complex, Library Avenue, Pusa, New Delhi-110012, should be sent as per prescribed pro-forma (Original + one copy) along with reprints of five most significant publications of the last 10-year's period by **31 May 2019**. The details of the award and the prescribed pro-forma for nomination may be downloaded from the website www.csirhrdg.res.in

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Phone: 25848702; Fax: 25847062; E-mail: csirnews@niscair.res.in; hjk@niscair.res.in

Website: <http://www.niscair.res.in>

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