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BIOTECH EXPRESS

Editorials:

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COVID-19, Says Prominent
Virologist Prof Ramareddy
Guntaka**

**Science and scientists completely
gone down? Night curfew and
vaccine mandates**

**No restrictions in rallies, Where
are scientists that promote
masks and social distancing**

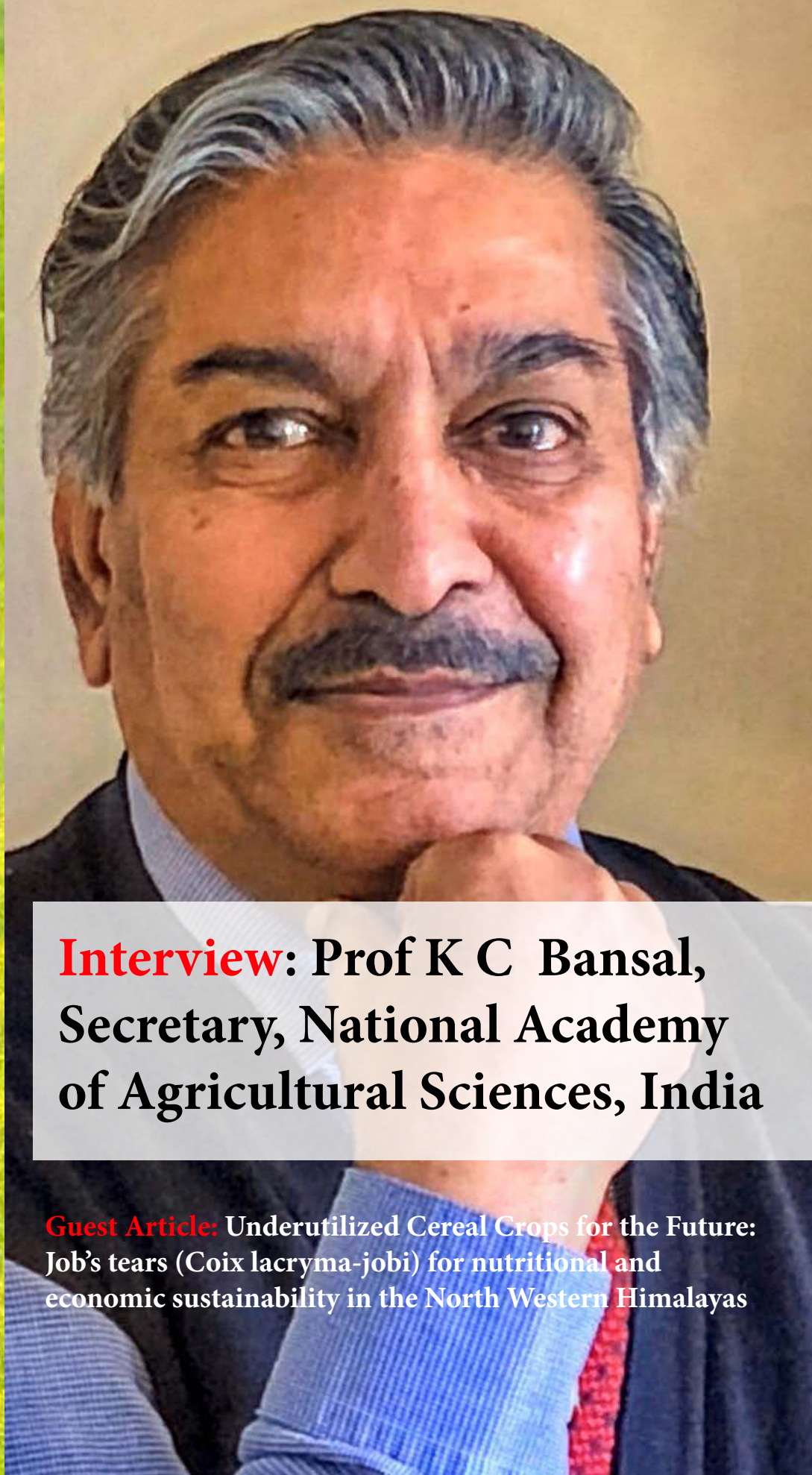
**Editorial Board Member Dr
Sunita Varjani selected for
prestigious NASI membership**



Interview:

**Dr Heera Lal: How
an IAS officer using
Biotech approaches
to transform Indian
villages into “Organic
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Interview: Prof K C Bansal,
Secretary, National Academy
of Agricultural Sciences, India

Guest Article: Underutilized Cereal Crops for the Future:
Job's tears (*Coix lacryma-jobi*) for nutritional and
economic sustainability in the North Western Himalayas



BIOTECH EXPRESS

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- ▶ Pfizer, Roche, AstraZeneca and J&J face newly revived lawsuit claiming they funded terrorism in Iraq
- ▶ FIR against 84-year-old Bihar man who took 11 doses of COVID -19 vaccine
- ▶ India's Health ministry made wrong claims Covaxin has WHO approval for use in under-18s
- ▶ Two Madhya Pradesh girls' families claim they died after receiving the Covid jab
- ▶ Parents wary as doubts on Covaxin's shelf life persist
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- ▶ Denmark health chief says Omicron is bringing about the END of the pandemic
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- ▶ COVAXIN™ (BBV152) Booster Shown to Neutralize Both Omicron and Delta Variants of SARS-CoV-2
- ▶ The U.S. FDA added another warning for the Johnson & Johnson vaccine
- ▶ Japan's CRISPR Fish Enters Market
- ▶ Omicron is less severe because it does not infiltrate the lungs
- ▶ Researchers in Japan Invent Mask that Glows When Exposed to Coronavirus
- ▶ Serious illness seen in only one out of 578 Omicron patients: Maharashtra Health Department
- ▶ Successful transplant of porcine heart into adult human with endstage heart disease
- ▶ How DNA is preserved in archaeological sediments for thousands of years
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Interview

Interview: Prof Kailash Chander Bansal, Secretary, National Academy of Agricultural Sciences (NAAS), India

by Seema Pavgi Upadhye

Prof K C Bansal (April 24, 1955) is currently the Secretary of the National Academy of Agricultural Sciences (NAAS), India and has more than 40 years of research and research management experience of working with different institutions of the Indian Council of Agricultural Research (ICAR), Department of Agricultural Research and Education, Govt. of India, and abroad like United Nations as a technical expert representing India at FAO, Rome and Geneva.

Prof Bansal headed a premier central institution of ICAR at Pusa, New Delhi i.e., the National Bureau of Plant Genetic Resources (NBPGR), which has five Divisions, three units and an experimental farm at its Headquarters in New Delhi and ten Regional Stations located in different geographical zones of the country. Prof Bansal has coordinated successfully at national level several research projects including a mega joint R&D National Project on Transgenics in Crops covering over 20 research institutions in the country.

Prof Bansal played a key role too in formulating the World Bank supported Project (worth US \$ 165 million; Rs 1100 crores) of ICAR on higher agricultural education (NAHEP), which was



Photo: Prof K C Bansal

implemented across 75 Agricultural Universities around the country. The major thrust of the NAHEP is on enhanced quality and relevance of higher agricultural education to facilitate and undertake human capacity for developing self-motivated professionals and entrepreneurs in view of the changing

scenario of globalization of education. Internationally, Prof. Bansal is Member of the Board of Directors of the Global Plant Council.

Sir, what is your Personal background/ upbringing/ early education and Motivation to pursue research career.

I was born on April 24, 1955. I lived my childhood life up to class five in a village of Haryana where I had the fortune of being taught by excellent teachers (Sh. Mangat Ram and Sh. Mansa Ram), who helped me to develop a strong foundation particularly in Mathematics. There was no electricity in our village around the late 1950s and early 60s, and we used to study with the help of lanterns, mostly at the teacher's home at night. During this period of my schooling in the village, my grandparents supported me fully and played a vital role in completing my education up to Class 5 with flying colours. My father Sh. OP Bansal lived at that time out of Hisar while serving in the Government of Haryana, and my mother Smt. Rameti Bansal as a housewife.

After my schooling in the village, I shifted to Hisar, and had the good fortune of finding my way to one of the best schools of that region, i.e., the Public School of Hisar in Haryana. The Principal of the School Dr DN Sharma was the most learned personality of his times. He gave us deep insights while teaching English as a language, and the school helped shape my future by advancing my knowledge in English and Mathematics. During this period of my schooling, I was fortunate to discover two of my classmates Jagdeep Bhargava and Kuldeep Jain as my best friends, who were already there in that School since Class I, and both played a key role in my upbringing, early growth and further career development.

With the aim of becoming a Doctor, I secured a seat in one of the colleges in BDS in Patiala, Punjab but soon realized that I needed to pursue my career as a science student (and, therefore, did not join BDS) and did B.Sc. with subjects Botany, Zoology and Chemistry from D. N. College, Hisar. Soon after completing my B.Sc., I pondered of writing the IAS exams, and in fact starting preparing hard for it. But once again, the hidden scientist in me took over my nerves, and soon decided to leave the



Photo: Prof. KC Bansal with Hon'ble Chief Minister of Haryana at the SGT University Convocation

dream of becoming an IAS Officer and joined M.Sc. in the subject Plant Physiology in the prestigious Haryana Agricultural University (HAU), Hisar. It was during this period that I got an opportunity to realize my dream as a scientist and started doing small experiments under the guidance of my teachers.

I would like to mention here that again some of the excellent teachers helped shape my career in science, particularly Dr OP Garg and Dr Krishnamurthy. Also, during my Masters, I had a rare opportunity to come into contact with a renowned Australian Scientist Dr Don Aspinall who was visiting the Department of Botany, HAU, Hisar as a UNDP Consultant. Immediately after completing my Masters, I got the opportunity to write and clear the All-India Competitive Examination (Agricultural Research Service, ARS) in February 1977. This helped me secure a position as a Scientist with the Government of India (Indian Council of Agricultural

Research, Department of Agricultural Research and Education) in September 1977. While I had struggled initially a lot to pursue what I wanted to achieve in the area of abiotic stress tolerance in plants, it was only after two years of my joining ARS that I could initiate working vigorously on this subject in potato at the ICAR's Central Potato Research Institute, Shimla.

In 1984, I secured admission in Ph.D. at the premier Indian Agricultural Research Institute (IARI), New Delhi, which gave me an opportunity to work with one of the internationally renowned Plant Physiologists – Prof. SK Sinha at IARI from 1984 to 1989. The major breakthrough in my scientific career was an opportunity to work at Harvard University in the USA under the guidance of Prof Lawrence Bogorad from 1990-1992. As far as pursuing advanced research in plant science was concerned, this was the golden period for me to learn from the stalwarts in the

Box: Awards and Honours

Prof. Hira Lal Chakravarty Award conferred by the Hon'ble PM of India, 1993, Indian Science Congress Association, Jaipur

Rafi Ahmed Kidwai Award, 2009 -Highest Award of the ICAR for an individual contribution

Haryan Vigyan Ratna, 2012-13 conferred by Hon'ble Governor and Chief Minister, Government of Haryana Gold Medal, Ph.D., 1989, IARI (ICAR), New Delhi

Biotechnology Overseas Award, 1990, DBT, Govt. of India, New Delhi

Rockefeller Biotechnology Fellowship Award, 1996, Rockefeller Foundation, USA

Sr. AAAS Award, 2001, Indian Society for Plant Physiology, New Delhi

Hari Krishna Shastri Award, 2009, IARI, New Delhi

Recognition Award, 2011, National Academy of Agricultural Sciences, New Delhi

R.D. Asana Memorial Award, 2011, Indian Society of Plant Physiology

Platinum Jubilee Lecture Award, 2012, Indian Science Congress Association

Dr. G.V. Memorial Lecture Award, 2012, Indian Society of Plant Physiology

Award by the National Academy of Agricultural Sciences (K. Ramaiah Award) 2018-19, conferred on by the Minister of Agriculture, Govt. of India

Fellow, 2008, National Academy of Agricultural Sciences, New Delhi

Fellow, 2009, The National Academy of Sciences, India



Photo: Haryana Vigyan Ratna award conferred on Prof. Bansal by Hon'ble Governor and CM of Haryana



Dr. K. Ramaiah Award of the National Academy of Agricultural Sciences conferred on Prof. Bansal by Hon'ble Ministers of Agriculture

Box: Publications

Over **150** publications including original research papers in reputed national and international Journals, review articles and book chapters

Articles published in high impact factor Journals including: **Nature Biotechnology, Nature Plants, Proceedings of National Academy of Sciences, USA (PNAS), Trends in Plant Science, Nature Scientific Reports, Plant Biotechnology Journal, etc.**

area of Plant Molecular Biology and rub shoulders with some internationally renowned experts including Nobel Laureate Dr Wally Gilbert, who was heading the Department of Cellular and Developmental Biology at Harvard Biolabs I was working in.

After my return to India in August 1992, I started my own journey, struggled hard and finally succeeded in establishing a laboratory at the National Research Centre on Plant Biotechnology (NRCPB), IARI campus with a focus on abiotic stress tolerance. This allowed me to associate myself with several young, intelligent students and scholars to learn and consequently contribute whatever little to the area of abiotic stress tolerance in plants. In between, I joined Rutgers University, New Jersey, USA as Visiting Scientist in 1996 as a Rockefeller Career Biotech Fellow and worked at the Waksman Institute on chloroplast transformation with Prof Pal Maliga.

So, I consider myself fortunate to be trained by some of the best teachers in India and abroad and had an opportunity to work with some of the best students, who themselves were later rewarded for their excellent work at national and international level, today occupying key positions. I believe it was the strong determination that helped me pursue my career in science and to find means and ways to work with the world class teachers and students, who together enabled me to contribute a little to the discipline of plant physiology and biotechnology.

What is your current position? Please share some of your previous positions and achievements.

I am currently the Secretary of India's prestigious agricultural sciences academy- the National Academy of Agricultural Sciences.

I started my research career as ARS with

ICAR and was posted as Scientist S-1 in 1977 in the All India Coordinated Dryland Research Project at Hyderabad, and later at Central Potato Research Institute (CPRI), Shimla where I got promoted to Scientist S-2 in 1983. In 1988, I joined IARI, New Delhi as Senior Scientist and then switched to NRCPB (ICAR), IARI, New Delhi where I became Principal Scientist in 1999 and then Professor of Plant Biotechnology in 2004. At NRCPB, I also got the opportunity to steer through as Coordinator the ICAR's Network Project on Transgenic Crops (NPTC).

My stint as a research science manager started when I occupied, in 2010, Director's position of the prestigious institute of ICAR – the National Bureau of Plant Genetic Resources (NBPGR). As a research manager, I could take some of the following initiatives:

Planning and implementation of a Consortium Research Platform (CRP) on Agro-biodiversity, which was recognised and funded as a major initiative by ICAR.

Developing a National Genomic Resources Conservation Facility at NBPGR – First such national effort.

Developing PGR Portal at NBPGR as a gate way to all relevant information on about 0.45 million accessions conserved in the National Genebank in India – the 2nd largest gene bank in the world.

Characterization and evaluation of the entire set of wheat (~20,000 accessions) and chickpea germplasm (~18,000 accessions) conserved in the Indian National Genebank (Limca Book of Records – 2013). This was recognised as an unprecedented initiative involving scientists from the ICAR-NBPGR, and wheat researchers across the country with experimentation at different hotspots for resistance to diseases and heat stress, identifying promising lines. The research results got published in the November-December (2020) Issue of Crop Science, as two cover page articles.

After my superannuation from ICAR, I worked as Senior Fellow at the TERI's Nano-Biotechnology Centre in collaboration with Deakin University, Australia. This was followed by a position as Senior Advisor for a short period at the CG Centre of Alliance of Bioversity International and International Centre for Tropical Agriculture, Asia-India, New Delhi.

What is your research area of interest, key results and why you chose this topic?

My research interest is mainly focused on understanding certain category of plants' ability to withstand drought stress, at physiological and molecular level in wheat, rice and mustard.

As a group activity of my lab at NRCPB, we studied abiotic stress tolerance in plants by exploiting the natural genetic variation in major food crops. As a result, we were able to provide molecular insights and cloned several genes of interest for tolerance to a range of abiotic stresses; for instance, genes coding for transcription factors (*DREB1s/CBFs*, Zinc finger proteins-*BcZFI*), signalling components (*ERA1*), effector genes (*osmotin*, *LEA4*, *APX*, genes for osmolyte synthesis) and promoters (*BnLEA1*, *BcLEA1*, *OsMYB2*) regulating tolerance to abiotic stresses.

Further, we identified landraces and wild species of wheat, rice and mustard that exhibited wide adaptation to climate change. We established the role of *LEA4* subfamily in drought and salt stress tolerance of plants, and also elucidated the role of α -linolenic acid metabolic pathway leading to jasmonic acid biosynthesis as a novel mechanism of drought tolerance in the rice landrace Nagina 22. In addition, we cloned the first ABA receptor gene from Nagina 22.

Developed suitable gene constructs useful for improving tolerance to abiotic stresses and distributed them to various national institutions as starting material for initiating their new research pro-

grams or facilities. These institutions included NBPGR, IIPR, NRRI, and NRCG of ICAR; IGIB and IHBT of CSIR, and DRDO laboratories, and several State Agricultural Universities of the country for genetic engineering of crop plants like rice, wheat, chickpea, mustard, groundnut, tomato, tea, rubber, etc.

I chose this topic as water is very precious and any effort to save it will be a noble service to the mankind.

What is the role of technology in your job?

Different scientific technologies have played key role in all our research activities whether it was in lab or in field. Using methods of genetic transformation by Biolistic gun and other molecular techniques, we developed transgenic crops tolerant to abiotic stresses, and developed chloroplast transformed brinjal plants that was described by peers as pioneering work and was recognised by Faculty 1000.

Comment on our plastid transformation in Brinjal “Scientists from the Indian Agricultural Research Institute were successful in creating the world’s first transplastomic eggplant. KC Bansal and colleagues used the biolistic technique to integrate the *aadA* gene, which encodes for resistance to the antibiotics spectinomycin and streptomycin, in the chloroplast genome. “The development of transplastomic technology may be useful for introducing agronomically and biotechnologically relevant traits into eggplant.” – reported by The Crop Biotech Update, a weekly newsletter of ISAAA.

Can you tell us some Milestones of your career with potential societal impact?

Planning and execution of Consortium Research Platform (CRP) on Agro-biodiversity envisioned and developed to characterize and evaluate entire gene bank collections of major agri-horticultural crops in close collaboration with breeders, with a focus on utilizing



Photo: Prof KC Bansal welcoming Prof M S Swaminathan to NBPGR (ICAR)

germplasm to broaden genetic base and develop climate resilient varieties. In addition, research on crop genomics and bioinformatics for value addition to PGR for crop improvement through a CRP on Genomics at NBPGR.

Mainstreaming agro-biodiversity conservation and utilization in agricultural sector to ensure ecosystem services in partnership with CGIAR Centre, the Bioversity International.

Developing a road map for implementing the multilateral system of exchange of plant germplasm globally associated with access and benefit-sharing through the implementation of ITPGRFA (FAO) in India.

Developing the National Agricultural Higher Education Project (NAHEP) with major thrust on enhanced quality and relevance of higher agricultural education to facilitate and undertake human capacity for developing self-motivated professionals and entrepreneurs in the country through a wide network of 75 agricultural universities of the

country.

Imparting training in the area of plant genetic engineering and plant genetic and genomic resources to over 500 scientists, teachers and scholars from the National Agricultural Research System comprising ICAR institutes and State Agricultural Universities.

How the expenses incurred during research work are fulfilled like different biggest grant agencies funding your research?

Finding funds for research is quite competitive and a difficult task for every research scientist but I have been lucky in this aspect as I did not face any scarcity of funds during my entire research career. We were able to obtain funds from almost all funding agencies in India as well as international organizations like UNEP for our research and management activities. The national funding agencies included DST, DBT, DRDO, and ICAR-NATP and ICAR-NAIP (sponsored by the World Bank).

A major funding from ICAR-NATP

provided a unique opportunity to me as a Coordinator to impart training for human resource development in the late 1990s and early 2000s in the area of genetic engineering and molecular breeding to the scientists and teachers drawn from the National Agricultural Research System.

Why you did not settle abroad when you had plenty of opportunities?

This is true that I had plenty of opportunities to settle abroad. But I must say frankly that I wanted to come back to India to serve my own country because I had this feeling that Indian scholars should go abroad only to learn latest advances in science but must come back to our own country for applying this knowledge for the benefit of smallholder farmers and in the interest of the country as a whole in whatever way it may be possible. My family (my wife and two daughters) wanted me to continue staying abroad but because of my strong feelings as mentioned above, I came back from Harvard University, Cambridge USA and joined IARI New

Delhi.

What do you enjoy most about being a scientist?

The fact that you get plenty of opportunities to utilize your thinking power almost on daily basis and coming up with some novel ideas to think original and to contribute in whatever little way one can through innovative research planning, and also to use your knowledge and skills for training scholars and developing human resources in the area of molecular science for the benefit of Indian agriculture.

Can you tell us about your future goals?

My future goals are facilitating and try creating an enabling policy environment for translating the knowledge in area of molecular science for product development, and motivating the young scientists and encouraging them for fostering national and international level collaborations. Personally, I am devoting my time on developing opinion articles on policy matters related to the

use of genome editing technologies for product development, and for conservation and use of plant genetic resources and digital sequence information for the welfare of farmers of the developing nations including India.

My other interests include popularizing plant sciences and plant-based diets by diversifying the food habits for better nutrition and climate resilience using indigenous locally adapted crop varieties. In addition, continuing my efforts for developing capacity and capabilities in young scientists and scholars through national and international level workshops, webinars and stakeholders' consultations.

Importantly, also inculcating the scientific attitude among school children and teachers and preparing them with a habit of applying science and finding nature-based solutions for a better environment and better world for the subsequent generations.



Photo: The First official lot of seeds deposited from India in the Svalbard Global Seed Vault (SGSV) by Prof. KC Bansal in April, 2014. The SGSV is built by the Norwegian Government on a remote island deep inside the Arctic Circle, near North Pole for conserving seeds forever.

Interview

by Kamal Pratap Singh

“India is majorly an agrarian country where around 70% of its population lives in villages. Each and every villager is a practical agricultural scientist, practicing it from thousands of years. Farming is in people’s DNA and thus India has the inherent inclination and natural technical capacity to produce and supply organic food not only to country but to global agriculture supply chain which can further enhance India’s GDP”

Dr Heera Lal, IAS and Additional Mission Director, National Health Mission, Uttar Pradesh. In an informal talk to Biotech Express he talked about his various ongoing projects of the project.

Dr Heera Lal: How an IAS officer using Biotech approaches to transform Indian villages into “Organic Villages”



Biototechnology, which is amalgamation of science and technology, is not all about just using molecular biology techniques but also natural resources which can effectively be utilized to increase the production of things for societal benefits. This is demonstrated by Dr Heera Lal known as Banda's "Water Man", an IAS officer in UP govt. He has done work on ground and is currently serving as the Additional

Mission Director, National Health Mission, Uttar Pradesh.

"Farming is the best industry and farmers are its entrepreneurs" Dr Heera Lal (an Engineer from G B Pant Agriculture University who is working on a project Model Gaon) said. More than 80% of India's population is engaged in agriculture and thus it needs more attention than any other sector. Inspired by the idea of Gram Swaraj of Mahatma Gandhi and PURA (Providing Urban Amenities to Rural Areas) of late president of India Dr Abdul Kalam, Model Gaon is an amalgamation of technology, people, traditions, skills, and entrepreneurial spirit, aimed at achieving inclusive

and sustainable development of villages that is financially viable, socially equitable and environment friendly.

By transforming villages into Model Gaon, he envisages to fulfill long awaited dream to see India as a developed nation. According to him, though our scientists make good quality high breeding varieties these are not promoted or used en masse which is our focus of implementation through various educational programs.

Dr. Lal has conceptualized and implemented many inclusive development initiatives. His programs like organizing learning tours for Rural Entrepreneurs proved revolutionary. A team of village

heads (Gram Pradhans) were sent to 'Ralegan-Siddhi' (model village of Shri Anna Hazare) and 'Hivade Bazar' village (Padam Shri Popat Rao's model village) to acquire practical know-how from Changemakers' work. Through this tour, agricultural and village management administrative knowledge of villagers increased.

Similarly, local villagers were imparted knowledge about government programs in 'Vikas Bhawan' and 'Mandi' on a systematic and regular basis. This enhanced administration-people connect and empowered them as 'knowledge is power'. These initiatives proved beneficial for district Banda. Farmers' income, agri-production, knowledge and attitude got enhanced. This tried, tested and proven holistic model of development needs to be replicated in other parts of India, to make the whole country prosperous.

Three pillars of Model Gaon

Pillar I

To involve villagers in defining local issues of development by means of a village manifesto, which will help in setting an agenda for development in villages. As most of the villages do not even know the basics of development, this part involves villagers in defining local issues in their respective villages by a means of 'village manifesto' which helps in setting a goal for the holistic development in the village. The village manifestos, the blue print for Model Gaon involve numerous directives for the growth of villages 360 degrees. It includes the main points such as

1. Cleanliness
2. Education
3. Medical facilities
4. Electricity (through solar panels)
5. Water facilities
6. Employment opportunities
7. Communication Mechanism
8. Marketing of products
9. Organic/biological products
10. Self-dependent villages
11. Uncontroversial joyful village

Some dignitaries who are part of the MODEL GAON Project

1. Padma Shri Ram Saran Verma, Barabanki, Uttar Pradesh
2. Padma Shri Bharat Bhushan Tyagi, Bulandshehar, Uttar Pradesh
3. Padma Shri Kanwal Singh Chauhan, Sonapat, Haryana
4. Padma Shri Babulal Dahiya, Satna, Madhya Pradesh

12. Village rules
13. Biodata profiled villages
14. Information and Broadcasting experiments
15. Farmer Producer Organization (FPO)
16. Overseas villagers contact support
17. Eradicating malnutrition
18. Afforestation
19. Development of sports/ art/ culture
20. Women empowerment
21. Talent identification and development
22. Village problems and solution
23. Implementation of central and state government's programs in villages
24. Celebrating village foundation day

Pillar II

To empower rural communities by identifying and developing socially active changemakers, who will lead the transformation of their villages into model gaon. The step is to establish and groom somebody to carry out the management position and take this initiative, somebody who can translate ideas into motion and might have interaction extra folks within the undertaking. Thus, this exercise includes the identification and improvement of a changemaker.

Pillar III

To enable industrialization of agriculture in villages by transforming conventional agriculture into agricultural-business through assisted formation and operation of farmer producer companies (FPC/ FPO/Group Farming). The third core exercise in focus is the Farmer Producer Firm (FPC) facet. FPC is actually group farming that's practiced in a means the place the group, which comes collectively, registers itself as an organization below the Companies Act and due to this fact turn into an FCP. There are specific ad-

vantages that the federal government offers if sure eligibility standards are met.

Model Gaon initiative is witnessing high popularity through its progressive nature of ensuring the Indian villages' holistic development. For this Dr. Lal was praised by the Niti Ayog Vice Chairman Mr. Rajiv Kumar for his great efforts towards brightening the villages; the soul of India.

This Model is experimented on the ground in Banda, UP, and is proven, said Dr Lal. The Model works through a bottom-up approach which ensures the village locals' active participation in the development of their village. The model has implemented an ample number of inclusive development schemes and programs like learning tours for rural entrepreneurs which fetched revolutionary results. The learning tour helps the village heads and rural entrepreneurs explore more in terms of technology, practical know-how from Changemaker's works. It helps the village heads grow in the areas of agriculture and village management. His resolve of converting each village into Model Gaon floods when he quotes "We are constant in our resolve to change the fate and picture of the village."

The initiative takes into account all the respective stakeholders and development works are divided among them. Alike village heads, local villagers are also imparted education and training about various government schemes administering in the period mostly in 'Vikas Bhawan' and 'Mandi' on a timely basis. The steps taken resulted in empowerment, good administration and more people connecting.

Some examples Model Gaon has created a web based coaching module for them and

these modules comprise topics of their day-to-day use, as an illustration, writing emails, studying the method of writing an utility to an officer, drafting stories, and many others. It additionally imparts monetary literacy on subjects similar to banking, financial savings, loans, pursuits, investments, and many others.

“Health is one of the most important aspects for any community to prosper. Hence a focused approach is deployed on constant improvement in health facilities, added Dr Lal. As Model Gaon, we are focusing on ‘prevention is better than cure’. We are promoting a healthy lifestyle by which people don’t fall ill in the first place and hence become a part of a healthy community. Mental health is also very important. Hence, surrounding oneself with good company, reducing stress through Yoga, and other positive lifestyle changes are few important things that we are trying to spread awareness on in villages for a happier and healthier community.”

On the use of Biotechnology he cited examples like:

In agriculture we are imparting education about mixed farming practices, cattle and poultry business avenues, use of hybrid seeds which are resistant to droughts, salinity etc., use of organic fertilizers etc.

The gobar gas plants just not produce cooking gas but helps in cleanliness for the otherwise scattered cattle dung on the villages’ roads. The leftover can further be used to make fertilizer which is useful to give organic agriculture products and thus can give high yield as well as high prices as these products are quite demanding in the market.

Electricity from Biomass Energy is an idea we are conceptualizing to control pollution in effective manner while burning/processing biomass post harvesting, he said. He emphasized the use of windmill and solar panels for power generation that can be used to pull water from wells, running fodder cutting machines, household electricity purposes etc. Generation of electricity can make the villages self reliance in power sector and can be useful for remote villages where electricity is still a dream.



About Dr Heera Lal

Dr Heera Lal is a 2010-batch IAS (1994-batch PCS) officer who is currently serving as the Additional Mission Director, National Health Mission, Uttar Pradesh & Additional Project Director, UP State AIDS Control Society in the Government of Uttar Pradesh.

He conducted several highly successful development experiments including increasing ground water table level, and increasing agricultural productivity. But it was his stint as DM of Banda, the backward district of the parched lands of Bundelkhand that made him stand out. Plagued by multiple adversities like water scarcity, perennial drought and malnutrition, besides deforestation, Banda witnessed a makeover when Dr. Heera Lal helmed it from August 2018 to February 2020. His water initiative was listed in the Limca Book of World Records.

Dr. Heera Lal has done B.Tech. in Electrical Engineering from G B Pant University of Agriculture & Technology, Pantnagar; Masters in Public

Administration (MPA) from Maxwell School of Syracuse University, USA (2009-10) and Ph.D. in Role of ICT in Achieving Good Governance from Dr. A.P.J. Abdul Kalam Technical University (A.K.T.U.) Lucknow. He currently enrolled in D. Litt in Dr Ram Manohar Lohiya University, Ayodhya with research “Role of communication in Achieving Good Governance”.

Dr. Lal has more than 27 years of experience in public service. He has served in various departments in different capacities including MD, U.P. Small Industries Corporation, Special Secretary, Culture and A.P.C. Branch and Managing Director UPDESCO, Department of IT & Electronics. Most recently, he was posted as the District Magistrate of Banda where he had undertaken an array of innovative initiatives in the field of water, agriculture, social entrepreneurship etc.



Editorial Board Member Dr Sunita Varjani selected for prestigious NASI membership

by Biotech Express Bureau



Dr. Sunita Varjani is Scientific Officer at Gujarat Pollution Control Board, Gandhinagar, Gujarat, India. Her major areas of research are Industrial and Environmental Biotechnology, Wastewater Treatment & Process Engineering, Bioprocess Technology and Waste Management. She is among the few researchers who have worked on effective bioremediation of petroleum contaminated sites and restoration of contaminated soil.

Dr. Varjani has worked as visiting scientist at EPFL, Lausanne, Switzerland. She has authored more than 360 publications, including research and review papers, books, book chapters and conference communications. She has been enlisted as Highly Cited Researcher (Top 2% in the World), Elsevier Citation Report (2021). She has been selected as a Member of The National Academy of Sciences, India (NASI) in the year 2021. She has won several awards, including Young Scientist Awards from The International Bioprocessing Association - An International Forum on Industrial Bioprocesses (2019-2020), Biotech Research Society, India (2018), Microbiologist's Society India (2018-19), Association of Microbiologists of India (2018), International Society for Energy, Environment and Sustainability (2018) and AFRO-ASIAN Congress on Microbes for Human and Environmental Health, New Delhi (2014);

Highly Cited and Highly downloaded papers, Bioresource Technology, Elsevier; Top Reviewer Award - 2018, Bioresource Technology, Elsevier; Top Reviewer Award - 2017, Bioresource Technology, Elsevier and Best Paper Awards in national and international conferences in 2008, 2012, 2013, 2018, 2019 and 2021.

In research, an oleophilic halotolerant microbial consortium developed/bacterial isolate obtained by her showed significant biodegradation of crude oil which has promising applications in petrochemical industry. Her work on thermo- and halo- tolerant biosurfactant produced by *Pseudomonas aeruginosa* has great potential for enhancement in oil recovery. She subsequently developed a potential hydrocarbon utilizing consortium (HUBC) which effectively degraded petroleum hydrocarbons from polluted agricultural soil in microcosm conditions. This suggests its application as potential bioremediation agent for farmland restoration which will be of high benefit for farmers. Further she isolated a novel bacterial sp. and developed an indigenous consortium capable of degrading oily sludge. Thus, findings of her research work not only offer potential environmental benefits, also have great potential for socio-economic benefits as well, if implemented suitably.

Dr. Varjani is associate editor for Bioresource Technology, Bioengineered, Cleaner & Circular Bioeconomy (CLCB), Spanish Journal of Soil Science, and Sustainable Environment: An international journal of environmental health and sustainability journal(s). She is member of editorial board of Science of the Total Environment, Indian Journal of Microbiology, Case studies in Chemical and Environmental Engineering, Journal of Energy and Environmental Sustainability, Journal of Environmental Science and Engineering, Biotech express and has served as guest editor of special issues of Bioresource Technology, Environmental Science and Pollution Research, ASCE- Journal of Environmental Engineering, Bioengineered, Industrial Crops and Products, Environmental Technology & Innovation and Journal of Experimental Biology.



by Dr Seema Pavgi Upadhye

Science and scientists completely gone down? Night curfew and vaccine mandates

The Coronavirus pandemic has created an authoritarian Covid bureaucracy consisting of politicians, public health leaders, and perpetually fearful elites. Bureaucracy's covid mitigation rules are so ridiculously irrational and unscientific that Marty Makary, MD of Johns Hopkins School of Medicine in the US, calls it a "pandemic of lunacy." Their response to Omicron, the newest variant of the Wuhan Covid-19 virus, falls in the same category – they are redundant, mindless, unscientific, and uncompassionate, said Avatans Kumar in an article written in Times of India Dec. 25, 2021.

Close to two years into the pandemic, while many countries collect and disseminate stratified real-life data on the pandemic and vaccination, India's Ministry of Health and Family Services' (MoHHS) brings out its mesh of useless data through its frequent press releases. The release contains – number of tests performed, active Covid-19 "cases," recoveries, vaccination stats, etc. The rating-hungry media outlets then use this information to hype fear and hysteria, Avant added.

It is now proved that vaccine do not work but govt. and health officials took it further and mandating vaccine for children. Once fearful for terrorism charges, now people are coming forward including scientists and doctors to oppose govts. decisions of mask, vaccination and lockdown mandates.

Dr Sanjay Rai, senior epidemiologist & principal investigator of Covaxin trials for adults and children at AIIMS termed the Centre's decision to vaccinate children against Covid "unscientific" & said it will not yield any additional benefit.

Dr Maya Valecha tweeted, Show us the figures how many healthy kids died, had any severe disease because of Corona. These are not free approved injections.

Recent Night curfews have become part of joke as rallies in days are ongoing but night are facing curfews when the

chances of transmission are rarest. Actions of Judiciary has also come into question when they allow rallies on one hand but do not take any action against night curfews,

Srinivas Kakkilaya, Physician tweeted, "Night Curfew Starts In UP" Matlab(means), Omicron spreads only during the nights, affects only those who do not go to bed by 11pm. It doesn't spread at the crowded election rallies or at weddings attended by <199 people & so on.

All these points indicate that the scientists who sit on topmost positions and are part of COVID task forces do not have guts to contradict govt. policies and/or they have become puppets of politicians in power to save their positions.

But for what, if it is now for common people someday it can be for elites also. No one will remain in power forever either scientific or political and thus in near future or sometime after they will become general public and will face the same.

Advocate Dipali N Ojha a part of Awaken India Movement(AIM) asked people to see if whole COVID thing is a scandal. AIM with Indian Bar Association is fighting to stop mandates but not sure of such actions when even after court's orders govts. are mandating such things.

Is this not disobeying of Judiciary when central govt. filed affidavit in Supreme court that COVID vaccine is not mandatory but health officials in different states are using forces for inoculation, a tweet read.

The author believe that scientists who are servant of govt. should come forward to curb this covid menace and start advocating to stop this nuisance that is going around in the name of Coronavirus.



No restrictions in rallies, Where are scientists that promote masks and social distancing

by Dr Kamal PrataP Singh



Though it is not clear whether positive test is equal to infection, questions have been arising across the country about coronavirus cases and restrictions when recently political leaders from various parties held large public meetings in various parts of country and attended events without wearing masks over the head. The visits come at a time when they have been urging citizens to follow Covid-appropriate behaviour and wear masks to prevent the spread of the virus.

Prime Minister Narendra Modi has been campaigning across the state of UP since December. He made 10 visits in the month of December 2021, last visit was in Meerut for the inauguration of Major Dhyan Chand Sports University. He did not have a mask on for the majority of the time.

Samajwadi Party chief Akhilesh Yadav addressed two public gatherings in Lucknow as a part of his Vijay Rath Yatra. Majority of the people, who attended the crowded rally, including Yadav, were not wearing a mask. Similarly, after doing huge rallies in Punjab, chief Arvind Kejriwal declared he has covid as he had tested positive and isolated himself and now giving suggestions through national news

channels to people to take precautions who have contacted him during these rallies. He was also in Lucknow and Punjab to address election rallies. Kejriwal and most of the people at the event were not wearing a mask.

These all political leaders on the one hand are imposing restrictions on common people and on the other hand are not following norms themselves which has made people furious and now people are against these mandates and challenging political leaders' decisions.

Amidst all this, the prominent scientists who were once hungry for publicity are not so visible after public questions. Director of one Genetic institute in India could not explain to Biotech Express that why night curfew was allowed in December 2021 when rallies were ongoing during the day, in simple terms he said there is no science behind this decision.

Similarly people are now questioning the scientific basis behind weekend curfew since it will affect their daily need activities and also will hamper daily wages labour that will be forced to go back their homes again, leaving them unemployed.

Many of the Awaken India Movement members could not agree the science behind restrictions and said that all these restrictions are only for control over people which must not be imposed as it is violation of human rights. Except few, scientists all over the world have sacrificed their souls to these political leaders and pharma profiteers in pandemic which ultimately is a disastrous situation for the common public.



Omicron is attenuating COVID-19, Says Prominent Virologist Prof Ramareddy Guntaka

January 12, 2022 | by Prof Ramareddy Guntaka

In an interview by Eenadu TV recently I mentioned that although Omicron infections go up, its effect on causing serious disease and death is minimal. Now I confidently say that even though it infects the vaccinated people, it is very feeble. This is already seen in US and other European countries. For example, this week the average number of Covid cases in the US is about 600,000 to 700,000 and the average deaths are about 1400-1600. A vast majority of these are due to Covid 19 or Delta variant, not due to Omicron. This translates to about 1 death for 400 to 500 positive cases compared to about 1 death per 50 to 60 infected people in the earlier periods during April-May and during July-August 2021 (See the Table).

Clearly it indicates that most of deaths are due to original Covid-19 and Delta variant and the Omicron does not cause severe disease and death. Since many of the vaccinated people are getting infected with Omicron, it would indicate that the mRNA vaccine induced antibodies are not effective in neutralizing Omicron.

It is also possible that the Omicron's tropism has changed. Likely, Omicron is infecting upper respiratory cells than deep alveolar epithelial cells. It has been shown that there are as many as 40 to 50 mutations in the Spike protein alone, compared to only 7 to 8 mutations in the Delta variant. Therefore, it is reasonable to assume that these mutations altered the virus pathogenicity. In essence Omicron is attenuated.

The cases in India are also increasing but the death rate is drastically reduced (See Table), suggesting that the variant Omicron is weakened, largely due to many mutations in the Spike Protein and elsewhere in the viral genome. This means that Omicron does not cause more than a mild disease, with symptoms like the Human Coronaviruses 229E and OC43, which cause seasonal colds and upper respiratory infection. From these data I conclude

Some pioneer (since March 2020) suggestions of Prof Guntaka to limit pandemic

- Death Stats are not worrying as many more people die from other reasons
- Testing kits are not trustworthy and are of low standards
- Minimize political interference and influence in science
- Lockdown will not solve the problem
- The current virus caused mild or asymptomatic disease

that Covid-19 is on its way out. This is due to the vast number of mutations which crippled the virus or attenuated.

No doubt that Omicron is transmitting much faster than Covid-19 or Delta variant. Yet it is causing much milder disease, indicating that in each cycle the infected cells are producing a smaller number of infectious virus and more defective particles. In general, this particular variant has

	USA		India	
Peak Period	Cases	Deaths	Cases	Deaths
April 14, 2020	29000	2200	1100	30
August 16, 2020	66000	1100	NA	NA
September 16, 2020	NA	NA	90000	1160
December 7, 2020	202000	2200	33000	320
January 21, 2021	254000	3100	15000	150
April 14, 2021	71000	1000	259000	4100
August 30, 2021	166000	1400	31000	490
January 5, 2021	584000	1320	90000	325

Table I: Two peaks of deaths in India - Sept 14, 2020 and April 14, 2021

much higher mutation rate, probably due to defective proof reading function of the virus. For example, the exonuclease encoded by the Coronavirus removes any mutated nucleotides that are incorporated into the genome during replication; if this gene is also mutated then the proof reading or editing function is affected resulting in accumulation of mutations. These mutant viruses behave differently than the parent virus and are attenuated.

Cautious note about RT-PCR Tests to detect Omicron:

Since the existing Covid tests do not clearly distinguish Omicron from Delta or Covid 19, is it worth doing these tests anymore? This will add only the number of new cases which are no doubt rising in every country. Under these circumstances it might be prudent to rely on the symptoms rather than the Spot or PCR test. Assume a person is infected with Omicron, virus replicates and in a day or two he or she will be positive for the virus and symptoms appear most likely on 2nd or 3rd day after infection. If the symptoms are mild for another 3 days and subside with running nose and mild cough persisting, then we can safely assume it is not serious. On the other hand, if the patient gets worse with severe cough and experiencing breathing problems, then he or she can be tested and hospitalized, if necessary.

In USA, it appears that many hospitalized patients are kept for a period of 2 to 3 days, unless they need intensive care treatment. Even this also is not on the magnitude with other COVID-19 or Delta variant. If they keep doing these tests naturally the numbers go up enormously, which make people panicked as is happening now. If a specific and sensitive test is developed for Omicron, then we would know that it doesn't cause any serious disease and therefore, people will feel much better.

Conclusions:

Since Omicron does not cause serious illness, people should not get panicked and rush to getting tested.

The tests presently available do not distinguish Omicron from Delta or Covid-19, people should consider getting tested if they are experiencing severe symptoms.

Omicron symptoms are very similar to the symptoms produced by other forms of Coronaviruses, which cause only mild upper respiratory symptoms.

Thanks to Coronavirus imposed masks, the flu cases have significantly reduced in both 2020 and 2021 seasons and the deaths associated with flu also drastically reduced.



About the Prof Ramareddy V Guntaka

Professor Guntaka is Emeritus Professor in Department of Microbiology, Immunology & Biochemistry, University of Tennessee, Health Sciences Center, Memphis, TN, USA and Chairman and Chief Scientist at Sudarshan Biotech Pvt Ltd., India.

- Prof Guntaka was one of the four members team that discovered Proto-oncogenes, genes implicated in causing cancer.
- Prof Guntaka was the first one to molecularly clone the entire genome of Rous Sarcoma Virus
- Prof Guntaka was the key scientist behind the successful development of the Recombinant Hepatitis B Vaccine by Shantha Biotech
- Prof Guntaka was also the key scientist behind the successful development of interferon alpha used to treat hepatitis B infections.
- Prof Guntaka was also the first scientist to clone and study the complete genome of the Indian strains of Hepatitis C virus



Underutilized Cereal Crops for the Future: Job's tears (*Coix lacryma-jobi*) for nutritional and economic sustainability in the North Western Himalayas

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Photo: Job's tears Plant

In view of the growing population and rise in climatic adversities a paradigm shift is required to achieve food and nutritional security in the future. One approach to accomplish emerging food demand is to advocate the consumption of underutilized crops and project them as future crops. Underutilized crops are well adapted to marginal and stressful environmental conditions, however, their potential as food crops is not being fully realized and agricultural and commercial importance is still unexplored.

Job's tears (*Coix lacryma-jobi*) is an important underutilized cereal belonging to the family Gramineae. It is also known as Coix seed, Chinese pearl barley and adlay seed. It is annual to perennial erect grass, which grows up to 2000 m altitude in the Western Himalayan region. It is native to South East Asia and originated from India. It is widely cultivated as a food and medicine plant in East and Southeast Asian countries (Arora 1977). In Himachal Pradesh, Job's tears is locally called Surnoo. It is generally used as a source of food, fodder and medicine by local people.

Surnoo grains are nutritionally at par or superior to conventional cereal food crops such as paddy. Hence, it is also considered a 'paddy substitute. According to a study conducted on Job's tears, it was revealed that it contains 14% protein, 5% fat, 56% carbohydrate, 3% crude fiber, 0.07% calcium, 0.224% phosphorus and 0.001% iron, the content of these components is higher than that of rice. In addition, Coix rice also contains vitamin B1, vitamin B2, vitamin E, niacin, dietary fiber and other nutrients (Zhang et al. 2002). Higher protein to carbohydrate ratio was found in



(Source of Image: [healthydoses.worldpress.com](https://www.healthydoses.worldpress.com))

coix as compared to other cereals like wheat, maize and rice (Corke, Huang, & Li, 2016).

Despite of its high nutritional value, it can also promote metabolism and reduce gastrointestinal burden, so it is a very good tonic food for patients or weak people. Seed extracts of Coix have phyto-chemical constituents which exhibit strong antioxidant, anti-inflammatory, anti-obesity activities, and stimulate reproductive hormones, uterine contraction and used to treat several diseases (Woo et al. 2007). Among various cereals, the unique components of Coix are coixol, coixin (Ottoboni et al 1990), coixenolide and lactams (Chung et al 2011). The anticancer drug named Kanglaite contains ingredients of Job's tears. Owing to high nutritional and medicinal values, Job's tears have a strong potential to make Indian economy sounder and benefit environment because it is a resource-efficient crop.

The wild resource of Job's tears is decreasing rapidly in few countries (Gao et al 2005). Therefore, conservation of this species becomes important. Also, development of elite varieties is need to bring this crop under cultivation. Propagation by different *in vitro* and conventional methods can encourage utilization and commercial scale propagation of this crop which is key to bring economic gains. Although various seed products of Job's tears are available in the national or international market, however, local

S.No	Nutrients	Quantity
1.	Protein	15.4 g
2.	Fat	6.2 g
3.	Carbohydrate	65.3 g
4.	Dietary Fibre	3 g
5.	Ca	25 mg
6.	Phosphorus	435 mg
7.	Iron	5 mg
8.	Vitamin B1 (Thiamine)	0.28 mg
9.	Niacin	4.3 mg
10.	Vitamin B2 (Riboflavin)	0.19 mg

Table 1. Nutrition Facts of Job's Tears Per 100 grams of seeds (healthguidenet.com)

people of the Himalayan region exploit this crop only for their personal use. Thus, there is an urgent need to make rural farmers aware of the potential uses of Job's tears and upscale its cultivation to gain commercial benefits. Moreover, Job's tears is adapted to the innumerable abiotic stress than the major crops of the world. Therefore, its cultivation also offers an advantage to utilize marginal and wastelands for agricultural purposes to meet the ever-increasing food demand. Lack of authentic documentation on underutilized crops such as *Coix lacryma jobi* L (Jobs tears) restricts development of strategies and policies to promote their utilization.

S.No	Class	Compound name
1	Coix oils	Coixenolide, Ceramide
2	Vitamin	γ -Tocopherol
3	Phytosterol	Docosanol, β -Sitosterol
4	Polyphenols	Chlorogenic acid, Caffeic acid, Ferulic acid, 4-Ketopinoresinol, p-Hydroxy benzaldehyde
5	Flavonoids	Tangeretin, Naringenin, Nobiletin
6	Lignans	N-Neolignans
7	Lactum rings	Spirolactam-A, Spirolactam-B, Spirolactam-C
8.	Spiroenone	Spiroenone

Table 2. List of phytoconstituents of Job's tears seeds or Coix seeds (Devaraj et al. 2020)

Large scale cultivation and domestication of Job's tears in Himachal Pradesh will require identification of its superior genotypes. In this regard, analysis of morphological, phytochemical and genetic diversity parameters is essential to fish out some useful genotypes from the wild populations. Later on, biotechnological interventions such as plant tissue culture and genetic engineering can facilitate crop productivity and quality improvement. Research on underutilized crops like Job's tears holds promise to attain sustainability, profitability and diversification in agriculture, to restore the balance of trade and reduce India's dependence on imports and to make us more competitive in agricultural exports. Due to lack of breeding and biotechnological interventions, underutilized crops such as Job's tears faces production of lesser quantity as well as quality yields. Therefore, commercial cultivation of Job's tears can help to introduce this crop as main theme crop. At the same time, this reduces the risk of over-dependency on very limited numbers of major staple food crops. This eventually allows to preserve and celebrate cultural and dietary diversity.

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9. <https://healthydoses.wordpress.com/2008/05/25/job%E2%80%99s-tears-chinese-pearl-barley-coix-lacryma-jobi-adlay-seed-coixseed-ma-yuen/>
10. <https://healthguidenet.com/foods/coix-seed-jobs-tears-nutrition-facts-health-benefits/>



The paper was co-authored by researchers from the Special Centre for Molecular Medicine at the Jawaharlal Nehru University (JNU) in New Delhi.

About the second paper, Bik said it contained plagiarism from different research papers.

Also in her PhD thesis by Nivedita Gupta, contains paragraphs that contain verbatim or nearly verbatim sentences from text published by others. In particular, text from the book *Fungal Pathogenesis: Principles and Clinical Applications* (2002) by Richard A Calderone (eBook ISBN 9780429153228) appears to have been copied.

For example, text from Chapter 30 in that book, written by Derek J Sullivan and David C Coleman (left), and text in Section 1.4.2 from the Gupta PhD thesis (right). Boxes of the same color show blocks of texts that are remarkably similar.

Gupta said that the work was done while she was a PhD candidate at JNU and working at Safdarjung Hospital in 2004, and that the head of the Burns & Plastic Surgery Department, R.P. Narayan, was guiding her. He is also one of the research authors and, along with her PhD guide at JNU, was privy to all raw data generated in the experiments.

Prof Gupta in an e-mail to Biotech Express provided the following explanation:

Study No. 1: Nivedita Gupta, Absarul Haque, Ali Abdul Lattif, R.P. Narayan, Gauranga Mukhopadhyaya & Rajendra Prasad. Epidemiology and molecular typing of Candida isolates from burn patients. Mycopathologia 158: 397–405, 2004.

Contribution of disseminated fungal infections in burn patients was earlier a neglected area of research in India. Several unexplained deaths of burn patients were seen in India's largest burn & plastic surgery unit at Safdarjung hospital, Delhi, India. In view of this, the study was undertaken in 2002-03 as part of my PhD thesis, to understand the proportion of Candida infections in burn patients.

In the study, samples from a total of 220 admitted burn patients with > 40% burns were collected over 2 years. Oral and wound swabs were collected from all patients, whereas tissue biopsy and blood samples were collected only from a proportion of patients. Out of the 138 patients who were positive for candida infections from one or more body locations, 7 patients were positive for candida infection in 3-4 body locations. Detailed explanation of

Figure 1 is given below:

- Patients no. 4, 12 and 60: Candida growth could be seen in separate plates coated with oral swab, wound swab and blood. On DNA fingerprinting, the *Candida albicans* strain across the three different samples from the same patient were found to be the same.
- Patients no. 6, 23 and 58: Candida growth could be seen in separate plates coated with oral swab, wound swab, tissue biopsy homogenate and blood. On DNA fingerprinting, the *Candida albicans* strain across the four different samples from the same patient were found to be the same.
- Patient no. 25: Though Candida strains could be isolated from four body locations, they were unrelated.

For remaining 131 patients such pattern was not seen.

This was the first and largest study in India at that point in time which clearly brought out the importance of treating burn patients with unknown septicemia with antifungals. Before the study was published, a sizeable number of burn patients did not respond to multiple antibiotics and succumbed due to sepsis. Timely administration of antifungals helped save the lives of several burn patients. The study was closely monitored and supervised by the Head of Burns and Plastic Surgery Department of Safdarjung Hospital and by esteemed professors at Jawaharlal Nehru University, Delhi, India.

The study brings out the results as they are, and no manipulations have been made. Importance of the study should not be undermined by putting false allegations.

Study No. 2 : Prajit Kumar Acharya* and Nivedita Gupta; Role of contaminated water for stillbirths in pregnant women; International Journal of Biomedical and Advance Research; ISSN: 2229-3809 (Online); 2455-0558 (Print) Journal DOI: 10.7439/ijbar

The paper is a short review with compilation of existing evidence and is not an original research paper. In review articles, the authors compile the work already done by others. The authors have also not made any claim of having undertaken original work.

Dr Prajit Kumar Acharya is the first and corresponding author of the paper. He may be contacted for further clarifications.

Pfizer, Roche, AstraZeneca and J&J face newly revived lawsuit claiming they funded terrorism in Iraq

January 6, 2022



A newly revived lawsuit accuses AstraZeneca, Johnson & Johnson, Pfizer and Roche of making corrupt payments to terrorists who ran Iraq's health ministry. The suit claims that the companies obtained the contracts through bribes which financed the terrorist attacks on Americans. (Pixabay)

Four pharmaceutical giants will have to answer to charges that they paid bribes to win healthcare contracts in Iraq and in the process funded terrorists who killed Americans during the war.

The unusual complaint was filed in 2017 and dismissed three years later by a U.S. district court judge in Washington, D.C. But this week, a U.S. appeals court overturned (PDF) the previous decision, a move that will force Pfizer, AstraZeneca, Roche and Johnson & Johnson to defend themselves anew. A panel of three circuit court

judges agreed unanimously to revive the lawsuit.

The complaint says the Lebanese Hezbollah-sponsored Jaysh al-Mahdi terrorist organization took control of Iraq's ministry of health in 2004 and used it as a vehicle for terrorist activity. The plaintiffs allege that the companies used local agents to deliver cash kickbacks to the terrorists. They also allege that defendants delivered off-the-books medical goods that Jaysh al-Mahdi sold on the black market to fund operations.

"The complaint describes how Jaysh al-Mahdi controlled the ministry and used it as a terrorist headquarters," the judges wrote in their decision. "Accepting those allegations, defendants' dealings with the ministry were equivalent to dealing with the terrorist organization directly. The ministry was therefore not an independent intermediary that broke the chain

of causation, but a front for Jaysh al-Mahdi."

The allegations are based on information from 12 confidential witnesses, private and public reports, contracts, emails and more, including documents published by WikiLeaks, according to the suit.

Over the past decade-plus, a number of drugmakers have settled allegations of bribery and kickbacks overseas, including in Iraq, some of them related to the United Nations' Oil for Food program. In 2011, J&J agreed to pay \$70 million to settle claims that it bribed officials in Greece, Poland and Romania, and paid kickbacks to the former Iraqi government under the U.N. program. In 2014, China ordered GlaxoSmithKline to pay \$490 million for its role in a high-profile bribery scandal.

FIR against 84-year-old Bihar man who took 11 doses of COVID -19 vaccine

January 9, 2022

President Biden is yet again facing backlash over the FDA's booster approval process, which recommended boosters for children this week without convening a panel of advisors to weigh in on the matter.



“Dear President Biden, FDA is bypassing it’s scientific advisors to authorize boosters for all kids 12-15 next week. This is unconscionable – undermines the integrity of the FDA’s standard process! Please require FDA to put this authoriz [sic] before the VRBPAC advisory comm for a vote!” Dr. Marty Makary, chief of the Johns Hopkins Islet Transplant Center and Fox News contributor, tweeted Saturday.

The Vaccine and Related Biological Products Advisory Committee voted against giving the Pfizer-BioNTech’s COVID-19 booster shots to most people back in September. It instead voted to limit boosters to those aged 65 and older, as well as to people at risk of severe illness, citing the lack of evidence showing the boosters are safe for younger people.

India’s Health ministry made wrong claims Covaxin has WHO approval for use in under-18s

January 4, 2022

With India’s Covid vaccination drive for 15-18-year-olds being rolled out from Monday, Covaxin — the sole vaccine available for this age group — has only received World Health Organization (WHO) approval for use in adults, and not for those aged between 12 and 18, contrary to the health ministry’s claims.

In the revised vaccination guidelines posted on the Ministry of Health and Family Welfare’s website on 27

December, Covaxin, the Covid vaccine developed by Hyderabad-based Bharat Biotech and the Indian Council of Medical Research (ICMR), is described as “the only vaccine with EUL for the age group 15-18 .

EUL stands for ‘Emergency Use Listing’, which is the WHO’s risk-based procedure for assessing and listing unlicensed vaccines, therapeutics and in vitro diagnostics.

However, the WHO in a statement released in November had noted that although Covaxin was approved in India for those aged 12-17 years, it has not yet received WHO EUL for this age indication.

Later, the health ministry issued a clarification saying the EUL by the national regulator, CDSCO, for the 12-18 age group was accorded on 24 December.

Two Madhya Pradesh girls' families claim they died after receiving the Covid jab

JANUARY 8, 2021



Family members of two 16-year-old girls in Madhya Pradesh, Ujjain and Khargone, have admitted to dying after a Covid vaccination. Both deaths are being investigated by the government and their viscera has been sent for lab tests.

In both cases, the deaths occurred more than 24 hours after vaccination. According to State immunization officer Dr Santosh Shukla, adverse reactions can occur between 30 minutes and six hours after immunization in the case of Covid vaccines.

Symptoms appear within 30 minutes in 90% of AEFI cases, according to Dr Shukla, who said that autopsy reports and a thorough review of medical records would reveal what happened.

According to her parents, the Ujjain child received the Covid vaccine in Bisan Kheda village when she was in school on January 5. She fell unconscious on the highway the next day and was admitted to a local hospital, where she was referred to Ujjain and died in the night while recovering. Following her family's allegations, a medical committee was formed for the autopsy, according to Ujjain chief medical and health officer Dr Sanjay Sharma.

To determine the cause of death, samples of blood and viscera have been sent to various laboratories. According to him, the interviews are awaited. On January 3, the Khargone child had taken her vaccination at school in the Karhi area. According to an official

DPR communication, she complained of stomach pain, fever, and weakness on January 5 night.

According to the press release, the issue was brought to the forefront by media accounts, and a team of doctors and revenue officers was formed to collect details. The girl had anxiety issues, according to Dr. Sanjay Bhatt. Covaxin is completely safe. To prevent any AEFI, children should have breakfast before using the drug, according to the press release.

Mahesh Parmar, a member of the Tarana Congress, went to Tarana and demanded that an investigation be launched.

Parents wary as doubts on Covaxin's shelf life persist

JANUARY 5, 2021

"When the Central Drugs Standard Control Organization extended the shelf life of Covaxin, the ministry had no reason to comment further on its shelf life. Now, even though a clarification has come, a lot of damage has been done. Apprehension and doubt about Covaxin have gone 'viral' among parents," said Dr HM Prasanna, President of PHANA.

Several private hospitals have reported that parents continue to demand to see expiration dates on vials before consenting to their child being vaccinated.

The Department of Health and Family Welfare, in a statement released on

Monday, said the shelf life of the vaccine had been extended from 9 to 12 months. However, a December 23 letter from the ministry's immunization division decreeing that vaccines with expired labels should not be used still raises concerns among parents, according to the Association of Private Hospitals and Nursing Homes (PHANA).

Mohammed Shakeel, president of Voice of Parents, said parental trust



was first shaken by the small sample size of human trials and second by an apparent non-transparent extension of shelf life.

Novak Djokovic win battle to remain unvaccinated

January 10, 2022



Novak Djokovic, the Serbian tennis star, won a legal victory on Monday in his bid to avoid deportation from Australia, as a judge ordered the gov-

ernment to release him from detention and restore a visa it had canceled because Djokovic has not been vaccinated for Covid-19.

The ruling, approving an agreement between the two parties, came five days after Djokovic was detained at an airport upon arrival on a flight to Melbourne from Dubai. He was hoping to defend his title at the Australian Open, which he has won a record nine times.

On multiple occasions, Djokovic has stated his opposition to vaccine mandates, saying that vaccination is a pri-

vate and personal decision. He had not, however, revealed until last week whether he had been vaccinated.

In a court filing on Saturday, Djokovic's lawyers said that the tennis star had tested positive for the coronavirus in mid-December, and that he had been granted a vaccination exemption by Australian tennis officials on these grounds. In court on Monday, the lawyers argued that the Australian government had erred in canceling Djokovic's visa over the vaccine requirement.

Pharmaceutical giants, Gates, Fauci, UK officials accused of crimes against humanity in International Criminal Court complaint

December 19, 2021



UK officials and the most influential public health figures are accused of genocide, citing a series of statistics on the impact of “vaccines” and policies imposed under the guise of “mitigating COVID”, according to the Rio Times, an American news agency.

A group including former Pfizer vice president Dr. Michael Yeadon filed a complaint (<https://www.docdroid.com/WUjv6iw/icc-complaint-7-1-pdf>) with the International Criminal Court (ICC) (worth reading) on behalf of U.K. citizens against Boris Johnson and U.K. officials, Bill and Melinda Gates, CEOs of major pharmaceutical companies, World Economic Forum executive chairman Klaus Schwab, and others for crimes against humanity.

The ICC has acknowledged the case and has attributed the following reference number OTP-CR-473/21.

The defendants included:

Dr. Anthony Fauci;

1. Tedros Adhanom Ghebreyesus, director-general of the World Health Organization (WHO);
2. June Raine, executive director of the Medicines and Healthcare products Regulatory Agency (MHRA);
3. Dr. Radiv Shah, president of the Rockefeller Foundation
4. Dr. Peter Daszak, president of EcoHealth Alliance, as “responsible for numerous violations of the Nurem-

berg Code ... war crimes and crimes of aggression” in the United Kingdom and other countries.

5. Albert Bourla, CEO of Pfizer
6. Stephane Bancel, CEO of AstraZeneca
7. Pascal Soriot, CEO of Moderna
8. Alex Gorsky, CEO of Johnson and Johnson
9. Boris Johnson, UK Prime Minister
10. Christopher Whitty, UK Chief Medical Adviser
11. Matthew Hancock, former UK Secretary of State for Health and Social Care

12. Klaus Schwab, President of the World Economic Forum

After repeated unsuccessful attempts to bring a case before the English court system, the plaintiffs resorted to asking with “the utmost urgency” that the ICC “stop the deployment of COVID vaccines, the introduction of illegal vaccination passports and all other types of illegal warfare ... being waged against the people of the United Kingdom.”

The group’s complaint filed Dec. 6 presents evidence that COVID-19 “vaccines” are experimental gene therapies designed with bat coronavirus gain-of-function research, arguing that these “vaccines” have caused massive deaths and injuries and that

the U.K. government has failed to investigate such reported fatalities and injuries.

In addition, they argued that effective treatments for COVID-19, such as hydroxychloroquine and ivermectin, were suppressed, resulting in a more significant number of COVID-19 deaths than should have occurred.

In addition, the petitioners contend that “the suppression of safe and effective alternative treatments for Covid-19 amounts to murder and warrants a full investigation by the court.”

They noted that in addition to censorship of online information and promotion of these alternative treatments, “some academic journals are blocking

publication of studies demonstrating the effectiveness of drugs such as ivermectin and hydroxychloroquine.”

The petitioners also cited quotes from Holocaust survivors who have drawn “strong parallels between Covid’s restrictions and the beginning of the Holocaust.”

In an open letter, the Holocaust survivors have called on medical regulatory authorities to “stop this unholy medical experiment on humanity immediately,” which they contend violates the Nuremberg Code.

Denmark health chief says Omicron is bringing about the END of the pandemic

January 3, 2022

Speaking to Danish TV 2, Tyra Grove Krause - the chief epidemiologist at Denmark’s State Serum Institute - said a new study from the organisation found that the risk of hospitalisation from Omicron is half that seen with the Delta variant. This, she said, has given Danish authorities hope that the Covid-19 pandemic in Denmark could be over in two months.

Despite early fears that Omicron could prolong the pandemic due to its increased level of infection, Ms Krause said it actually could spell the end of the pandemic.

According to the study: ‘Omicron is here to stay, and it will provide some massive spread of infection in the coming month. When it’s over, we’re in a better place than we were before.’

But while infection numbers in countries with the variant are soaring, the expert said that the highly infectious Omicron appears milder than the Delta variant, and therefore more people will be infected without having serious symptoms. As a result, she said, this will provide a good level of immunity in the population.

• **Tyra Grove Krause is the chief epidemiologist at Denmark’s State Serum Institute**

• **Speaking Monday, she said Omicron’s hospitalisation risk was half that of Delta**

• **This, she said, could spell the end of the pandemic in around two months**

cancelled all public meetings and rallies in five poll-bound states, including Uttar Pradesh following the Covid surge. Aren't you defying your party's diktat?

They were all political events and therefore cancelled. But the Mekedatu padayatra is apolitical and it's for drinking water. That's the reason we appealed to people from all walks of life to join our protest.

Only you and Siddaramaiah plan to go on the first day (Sunday). What if party workers join?

We asked party workers not to participate on the first day, but we cannot stop them if they choose to come. Let the government arrest all of us. The detailed project report of the Mekedatu project was prepared when you were water resources minister in the JD(S)-Congress coalition government.

When you failed to implement it, what moral right do you have to protest now? Our party was not in power then at the Centre. The BJP claims to be the double-engine government; let it do it. The padayatra appears to be a political

mission since you want to emerge as a Vokkaliga leader and project yourself as the CM candidate...

No, we're are not thinking about the elections yet. It's wrong to say only Vokkaligas will benefit from the Mekedatu project. It'll benefit people of all castes and religions. We'll launch similar padayatras for Mahadayi and Krishna projects in North Karnataka.

Lab Faces Probe After Hundreds Positive On Italy-Amritsar Flights: Report

January 09, 2022



A probe has been ordered against a private laboratory after a number of flyers who reached here from Italy recently tested positive for COVID-19 amid allegations by several of them that their test reports were incorrect, health officials said on Sunday.

At least 173 passengers on a Rome-Amritsar chartered flight were found to be COVID-positive after being tested on arrival on Friday, officials said.

have tested positive for the coronavirus on arrival.

The Airports Authority of India has also replaced the services of the Delhi-based laboratory with a local lab, officials said.

The probe had been ordered after several of the passengers who returned from Italy had alleged that their Covid positive report was not correct as they had tested negative hours

This is the second consecutive incident wherein a large number of passengers coming from Italy to Amritsar airport

before boarding the flight. They had raised questions on the testing practice adopted by the lab. Many among them had even created ruckus at the international airport here.

Some of the passengers who had arrived here at Shri Guru Ramdas International Airport had subsequently tested negative in a re-test later, officials said.

This was the second consecutive incident the place numerous passengers coming from Italy to Amritsar airport have examined constructive for the coronavirus on arrival. In preceeding incident, 125 passengers who had been travelling from Milan in Italy on one other constitution flight had been discovered constructive after being examined on arrival on the Amritsar airport.

Holmes Could Face Decades in Prison Following Guilty Verdict on Four Counts

JAN 04, 2022



Elizabeth Holmes is facing decades in prison after a jury found her guilty of four fraud charges. The founder and former chief executive officer of blood-testing company Theranos, Holmes has been found guilty of bilking hundreds of millions of dollars from investors to prop up her company and its failed technology.

While Holmes was found guilty of four charges, the jury concluded that she was not guilty on four other charges that were connected to allegations of patient fraud related to false test results that had been sent to them. In 2016, Theranos invalidated results from thousands of tests it had conducted through its partnership with Walgreens, prompting several lawsuits from patients who used the false results to schedule medical procedures.

Seven years ago, Holmes graced magazine covers as one of the richest women in the United States. Her company, which she founded at the age of 19 after dropping out of Stanford University, gained a valuation of approximately \$9 billion. However, in 2015, her lofty position began to crumble after whistleblowers shared tales of rampant failures of the company's blood-testing technology, which promised significant amounts of health data from a single drop of blood.

Holmes has been on trial for four months as the prosecution laid out its allegations against the biotech entrepreneur. The first two months of the trial included testimony from investors and Theranos whistleblowers who testified about data manipulation at the company. Whistleblower Erika Cheung, a former Theranos lab worker, testified that the company

manipulated data to pass quality control. While on the stand, she testified that Theranos employees would delete up to two of six data points in a test to achieve a desired result. Another whistleblower, Tyler Shultz, raised concerns about the failures of the company's blood-testing device.

In her testimony on the stand, Holmes admitted to mistakes made while at the helm of the company, saying that, as CEO of Theranos, she should have been more aware of what was going on and that the responsibility for all activities at the company was hers and hers alone.

Throughout her defense, Holmes cast blame for the company's troubles on her former partner and lover, Ramesh "Sunny" Balwani, as well as subordinates who she claimed misled her. Revelations about her toxic relation-

ship with Balwani included claims that she was sexually, emotionally and mentally abused by Balwani, who is 20 years her senior. During the days she was on the stand, Holmes testified that Balwani coached and controlled

her throughout their relationship. She also testified that Balwani would force her to engage in sexual activities after arguments to prove his love.

Both Holmes and Balwani have been charged with multiple counts of fraud.

Balwani's trial is expected to begin next year.

Dr. Anthony Fauci retirement package Will be highest in federal history, Exceed \$350,000 Per Year

DEC 28, 2021



On Christmas Eve, Dr. Anthony Fauci turned 81. However, he is not retiring just yet. If he did, Fauci would reap the largest federal retirement package in U.S. history.

Our auditors at OpenTheBooks.com estimate Dr. Fauci's annual retirement would exceed \$350,000. Thereafter, his pension and benefits would continue to increase through annual cost-of-living adjustments. Fauci has 55 years of service as a federal employee.

For the second year in a row, Fauci was the most highly compensated federal employee and out earned the president, four star generals, and roughly 4.3 million of his colleagues. As director of the National Institute of Allergy and Infectious Diseases (NIAID), Fauci earned \$434,312 in 2020, the latest year available, up from \$417,608 in 2019.

Serving almost 55 years, Dr. Fauci is one of the longest-serving feder-

al employees. Dr. Fauci first joined the NIH in 1966, as part of an intramural research program known as the "Yellow Berets." In 1970, he left for a year and a half to serve as Chief Resident at the New York Hospital Cornell Medical Center. In 1971, he returned to NIH as Senior Investigator in the Laboratory of Clinical Investigation. In 1984, Fauci was named director of the NIAID, a position he still holds today.

Private agencies to provide researchers for govt projects; scientists furious

January 7, 2022



A proposal by the Narendra Modi government to cut costs and hasten hiring of manpower for research projects of various ministries and autonomous institutes has filled many officials and budding researchers with consternation, with some alleging that outsourcing researchers' recruitment to private agencies will promote middlemen and result in a national "knowledge catastrophe".

The ministry of earth sciences has already taken the lead in implementing the "draconian" rules and issued a circular, setting April 1, 2022 as the deadline for the new set of hiring terms to kick in. The most "painful" aspect of the new move, allege scholars, is the outsourcing of researchers' hiring to a private job agency. The researchers would work on government projects in official labs but would be on the pay rolls of the private agency.

"It is like treating academics like Group D staff or security staff. This is a serious matter and if it goes uncontested and finally implemented, it will damage science and research in the country," said a scientist in the ministry of science and technology.

"The involvement of private agencies is worrisome and raises concerns about possible corruption in recruitments," he said. The new hiring rules may impact around 3,000 research vacancies across the country, claim sources. These posts may also include those of Scientists B group and involve researchers' post with monthly salaries starting from Rs 40,000 and going up to Rs one lakh or more.

A JNU scholar, earlier involved in a government assignment, said, "It is an open secret that job-seekers are forced to pay commissions to private outsourcing agencies to get placed. They

are also not paid the official entitlement. In this case, it will be a researcher who would face exploitation."

"The worst part is that an underpaid researcher, who is also not sure about the length of his assignment or future, may not be able to give his best for promoting knowledge-related work," he said. Despite the growing criticism of the new rules, there seems to be an effort on the part of the government to limit its wage bill by optimizing outsourcing of staff.

The official memorandum of the MoES states the contractual manpower should "not be given any yearly increment benefits as given to regular employees of GoI... terminal benefits and other allowances, applicable to permanent employees, will not be applicable to contractual employees."

What Sci-Hub's latest court battle means for research

December 13, 2021

Sci-Hub, the popular website that offers access to millions of pirated research papers and books, is no stranger to legal action. But, for the first time, the site is defending its operations in court, in a copyright case filed in India by a group of major publishers.

In a lawsuit presented in Delhi's high court, the American Chemical Society, Elsevier and Wiley say that the site infringes their copyright, and ask the court to instruct Internet service providers in India to block access to it.

Sci-Hub's founder Alexandra Elbakyan argues that, in India, copyright is "not applicable in cases such as Sci-Hub, when [material] is required for science and education".



If Sci-Hub wins, it could force publishers to rethink their business models in a similar way to how the music industry changed in response to the arrival of the Internet, says Arul George

Scaria, a legal scholar at the National Law University, Delhi. Attitudes towards Sci-Hub in other countries could change on the basis of India's ruling, and the outcome could even influence similar cases in future.

Critics question Biden FDA's approval of COVID boosters for children: 'Call it a Slap in the face to science'

January 3, 2022

President Biden is yet again facing backlash over the FDA's booster approval process, which recommended boosters for children this week without convening a panel of advisors to weigh in on the matter.

"Dear President Biden, FDA is bypassing it's scientific advisors to authorize boosters for all kids 12-15 next week.

This is unconscionable – undermines the integrity of the FDA's standard process! Please require FDA to put this authoriz [sic] before the VRBPAC advisory comm for a vote!" Dr. Marty Makary, chief of the Johns Hopkins Islet Transplant Center and Fox News contributor, tweeted Saturday.

The Vaccine and Related Biological

Products Advisory Committee voted against giving the Pfizer-BioNTech's COVID-19 booster shots to most people back in September. It instead voted to limit boosters to those aged 65 and older, as well as to people at risk of severe illness, citing the lack of evidence showing the boosters are safe for younger people.

Time to Ditch Covid Bureaucracy

December 25, 2021



The Coronavirus pandemic has created an authoritarian Covid bureaucracy consisting of politicians, public health leaders, and perpetually fearful elites. Bureaucracy's covid mitigation rules are so ridiculously irrational and unscientific that Marty Makary, MD of Johns Hopkins School of Medicine in the US, calls it a "pandemic of lunacy." Their response to Omicron, the newest variant of the Wuhan Covid-19 virus, falls in the same category – they are redundant, mindless, unscientific, and uncompassionate.

"Cases" are a good measure of the trajectory of infections. However, Covid data is now much complex and nuanced than the simple "cases" count. Also, one must keep in mind that none of the tests, including the commonly used RT-PCR test, are 100% reliable. LeBron James's latest brush with the Covid test protocol exemplified the unreliability of these tests. James is one of the top professional basketball players of America.

Besides anecdotal and sparse media reports, currently, not much is available in vaccine adverse effect data. This information is particularly critical considering the scope of vaccination in India and the relatively younger demography involved.

In a recent CNN interview (December 20, 2021), Leana Wen, MD, a public health expert, acknowledged that cloth masks are "little more than facial decoration." Cloth coverings provide a false sense of protection. Many doctors and educators agree that masking among younger kids is harmful at many levels. Considering Covid-19 is an airborne respiratory virus, masking outdoor has no known benefits nor does distancing (MIT study reported in CNBC, April 23, 2021).

Another unscientific mitigation approach of the Covid bureaucracy is the restrictions on outdoor gatherings. Many scientists claim that more time spent outdoors helps slow the transmission rate of the virus (The

Wall Street Journal, May 31, 2021).

According to studies, open-air events demonstrate that viral shedding in this setting is minimal and does not result in outbreaks. During the pandemic, the world saw several large-scale outdoor riots & protests, sports and election victory celebrations, etc. None of them turned out to be a 'super-spreader' event.

Zero-covid is not an option. Most scientists, including the World Health Organization (WHO), agree that Covid-19 is here to stay (Dr. Mike Ryan of WHO quoted in CNBC, September 7, 2021), just like other respiratory viruses. Also, person's vaccination status does not guarantee protection against reinfection or transmission of the virus. It is time to end authoritarian Covid bureaucracy and bullying by the elites. We need a much nuanced and compassionate approach to covid mitigation.



Prof. Manoj Kumar Patairiya elected as President, International Science Writers' Association, USA & Indian Science Writers' Association, India

*Prof. Manoj Kumar Patairiya has been Head & Adviser, National Council for Science & Technology Communication (NCSTC), Department of Science & Technology (DST), Govt. of India, Delhi.
E-mail: manojpatairiya@yahoo.com*

Prof. Manoj Kumar Patairiya, who started his career as Science journalist held several important positions which include Director, National Institute of Science Communication and Information Resources (CSIR-NISCAIR), Additional Director General, Prasar Bharati (Doordarshan/Akashvani). He Played a key role in setting-up DD Kisan TV Channel to realize the vision of Hon'ble Prime Minister, headed DD Kisan and DD Sports Channels besides External Services Broadcasts, served as Scientist 'G' in the DST.

A well-accomplished scientist and globally recognized science communication expert, Dr Patairiya is trained in multidisciplinary areas of science, technology, mass communication, management and policy and holds MSc and PhD in biosciences, MSc-Tech in Science & Technology Communication, MBA in Human Resource Management and Postgraduate Diploma in Journalism. He studied

Film Appreciation at Film & Television Institute of India, Pune and Science, Technology and Innovation Policy at Harvard University, USA.

Dr Patairiya is decorated with prestigious national and international awards including:

- Global Science Popularization Award by Centre for Global Studies, Houston, USA;
- Indira Gandhi National Award by Ministry of Home Affairs,
- Dr Atmaram Award by the Ministry of Education,
- Bhartendu Harischandra National Award by Ministry of Information & Broadcasting,
- Chaudhary Charan Singh National Award by Ministry of Agriculture & Farmers' Welfare,
- Dr B.C. Deb Award by Indian Science Congress,
- Indira Gandhi Prize for Popularization of Science by Indian National Science Academy.

Dr Patairiya's innovative efforts towards research and development, innovation, science communication, governance and policy have made significant impact leading to growth and development of science and technology ecosystem. Dr Patairiya has authored books on biotechnology, environment, and science communication, and co-edited the widely acclaimed books- "Sharing Science" and "Science Meets Communication" and has a large number of high standard research and popular science publications and 2 Indian Patents to his credit.

He is the President of Society for Information Science and Founding Fellow of Academy of Engineering & Technology of the Developing World under the aegis of UNESCO. Recently he has been elected as Chair of the International AASSA Special Committee on SHARE Communication which is recognition of positioning India at the global level in science and technology communication.

Biotech Research and Govt.

FDA Approves First and Only Injectable to Prevent HIV

Dec 21, 2021

ViiV Healthcare announced that the Food and Drug Administration (FDA)



gave its go signal to start producing Apretude (cabotegravir), a long-acting injectable pre-exposure prophylactic (PrEP) option to reduce the risk of sexually acquired HIV-1.

The drug, the first and only long-acting injectable to prevent HIV infection, is now authorized for adults and adolescents who are at risk of acquiring the virus through sexual relations, have a negative HIV-1 test before initiation and

weigh at least 35 kgs.

The FDA's decision is based on positive results from two international Phase IIb and III multicenter, randomized, double-blind trials (HPTN 083 and HPTN 084), which included over 7,700 participants in 13 countries. The trials evaluated the efficacy and safety of cabotegravir in HIV-1 negative men who have sex with men, cisgender women and transgender women who were at risk of having HIV.

Cabotegravir, an HIV-1 integrase strand transfer inhibitor (INSTI), is administered only at least six times a year, starting with a single 600 mg injection given a month apart for two months. After the second injection,

the continuation dose is a single 600 mg injection given every two months.

Apretude is developed and manufactured by ViiV Healthcare, which is majority-owned by GlaxoSmithKline, alongside Shionogi Limited and Pfizer as shareholders.

FDA must accelerate FOIA request tied to Pfizer's COVID-19 vaccine, judge orders

Jan 7, 2022

U.S. district judge Mark Pittman on Thursday ordered the FDA to produce all remaining data on the vaccine at a rate of 55,000 pages per month, much faster than the 500-page-per month



quota the FDA proposed in November. Rather than 75 years, it will now take about eight months for the FDA to make public the information it used to license Pfizer and BioNTech's COVID-19 vaccine—provided the regulator can keep up with the new schedule.

“[T]he expeditious completion of Plaintiff's request is not only practicable but necessary,” Pittman continued in his order.

So why do the plaintiffs, made up of doctors, scientists and professors, want the information on Pfizer's shot, Comirnaty? To hear representing lawyer Aaron Siri of Siri and Glimstad tell it, independent scientists need those data «to offer solutions and address serious issues with the current vaccine program.» Those serious issues include waning immunity, evasive variants and the shots' inability to prevent transmission, Siri said. Siri has come out strong against vaccine mandates in the past.

COVAXIN™ (BBV152) Booster Shown to Neutralize Both Omicron and Delta Vari- ants of SARS- CoV-2

January 12, 2022

Ocugen, Inc. (NASDAQ: OCGN), a

biopharmaceutical company focused on discovering, developing, and commercializing novel therapeutics and vaccines, and its partner, Bharat Biotech, a global leader in vaccine innovation and developer of vaccines for infectious diseases, today announced results from a study conducted at Emory University demonstrating that sera from subjects who received a booster dose of candidate vaccine COVAXIN™ (BBV152) six months after getting a primary two-dose series of COVAXIN™ (BBV152) neutralized the SARS-CoV-2 Omicron and Delta variants. Earlier studies demonstrated the neutralizing potential of COVAXIN™ (BBV152) against SARS-CoV-2 Variants of Concern Alpha, Beta, Delta, Zeta and Kappa.

- Booster dose of candidate vaccine, COVAXIN™ (BBV152), generated robust neutralizing antibody responses against both Omicron (B.1.529) and Delta (B.1.617.2) using a live virus neutralization assay
- 100% of test serum samples showed neutralization of the Delta variant and more than 90% of serum samples showed neutralization of the Omicron variant
- These data add to the body of evidence that the broad-spectrum mech-

anism of action of a whole virus inactivated COVID-19 vaccine, like COVAXIN™ (BBV152), is a viable option in this continuously evolving pandemic

The study will be published on the pre-print server, medRxiv, in the coming days.

In order to evaluate the effectiveness of COVAXIN™ (BBV152) against the Omicron variant, Ocugen contracted with the Emory Vaccine Center (Atlanta, GA) to test human immune sera obtained from participants (n=13) in an ongoing Phase 2 clinical trial (ClinicalTrials.gov: NCT04471519). Sera was collected 28-days post booster – six months following the primary two-dose series. Each sera was tested in a neutralization assay. Following three doses, the FRNT50 geometric mean titers (GMTs) of neutralizing antibodies against the Omicron variant measured in the samples was 75, compared to 480 against the Delta variant and 706 against the vaccine strain, D614G.

This study was sponsored by Ocugen, Inc. and Ocugen's partner, Bharat Biotech, provided the sera of the subjects from the Phase 2 study.



The U.S. FDA added another warning for the Johnson & Johnson vaccine

January 12, 2022

The FDA informed Johnson &



Johnson that adverse-event reports indicated a possible increased risk of immune thrombocytopenia within 42 days after vaccination with their COVID-19 vaccine. The symptoms include bruising or excessive or unusual bleeding. As a result, they modified the fact sheet supplied to healthcare providers with the vaccine, particularly for people with existing medical conditions that include low platelets. The vaccine had been previously associated with thrombosis with thrombocytopenia syndrome (ITS), a rare but serious type of blood clotting. The population at the highest risk was women ages 30 to 49.

Japan's CRISPR Fish Enters Market

January 12, 2022



Two CRISPR-edited fishes were approved for sale in Japan. The country now has three approved CRISPR-edited foods to date.

Japan has approved the sale of two CRISPR-edited fish: a tiger puffer and a red sea bream, both developed by the Kyoto-based startup Regional Fish Institute with Kyoto University and Kindai University.

The fish are engineered to grow bigger than their conventional counterparts. Researchers achieved the trait in tiger puffer by disrupting the leptin receptor gene, which controls appetite, causing the fish to eat more and increasing the speed at which they gain weight.

The edited fish grow 1.9 times heavier than conventional tiger puffers, allowing them to reach market size sooner, according to the company. For red sea bream, the researchers disabled the

protein myostatin, which suppresses muscle growth, allowing the fish to grow about 1.2 times larger on the same amount of food.

The traits are expected to reduce production costs of farming the fish, which will be grown in tanks on land. Regional Fish started a crowdfunding campaign to finance the commercialization of its products.

Japan regulates genome-edited food through two agencies: the Ministry of Health, Labour and Welfare and the Ministry of Agriculture, Forestry and Fisheries.

The approvals for the tiger puffer and red sea bream bring the total number of approved CRISPR-edited foods in Japan to three.

The ministries in December 2020 approved a CRISPR-edited tomato that has been engineered to have increased levels of γ -aminobutyric acid (GABA) for its perceived health benefits. The developer of the tomato, Tokyo-based Sanatech Seed, began selling the tomatoes in September.

Omicron is less severe because it does not infiltrate the lungs



January 3, 2022

A team of researchers at Hong Kong University's faculty of medicine found Omicron replicates 70 times faster than Delta in human airways.

The study, which is yet to be peer-reviewed, showed that when compared with both Delta and the original coronavirus, the Omicron variant was much quicker at getting into the bronchus or tubes that run through the upper airways and lungs but much slower at infiltrating the lung tissue itself.

According to the researchers, the Omicron variant replicated less efficiently, more than 10 times lower, once inside the human lung tissue than the original SARS-CoV-2 virus, which may suggest lower severity of disease.

It is hypothesised that serious illness from COVID-19 occurs once the virus gets into the lungs and spreads to other parts of the body from there, if it can be contained in the upper airways, the mouth, nose, etc, there is much less chance of severe disease.

However, the lead author Dr Michael Chan has urged caution over the findings. "It is important to note that the severity of disease in humans is not determined only by virus replication but also by the host immune response to the infection," said Dr Chan.

A team studying the Omicron variant in Glasgow think they have found the answer as to why this variant is unable to infect the lung cells as much as it does the upper airways. They found an essential protein found on lung cells called TMPRSS2, which usually helped previous SARS-CoV-2 variants to gain entry into the lung cells themselves bound less strongly to Omicron, meaning it was more difficult for this variant to get inside and infect lung cells.



Researchers in Japan Invent Mask that Glows When Exposed to Coronavirus

December 25, 2021

A coronavirus sample glows on a face mask filter under ultraviolet light after being sprayed with a fluorescent dye containing antibodies. Photo Source: Kyoto Prefectural University

A team of scientists at Kyoto Prefectural University headed by its president, Yasuhiro Tsukamoto, has developed masks that glow when exposed to ultraviolet (UV) light if they contain traces of the COVID-19 coronavirus, using antibodies extracted from ostrich eggs.

In February 2020, the team injected an inactive and non-threatening form of the coronavirus into female ostriches, successfully extracting a large quantity of antibodies from the eggs that they laid.

The team then developed a special filter placed inside the face mask. The filter can be taken out and sprayed

with a fluorescent dye containing the coronavirus antibodies from the ostrich eggs. If the virus is present, the filter will glow under UV light.

The team conducted experiments for 10 days with 32 people infected with COVID-19 and found that all the masks they wore glowed under UV light, which faded as time went by and their viral load decreased.

Serious illness seen in only one out of 578 Omicron patients: Maharashtra Health Department

January 5, 2022

Only one of the 578 people confirmed to have been infected by the Omicron variant of coronavirus in Maharashtra till Monday had severe illness, while eight had developed moderate symptoms, the state Health Department said on Tuesday.

It said that 436 of the 578 Omicron-infected people showed no symptoms at all, while 133 had mild symptoms.

However, the increased ability to bypass the immune response means that Omicron makes little distinction between vaccinated and unvaccinated people. As many as 365 of the 578 people, over 63 per cent, were vaccinated. At least 154 were unvaccinated, while the status of 59 was not immediately available.

Among the unvaccinated were also people below 18 years of age. At least 20 of these 578 were below the age of 10, while another 32 were between 10 and 20 years of age, according to information provided by the Health Department.

Dr Pradeep Awate, state surveillance officer, said while most of the patients were reporting only mild symptoms, there will always be people who can develop complications because of their age or prior medical conditions. As such, the spread of Omicron variant must not be taken lightly.

Successful transplant of porcine heart into adult human with end-stage heart disease

In a first-of-its-kind surgery, a 57-year-old patient with terminal heart disease received a successful transplant of a genetically-modified pig heart and is still doing well three days later. It was the only currently available option for the patient. The historic surgery was



conducted by University of Maryland School of Medicine (UMSOM) faculty at the University of Maryland Medical Center (UMMC), together known as the University of Maryland Medicine.

This organ transplant demonstrated for the first time that a genetically-modified animal heart can function like a human heart without immediate rejection by the body. The patient, David Bennett, a Maryland resident, is being carefully monitored over the next days and weeks to determine whether the transplant provides life-saving benefits. He had been deemed ineligible for a conventional heart transplant at UMMC as well as at several other leading transplant centers that reviewed his medical records.

“It was either die or do this transplant. I want to live. I know it’s a shot in the dark, but it’s my last choice,” said Mr. Bennett, the patient, a day before the surgery was conducted. He had been hospitalized and bedridden for the past few months. “I look forward to getting out of bed after I recover.”

The U.S. Food and Drug Administration granted emergency authorization for the surgery on New Year’s Eve through its expanded access (compassionate use) provision. It is used when

an experimental medical product, in this case the genetically-modified pig’s heart, is the only option available for a patient faced with a serious or life-threatening medical condition. The authorization to proceed was granted in the hope of saving the patient’s life.

Union Minister Dr Jitendra Singh today proposed a Common Single Application for all Scientific Fellowship, Grants and Scholarships

January 12, 2022

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 has proposed a Common Single Ap-

plication for all Scientific Fellowships, Grants and Scholarships.

Presiding over a high level meeting of all Secretaries of the Science Ministries and Science Departments, Dr Jitendra Singh said, the streamlining of the Fellowships and Research Grants will not only save cost and time, but will provide a level playing field to all the students and help achieve “Ease of Science Education” for students and scholars.

Dr Shekhar Mande, Secretary CSIR, Chairman of the Streamlining Committee, Dr. M. Ravichandran Secretary, Ministry of Earth Sciences, Dr S. Chandrasekhar, Secretary Department of Science & Technology, Dr Rajesh Gokhale Secretary Department of Biotechnology and senior officials took part in the meeting.

Dr Jitendra Singh informed that currently there are number of schemes under Ministry of Science & Technology (MoST) and Ministry of Earth Sciences (MoES) providing scholarship/fellowship to students, researchers at different levels (School/UG/PG/PhD/Post-doc/RA/re-entry from abroad). He said, for example, CSIR and DBT, both conduct separate examination for Junior Research Fellowship (JRF) and similarly, DST, DBT and CSIR have schemes for Postdoc/ Research Associateship and Re-entry from abroad. However, all these departments have separate advertisements and interview/selection processes and thus students/researchers have to apply at different portals in

different formats and face multiple exams or interviews which lead to hardship among students. This situation is not only time consuming for students but also lot of time and resources are deployed in process of selection to disbursement of grants by the funding agencies.

Recognising the hardship faced by students, Dr Jitendra Singh has mooted the idea of creating a single web interface to facilitate for all scholarships

said, the ministries have also been asked to explore the possibility of merging some of the ongoing schemes and direct transfer of fellowship grants to researchers based on NOC received from the sponsoring institutes.

Dr Jitendra Singh said that the step was taken as a number of grievances are being received regarding delays in sanction and release of fellowships/ research grants to Scholars and Students. Moreover, every department has its own system and mechanism of sanctioning and monitoring such fellowship grants. The Minister said in the light of above, a need was felt to streamline



and fellowships under MoST and MoES. The aim is to make the schemes student-centric and simplify the processes. He said, once implemented, the students need not to submit multiple applications and different portals as all four departments will converge all scholarship/ fellowship schemes at a single portal.

Dr Jitendra Singh said that steps like simplification of Processes and bringing Uniformity, providing single point of Contact to Students/Researchers, adopting the fast process and timely release of fellowships, eliminating the Duplicity, synergizing the process and schemes and reducing the Transaction Costs will be the main components of Single Window Opportunity for Scholarships and Fellowships. He

the entire process of accessing the information, application, selection, timely release of grants and effective utilisation and monitoring of the same.

Accordingly, Dr Jitendra Singh constituted a Committee for streamlining the Fellowships and Research Grants under the Chairmanship of Dr Shekhar C. Mande, Secretary, DSIR and DG, CSIR and Secretary DST, Secretary DBT, Secretary MoES as Members. Dr. Anjan Ray, Head, HRDG and Dr.Sanjay Mishra, Senior Scientist are other two members.

Biotech Research News

How DNA is preserved in archaeological sediments for thousands of years

December 27, 2021

Scientists have now shed light on the matter by isolating DNA from solid blocks of undisturbed sediment that are embedded in plastic resin. The study reveals that ancient human and animal DNA is concentrated in small 'hot spots,' particularly in microscopic particles of bone or feces. Micro-sampling of such particles can recover substantial amounts of DNA from ancient humans, such as Neanderthals, and other species and link them to archaeological and ecological records at a microscopic scale.

To investigate the origin of DNA in the sediment, Max Planck researchers teamed up with an international group of geoarchaeologists -- archaeologists who apply geological techniques to reconstruct the formation of sediment and sites -- to study DNA preservation in sediment at a microscopic scale. They used undisturbed blocks of sediment that had been previously removed from archaeological sites and soaked in synthetic plastic-like (polyester) resin. The hardened blocks were taken to the laboratory and sliced in sections for microscopic imaging and genetic analysis.

The researchers successfully extracted DNA from a collection of blocks of sediment prepared as long as 40 years

ago, from sites in Africa, Asia, Europe and North America. "The fact that these blocks are an excellent source of ancient DNA -- including that originating from hominins -- despite often decades of storage in plastic, provides access to a vast untapped repository of genetic information. The study opens up a new era of ancient DNA studies that will revisit samples stored in labs, allowing for analysis of sites that have long since been back-filled, which is especially important given travel restriction and site inaccessibility in a pandemic world," says Mike Morley from Flinders University in Australia who led some of the geoarchaeological analyses.

The approach described in the study allows highly localized micro-scalesampling of sediment for DNA analyses and shows that ancient DNA (aDNA) is not uniformly distributed in the sediment; and that specific sediment features are more conducive to ancient DNA preservation than others. "Linking sediment aDNA to the archaeological micro-context means that we can also address the possibility of physical movement of aDNA between sedimentary deposits," says Susan Mentzer a researcher at the Senckenberg Centre for Human Evolution and Palaeoenvironment (Germany).

Journal Reference: Microstratigraphic preservation of ancient faunal and hominin DNA in Pleistocene cave sediments. Proceedings of the National Academy of Sciences, 2021; 119 (1): e2113666118 DOI: 10.1073/pnas.2113666118

Lychee Genome Reveals Natural History and Predicts Flowering

January 4, 2022

An article published in the journal Nature Genetics on January 3 reports on the genomic analysis of this exotic fruit ("Two divergent haplotypes from a highly heterozygous lychee genome suggest independent domestication events for early and late-maturing cultivars"). The genome study revealed that the fruit was so cherished in ancient China that it was domesticated not once but twice. The study also provides insights on the evolutionary history of the fruit and its link with humans that may help predict flowering times of popular varieties, shaping the economic impact of this important crop.

"We found a really good marker which can be used for breeding. Using this molecular marker, we can quickly assess the fruit maturation time when the plants are very small, without waiting for the tree to grow to have flower and fruit," said Xia, who is also a co-senior author of the study.

The study, led by scientists at SCAU and the University at Buffalo, showed that the highly heterozygous lychee genome represents two divergent lineages that suggest early- and late-maturing varieties of the fruit originated from independent domestication events.

“Lychee is an important tropical agricultural crop in the Sapindaceae (mango and horse chestnut) family. It is one of the most economically significant fruit crops grown in eastern Asia, especially so to the yearly income of farmers in southern China,” said Jianguo Li, PhD, professor at the SCAU College of Horticulture and a senior author of the study.

Li said, “By sequencing and analyzing wild and cultivated lychee varieties, we were able to trace the origin and domestication history of lychee. We demonstrated that extremely early- and late-maturing cultivars were derived from independent human domestication events in Yunnan and Hainan, respectively.”

Xia added, “We identified a specific genetic variant, a deleted stretch of genetic material, that can be developed as a simple biological marker for screening of lychee varieties with different flowering times, contributing importantly to future breeding programs.”

The authors also reported on another gene cluster (VRN1) present in all flowering plants that bear two seed leaves upon germination (eudicots) but is expanded specifically in Sapindaceae. The conservation of the gene cluster suggests a functional role and its expansion in Sapindaceae may be related to the adaptation in members of the family.

Research done wrong: A comprehensive investigation of retracted publications in COVID-19

January 05, 2022

The COVID-19 pandemic has resulted in the publishing of a quantity of scientific research. In less than a year, a record of 200,000 scientific articles have been published on COVID-19. Publishing such a massive quantity of scientific research has instigated publishers to accelerate the review process. An upsurge in the publication rate has resulted in an increase in the retraction rate. This paper focuses on the COVID-19 studies originating across the world from 1 January 2020 to 10 October 2021. The data for this study were mined from <http://retractiondatabase.org/>. A total of 157 withdrawn articles on COVID-19 were retracted, and it was found that the United States of America contributed 31 (19.75%) retracted articles. Also, 16 (51.61%) of the retracted papers from the United States of America emerge in journals having an Impact Factor (IF). The study presents that 31 (19.75%) retracted articles were worked together by two authors, 26 (16.56%) with one author, and 22 (14.01%) by five authors. Furthermore, Elsevier publishers have the highest retraction rate with 80 (50.96%). Half (50%) of the articles were retracted with “no information” as a reason for retraction. Other reasons for retraction include concern/issues about data, duplication, journal error, lack of approval from a third party, plagiarism, etc.

Researchers identify biomarker for depression, antidepressant response

January 3, 2022

Researchers have identified a biomarker in human platelets that tracks the extent of depression. Published in a new proof of concept study, re-

searchers led by Mark Rasenick, University of Illinois Chicago distinguished professor of physiology and biophysics and psychiatry, have identified a biomarker in human platelets that tracks the extent of depression.

The research builds off of previous studies by several investigators that have shown in humans and animal models that depression is consistent with decreased adenylyl cyclase -- a small molecule inside the cell that is made in response to neurotransmitters such as serotonin and epinephrine.

“When you are depressed, adenylyl cyclase is low. The reason adenylyl cyclase is attenuated is that the intermediary protein that allows the neurotransmitter to make the adenylyl cyclase, Gs alpha, is stuck in a cholesterol-rich matrix of the membrane -- a lipid raft -- where they don't work very well,” Rasenick said.

The new study, “A Novel Peripheral Biomarker for Depression and Antidepressant Response,” published in *Molecular Psychiatry*, has identified the cellular biomarker for translocation of Gs alpha from lipid rafts. The biomarker can be identified through a blood test.

“What we have developed is a test that can not only indicate the presence of depression but it can also indicate therapeutic response with a single biomarker, and that is something that has not existed to date,” said Rasenick, who is also a research career scientist at Jesse Brown VA Medical Center.

Journal Reference: A novel peripheral biomarker for depression and antidepressant response. *Molecular Psychiatry*, 2022; DOI: 10.1038/s41380-021-01399-1

Poor Research

Research done wrong: A comprehensive investigation of retracted publications in COVID-19

January 05, 2022

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University of Rochester cancer researchers included ‘incorrect images’ in 13 papers, committee finds

January 05, 2022

A group of cancer researchers at the University of Rochester have now lost three papers over concerns about the data in the articles – issues that evidently did not rise to the level of misconduct, according to the institution. The work came from the lab of Yuhchyan Chen, of the university’s Wilmot Cancer Institute. A common

co-author was Soo Ok Lee, who is no longer affiliated with the University of Rochester. In addition to the three retractions, Lee has several corrections and an expression of concern.

The most recent retraction involves a 2019 article in the Journal of Molecular Medicine titled “Radiation-induced glucocorticoid receptor promotes CD44+ prostate cancer stem cell growth through activation of SGK1-Wnt/ β -catenin signaling” for which Chen and Lee were corresponding authors. The paper has been cited nine times, according to Clarivate Analytics’ Web of Science.

According to the retraction notice, dated December 10:

The Editor-in-Chief has retracted this Article because of several irregularities in figures. Specifically: Fig. 5f p-B-catenin lane which appears to be identical to Fig. 4a p-Stat3 lane [1] and Fig. 6a p-stat3 [2]; Fig. 5b the first GAPDH lane which appears to be identical to Fig. 3c cytosolic GAPDH lane [1]; Fig. 4e images for both GR IHC stains which appear to be identical to Fig. 5e IHC GR stains [3] An investigation by the University of Rochester Medical Center did not find any evidence of misconduct.

However, owing to the number of errors the Editor-in-Chief no longer has confidence in the reliability of the work presented in the article. Soo Ok Lee, Peter Keng, and Yuhchyan Chen agree to this retraction. Feng Chen, Xiaodong Chen, Yu Ren, and Guobin

Weng did not respond to correspondence from the Publisher about this retraction.

The two other retracted papers are “Neuroendocrine differentiation contributes to radioresistance development and metastatic potential increase in non-small cell lung cancer” and “FASN-TGF- β 1-PD-L1 axis contributes to the development of resistance to NK cell cytotoxicity of cisplatin-resistant lung cancer cells,” which were published in 2018 in *Biochimica et Biophysica Acta (BBA) – Molecular Cell Research* and *Biochimica et Biophysica Acta (BBA) – Molecular and Cell Biology of Lipids*, respectively and retracted earlier this year

COVID-19 spike protein paper earns an expression of concern

January 14, 2022

A virology journal has issued an expression of concern about a paper claiming that the SARS-CoV-2 virus can damage DNA after one member of the research team raised reservations about the reported findings.

The article, “SARS-CoV-2 Spike Impairs DNA Damage Repair and Inhibits V(D)J Recombination In Vitro,” was written by a pair of scientists at institutions in Sweden and published in MDPI’s *Viruses* (as Vincent Racaniello of TWiV

would say, the kind that make you sick).

The paper has received a fair amount of attention – particularly among vaccine skeptics who, as critics noted, used the article to buttress their claims that Covid vaccines are unsafe – generating enough buzz on social media and in the news to make it into the top 5% of all articles tracked by Altmetric. TWiV even devoted part of an episode of the show to the findings.

Frontiers retracts a dozen papers, many more expected

January 11, 2022

The publisher Frontiers has retracted at least a dozen papers in the last month, after announcing an “extensive internal investigation” into “potentially falsified research.”

Here’s an example of a notice, this one from *Frontiers in Endocrinology* for “Overexpression of microRNA-216a-3p Accelerates the Inflammatory Response in Cardiomyocytes in Type 2 Diabetes Mellitus by Targeting IFN- α 2,” which was originally published in November 2020:

The journal and Chief Editors retract the 27 November 2020 article cited above.

Following publication, concerns were raised regarding the validity of the data in the article. The authors failed to provide the raw data or a satisfactory explanation during the investigation, which was conducted in accordance with Frontiers’ policies. Given the concerns, and the lack of raw data, the editors no longer have confidence in the findings presented in the article.

Ten other articles have similar retraction notices, mostly in *Frontiers in Oncology* and one in *Frontiers in Physiology*, all by authors in China.

Another retraction, of a *Frontiers in Pharmacology* paper by authors in India, has slightly different language:

Following publication, concerns were raised regarding the integrity of the methodology used in the study. The authors failed to provide a satisfactory explanation during the investigation, which was conducted in accordance with Frontiers’ policies.

A Frontiers staffer told in December that they “expect many more retractions to come next year.”

Biotech Industry News

Sanofi Jenters in Artificial Intelligence segment with Exscientia Deal

Jan 07, 2022



Sanofi has signed a collaboration deal with Exscientia to leverage the latter's artificial intelligence platform and develop up to 15 oncology and immunology therapies.

The two firms have already been partnering in several projects since 2016 and 2019 when Sanofi in-licensed Exscientia's bispecific small molecule candidate, which can target two unique immunology and inflammation targets.

Under the terms of this latest agreement, the companies will work on creating small molecule treatment candidates using Exscientia's AI-driven personalized medicine platform, which contains actual patient samples. Researchers can include clinically relevant data when deciding on new medicine candidates by integrating primary human tissue samples into early target and drug discovery activities.

Exscientia will lead small molecule drug design and lead optimization activities up to candidate nomination, while Sanofi will handle pre-clinical and clinical development, manufacturing, and commercialization. The company is the first to progress AI-designed small molecules into the clinical setting and currently has three drugs in Phase I human clinical trials.

"Sanofi's collaboration with Exscientia aims to transform how we discover and develop new small molecule medicines for cancer and immune-mediated diseases. Application of sophisticated AI and machine learning methods will not only shorten drug discovery timelines, but will also help to design higher quality and better targeted medicines for patients," said Frank Nestle, the global head of research and chief scientific officer of Sanofi, in a statement.

Exscientia will receive \$100 million

in cash up front and can expect as much as \$5.2 billion in milestones down the road. In addition, if Sanofi commercializes a drug from this collaboration, Exscientia will be eligible to receive tiered royalties of high-single-digits to mid-teens from sales. The company will also have the option to co-invest and increase its royalty fee up to 21%.

"Our expanded collaboration with Sanofi will utilise the breadth of our platform to test AI-designed drug candidates against patient tissue models, potentially providing far better accuracy than conventional approaches such as mouse models. When you consider the change this represents – testing candidates against actual human tissue years before a clinical trial – it's transformative," noted Andrew Hopkins, DPhil, the founder and CEO of Exscientia, in the same press release.

Exscientia, which has offices in Miami, Dundee, Oxford, and Osaka, advanced its AI capabilities after acquiring Allcyte, an Australia-based precision medicine company that uses AI in cancer research, in June 2021. Allcyte's platform has been validated on several hematological tumor and solid tumor types and in non-cancerous tissues.

Nobody is buying so Biogen cuts price of much-debated Alzheimer's drug in half

Dec 28, 2021

Biogen announced that effective January 1, 2022, it will cut the wholesale acquisition cost (WAC) of its Alzheimer's drug Aduhelm (aducanumab) in half. The original price was about \$56,000 per patient per year. The new price is \$28,200 for a 10 mg/kg maintenance dose.

Although the Centers for Medicare and Medicaid Services (CMS) has not determined eligibility and its payment schedule for the drug yet, and probably won't have an official determination until March 2022, many insurers are refusing to pay for the drug, with some claiming it is experimental, despite approval by the U.S. Food and Drug Administration (FDA).

A recent Bloomberg News survey of 25 major insurers found that none called Aduhelm "medically neces-



sary," although some said they were still evaluating it.

Biogen and analysts had projected Biogen would bring in \$10.79 million in the third quarter for the drug, but the company reported only \$300,000 in sales for the period.

Pfizer CEO Bourla take U turn after criminal actions, now says vaccine not effective

In an interview with CNBC, Pfizer CEO Albert Bourla stated that two doses of the vaccine give modest protection, if any, whereas three doses with a booster offer reasonable protection against hospitalisation and mortality but less protection against infection. The reaction has come after a tight slap on Pfizer by U.S. district judge Mark Pittman who ordered the FDA to produce all remaining data

on the vaccine at a rate of 55,000 pages per month, much faster than the 500-page-per month quota the FDA proposed in November. Rather than 75 years, it will now take about eight months for the FDA to make public the information it used to license Pfizer and BioNTech's COVID-19 vaccine—provided the regulator can keep up with the new schedule.

According to news sources, recently a group including former Pfizer vice president Dr. Michael Yeadon filed a complaint with the International Criminal Court (ICC) on behalf of U.K. citizens against Boris Johnson and U.K. officials, Bill and Melinda Gates, CEOs of major pharmaceutical companies, World Economic Forum executive chairman Klaus Schwab, and others for crimes against humanity.

Also, a new revived lawsuit accuses AstraZeneca, Johnson & Johnson, Pfizer and Roche of making corrupt payments to terrorists who ran Iraq's health ministry. The suit claims that the companies obtained the contracts through bribes which financed the terrorist attacks on Americans.

Biotech Notifications

APPLICATIONS/ NOMINATIONS ARE INVITED FOR THE POST OF CHIEF EXECUTIVE OFFICER CENTER OF INNOVATIVE AND APPLIED BIOPROCESSING (CIAB), MOHALI

Applications are invited from eminent scientists (Indian Citizens) having proven scientific record in areas such as Food Technology/Biochemical or Bioprocess Engineering or related field and possessing excellent leadership ability, for the post of Chief Executive Officer, CIAB, Mohali on deputation (including short term contract)/absorption.

Scale of Pay and other benefits: The selected incumbent will be placed in the Level-17 (as per 7th CPC) [Apex Scale 80,000/- (fixed) as per 6th CPC]. The pay in the revised pay structure is 2,25,000/- (excluding DA, HRA and TA). Other benefits / allowances shall be as per rules applicable for appointment on deputation (ISTC)/absorption basis.

Complete applications (7 copies) strictly as per the format available on DBT's website: <http://dbtindia.gov>. should be sent to Shri Subodh Kumar Ram, Under Secretary, Department of Biotechnology, Room No. 509, Block-2, CGO Complex, Lodi Road, New Delhi-110 003, superscribing the cover with "Application for the Post of Chief Executive Officer, Center of Innovative and Applied Bioprocessing (CIAB), Mohali" The soft copy of the application may also be sent by Email to subodh.ram.dbt@nic.in positively.

Last Date: 31 January 2022

Nominations are invited for Shanti Swarup Bhatnagar Prize for Science and Technology 2022

The Council of Scientific and Industrial Research (CSIR) invites nominations for the Shanti Swarup Bhatnagar (SSB) Prizes in Science and Technology for the year 2022. The SSB Prizes are to be given for research contributions made primarily in India during the past five years. The age of the nominee for the SSB Prize 2022 should not be more than 45 years as on 31 December 2021. The SSB Prizes are awarded for notable and outstanding research, applied or fundamental, in the following disciplines: 1) Biological Sciences 2) Chemical Sciences 3) Earth-Atmosphere-Ocean-Planetary Sciences 4) Engineering Sciences 5) Mathematical Sciences 6) Medical Sciences and 7) Physical Sciences. The SSB Prize carries a cash award, a citation and a plaque for each scientist selected for the award.

Nominations addressed to Scientist Incharge – SSB YSA Unit, CSIR HRDG New Delhi must be submitted in the prescribed format along with reprints of significant publications of the last 5 year's period via e-mail to ssb@csirhrdg.res.in on or before 31st March 2022. No hardcopy to follow. Please visit www.csirhrdg.res.in for further details and nomination format.



भारतीय आयुर्विज्ञान अनुसंधान परिषद
स्वास्थ्य अनुसंधान विभाग, स्वास्थ्य और परिवार
कल्याण मंत्रालय, भारत सरकार

Indian Council of Medical Research
Department of Health Research, Ministry of Health
and Family Welfare, Government of India

Call for Ad-hoc Research Proposals "Reproducible AI in Medicine and Health"

Artificial Intelligence (AI) has tremendous potential to transform healthcare. A variety of AI tools are being developed to supplement healthcare professionals and researchers. It is envisaged that AI tools will improve patient outcomes in particular by enabling systems that improve diagnostic accuracy, advance drug development, provide more sophisticated patient monitoring, and tailor care to the individual's needs. As a result, AI for health has been recognized as one of the core areas by researchers as well as the governments.

Who can apply? The project proposal can be submitted for financial support through ONLINE MODE ONLY by scientists/ professionals who have a regular employment in medical colleges/ Research Institutes/Universities/recognized Research & Development laboratories/ Government and semi-government organizations and NGOs/Industry/Innovators (documentary evidence of their recognition including valid DSIR/ SIRO certificate would be required with the application). Each proposal should have investigators from the field of medicine and AI. Researchers working in the industry are not eligible to apply alone but can apply with academic partners.

The user manual of e-PMS (Guidelines-> e-PMS menu) <https://epms.icmr.org.in/user-manual> and ICMR Ad-hoc Project Program guideline (Guidelines-> Ad-hoc Program menu) are available at <https://epms.icmr.org.in/adhoc>.

Dr. M. Vishnu Vardhana Rao Scientist G & Head ICMR- Artificial Intelligence Cell & Director ICMR-NIMS
Indian Council of Medical Research.
New Delhi - 110029
Email: head-aicell@icmr.gov.in

Last date for submission of detailed proposal is 22 February 2022, 5:00 PM

CALL FOR RESEARCH PROPOSALS ON **IMPACT OF CLIMATE CHANGE ON VECTOR BORNE DISEASES**

This Call encourages interdisciplinary, innovative, close-to-practice research in the field of climate change and its impact on vector-borne diseases. It is expected that the application would highlight the existing expertise and infrastructure and need for the CAR. Detailed proposal with budget requirement is on the pattern of adhoc research application form but for five years and budget cap of 10 crores.

When and how to submit a proposal:

1. The full length research (detailed) proposal should be submit
<https://epms.icmr.org.in/> and no proposal in physical/hard copy/email is to be submitted
2. Details of the eligibility, format of application, terms & conditions and guidelines of the scheme are available on <https://epms.icmr.org.in/adhoc>
3. All projects involving research on human beings/animals must be cleared by the registered Human Ethics Committee/ Animal Ethics Committee of the respective institute (Registration Number to be provided).

Date for submission of full-length research prop
Start Date: 15th January, 2022 Time 09:00 AM
End Date: 28th February, 2022 Time 05:00 PM

Dr. Manju Rahi, MD
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