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India getting close to developing gene therapy for sickle cell disease, say officials

CSIR-IGIB

20th June , 2024

India is getting closer to developing a gene therapy for sickle cell disease, a genetic blood disorder with a high prevalence rate among the Scheduled Tribes, officials of the Union Tribal Affairs Ministry said on June 19.

Vibhu Nayyar, Secretary, of the Tribal Affairs Ministry, said the government was expecting to hear “good news” by January 2025 on the laboratory tests that are being run. M. Srinivas, Director of the All India Institute of Medical Sciences (AIIMS), said researchers were working to develop a gene therapy using CRISPR-Cas9, a gene-editing tool.

“We want that in the next six months to one year, we will be able to go forward with using this method for treating SCD — making India one of the first countries to do so,” Mr. Srinivas said.

He was speaking at the National Conclave on Generating Awareness on Sickle Cell Disease, organised by the Tribal Affairs Ministry in collaboration with the Birsa Munda Centre at the AIIMS.

Union Tribal Affairs Minister Jual Oram, addressing the opening of the conclave, lauded the efforts but said it was important to involve and coordinate with ground-level healthcare workers such as ASHAs and Anganwadi workers for these plans to be implemented properly.

“They will be the ones doing the heavy lifting on the ground,” Mr. Oram said. Officials of the Tribal Affairs Ministry told The Hindu that the “good news” Mr. Nayyar was referring to was related to the tests that are currently being run by the Council of Scientific and Industrial Research–Institute of Genomics and Integrative Biology (CSIR-IGIB).

“Following this, the tests will proceed to the next phase and eventually move on to being tested on patients,” a senior official said.

This comes months after the U.S. Food and Drug Administration approved the CRISPR-Cas9 technology for a cell-based gene therapy to treat sickle cell disease in December 2023.

Officials of the Tribal Affairs Ministry said one of the main challenges for India was to find a way to make this therapy cost-effective.

Developing a gene therapy using CRISPR has been part of India’s mission to eradicate sickle cell disease by 2047. A government dossier on the mission, which was launched by Prime Minister Narendra Modi in July 2023, said the technology had “the potential to be a single dose cure for blood disorders like sickle cell anaemia”.

Part of this mission is to also conduct over seven crore screenings among vulnerable tribal populations across 17 States and Union Territories, of which three crore screenings have been achieved so far, Ministry officials said.

The CRISPR-Cas9 system consists of an enzyme that behaves like molecular scissors which can be directed to cut a piece of DNA at a precise location. This will then allow a guide RNA to insert a changed genetic code at the sites of the incision. While there are a few ways to effect such changes, the CRISPR system is believed to be fast and the most versatile of all.

Addressing the gathering of doctors, experts, and healthcare professionals, Mr. Oram said the Union government was committed to working on the sickle cell disease eradication mission and called for officials from across Ministries and departments to ensure that grassroots workers were roped in for the implementation process and that they should themselves engage with them.

Following the addresses by senior officials and the Minister, a series of technical panel

discussions were also held on recognising and screening for sickle cell disease, managing the disease, and other issues. Officials said district centres at nearly 350 districts across the country were taking part in the conclave virtually.

Apart from the gene therapy being developed by India, the sickle cell disease eradication mission also includes developing two coded formulations — AYUSH-RP and AYUSH-SC3 — for managing the disease through a systemic drug development process, for which continued testing will be undertaken by the Central Council for Research in Ayurvedic Sciences in collaboration with the Indian Council of Medical Research.

NCL to host 'One Week One Theme' program on Energy and Energy Devices

CSIR-NCL

20th June , 2024

CSIR-National Chemical Laboratory (CSIR-NCL) along with other sister CSIR laboratories, is set to organize 'One Week One Theme (OWOT)' event on the Energy and Energy Devices (EED) theme from June 24 to 28, 2024. This series of events will be held at various CSIR lab locations.

As the nodal laboratory for CSIR's EED theme, CSIR-NCL will kick off the OWOT-EED event on June 24, 2024, at its Pune campus. The event will be held at the Shanti Swarup Bhatnagar Lecture Theatre in the Polymers, and Advanced Materials Laboratory (PAML) of CSIR-NCL. The inaugural event of OWOT-EED theme will feature various activities including the opening ceremony, technical sessions, outreach program, an exhibition and media interactions. Attendees will include professionals from sister CSIR labs, academic institutions, industries, start-ups, and school children.

Dr. Surya Moganty, Head of Technology at L&T Energy, will be the chief guest at the curtain raiser event, held at the CSIR-NCL Auditorium. Dr. Moganty will deliver keynote address and inaugurate the exhibition. Dr. (Mrs.) N. Kalaiselvi, Director General of CSIR, New Delhi, will also address the audience. The exhibition will be open for visit in between 2-5 pm. Following the inaugural ceremony, two technical sessions covering topics relevant to the four verticals of the EED theme namely, Hydrogen, Batteries, Solar-Wind and Biofuels.

Student outreach activities will progress in parallel with the above events. The valedictory ceremony will be conducted at CSIR- Indian Institute of Petroleum (CSIR-IIP), Dehradun, on the last day of 'One Week One Theme' Program, on June 28, 2024.

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[Thebridgechronicle](https://thebridgechronicle.com)

Future Metallurgists Converge at CSIR-NML for BTTD-2024

CSIR-NML, CIMFR

19th June , 2024

The national level Student Seminar on Materials and Metallurgical Engineering, “Behind the Teacher’s Desk” (BTTD-2024), commenced at the CSIR-National Metallurgical Laboratory (NML) in Jamshedpur. Organized by the Indian Institute of Metals (IIM) Jamshedpur Chapter in association with CSIR-NML, Tata Steel Limited, National Institute of Technology (NIT) Jamshedpur, and the Academy of Scientific & Innovative Research (AcSIR), the seminar runs from June 19-21, 2024.



The seminar was inaugurated by the Chief Guest, Dr. N.C. Murmu, Director of CSIR-CMERI, Durgapur. He was joined by Dr. Sandip Ghosh Chowdhury, Director of CSIR-NML Jamshedpur; Prof. Ashok Kumar, Chairman of IIM Jamshedpur; Dr. Chiradeep Ghosh, Chairman of the BTTD programme; and Dr. Ammasi A., Convenor of BTTD-2024. The dignitaries formally opened the event with the release of the seminar souvenir.

The seminar aims to provide a platform for aspiring metallurgists to engage with experts from industry, research and development labs, and academic institutes. It offers student participants an opportunity to update their knowledge and share their academic achievements, innovative ideas, and research in metallurgy and materials technology. Since its inception in 2011, “Behind the Teacher’s Desk” has become a prominent event for students across India. Dr. Sandip Ghosh Chowdhury welcomed the Chief Guest, delegates, and speakers, emphasizing the crucial role of metals, materials, and minerals in national development and the importance of student involvement.

Dr. N.C. Murmu, in his address, praised the seminar for fostering interest among students in Metallurgy & Materials Science. Prof. Ashok Kumar highlighted IIM Jamshedpur Chapter's activities, focusing on popularizing metallurgy among professionals in India.

Dr. Chiradeep Ghosh provided an overview of the event, noting that around 100 students and speakers from 28 engineering colleges and institutes across the country are participating, with 57 technical papers to be presented across three parallel sessions. The seminar also includes a metallurgical quiz and industrial visits. Participating institutions include IIT Kharagpur, IIT Jammu, IIT Indore, IIT (ISM) Dhanbad, MGIT Hyderabad, VNIT Nagpur, NIT Durgapur, NIT Bhopal, MANIT Bhopal, BITS Pilani, NIAMT Hatia Ranchi, IEST Shibpur, NIT Jamshedpur, and many others.

Dr. Ammasi A. expressed gratitude to the Chief Guest, participants, and the organizing committee for their efforts in making the seminar a success. He also thanked Dr. Sandip Ghosh Chowdhury and the advisory and organizing committees for their continuous support.

The seminar features two keynote lectures by Dr. Atanu Pal, Chief Technology Officer at TSL; Dr. Indranil Chatteraj, Adjunct Professor at IIT Jodhpur & Former Director of CSIR NML; Dr. P.K. Banerjee, Outstanding Scientist at CSIR-CIMFR, Dhanbad; Dr. S.K. Satpati, Chairman & Managing Director of Uranium Corporation of India Ltd.; and Dr. S. Sivaprasad, Chief Scientist at CSIR NML Jamshedpur.

The seminar promises to be an enriching experience for all attendees, providing a unique platform for learning and collaboration in the field of materials and metallurgical engineering.

Council of Scientific and Industrial Research-National Institute of Science Communication and Policy Research (CSIR-NIScPR) celebrates Yog Mahotsav with Focus on 'Yoga for Self and Society'

CSIR-NIScPR

18th June , 2024

Council of Scientific and Industrial Research-National Institute of Science Communication and Policy Research (CSIR-NIScPR) under Department of Science and Technology (DST) inaugurated its 'Yog Mahotsav', today at NIScPR campus in New Delhi. 'Yog Mahotsav' is a four-day festival from 18th to 21st June celebrating the essence of Yoga in enhancing personal and societal well-being.



This event aligns with the International Yoga Day 2024 celebrations and emphasizes the theme 'Yog for Self and Society'.

The CSIR-National Institute of Science Communication and Policy Research (NIScPR) is a constituent laboratory under the Council of Scientific & Industrial Research, Ministry of Science and Technology, Government of India. It is dedicated to science communication, policy research, and the promotion of scientific awareness among the public. The festival's opening day featured an enlightening session on "Yoga at Workplace" by renowned Yoga Therapist Dr. Lakshmi Kandhan from Morarji Desai National Institute of Yoga, Ministry of AYUSH.

Dr. Kandhan, with his profound expertise, provided an in-depth exploration of Yoga's capacity to mitigate prevalent health issues and its therapeutic applications. He also dispelled prevalent myths and misinformation surrounding Yoga, occupational health, highlighting the methods to correct bad postures at the workplace were focus of his address.

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On the way: Production of Bitumen using biomass

CSIR-CRRI

18th June , 2024

India is looking to start large-scale production of bio-bitumen from biomass or agricultural waste, a move that would help reduce imports of the material used for asphaltting of roads while also addressing the persistent issue of stubble burning.

India currently imports about half of its annual requirement of bitumen and the target is to replace imports with bio-bitumen over the next 10 years, a senior government official told ET. "Based on the success of the pilot study, we hope to kick-start production of bio-bitumen on a large scale by the end of 2025," the official added.

The Central Road Research Institute (CRRI) will soon undertake a pilot study with the Indian Institute of Petroleum, Dehradun on a 1-km road stretch which will be built using bio-bitumen. If successful, the technology will be commercialised and transferred to a private entity or public sector enterprises for large-scale production of bio-bitumen, to be used in the construction of national highways.

"We hope to start production of bio bitumen on a commercial scale by the end of next year. This will result in substantial savings on foreign exchange, make India independent in production of bio-bitumen and can be a great way to address the problem of stubble burning," CRRI director Manoranjan Parida told ET. Road transport and highways minister Nitin Gadkari is personally overseeing the progress of the project, which is funded by his ministry as the government focuses on various alternatives for road construction including recycled waste material and molasses.

India imported 3.21 million tonnes of bitumen in 2023-24 worth ₹11,033 crore. India's indigenous bitumen production in the last fiscal year was 5.24 million tonnes.

Bitumen consumption has gone up significantly in recent years in line with increasing road construction in India - the average annual consumption in the last five financial years was 7.7 million tonnes, up from 5.94 million tonnes between 2014-15 and 2018-19.

Bitumen is a black substance produced through the distillation of crude oil and is widely used to bind the surfaces of paved roads.

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