BITS & BYTES Newsletter

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Contents

Message from the Chair

At the fag end of 2019, the world started to witness an unprecedented crisis due to the coronavirus pandemic. Being a national laboratory of repute, mandated to do drug discovery, we quickly had to re-orient our research ecosystem to develop solutions. This herculean effort that lacks a parallel in modern history demanded not only a significant commitment in terms of manpower and infrastructure, but also a sizable financial outlay. The task became all the more difficult managing research consumables/infrastructural items during lockdown. At the outset, it was onus on my part to delineate the mechanism of protecting my work force, students and staff.

Within a span of few days, I was able to mobilize my scientists to find solution for Covid-19, from identifying a potential drug for repurposing, getting it synthesized indigenously without importing any raw materials and be ready with all pharmaceutical specifications for obtaining approval from DCGI for clinical trial. This was accomplished within a tremendous pace of three months. We also brain-stormed innovative ideas to kick-start projects in areas of diagnosis, genome-sequencing and host-directed therapies. Simultaneously, in line with federal consultancy, we operationalized a new testing facility for Covid-19 within the campus complying with all safety measures.

This newsletter comes as I stand on the crossroads thinking about the new definition of normalcy. With many lessons learnt during this pandemic, I look forward to a newer and a productive dimension in science.

Prof. Tapas K Kundu
PhD, D.Sc., FNASc., FASc.,FNA, Sir J.C. Bose National Fellow
Director, CSIR-CDRI

CSIR-Central Drug Research Institute
Council of Scientific & Industrial Research

From the Editor's Desk:

This issue of the newsletter comes in unparallel times, when globally we are all under the spell of COVID. Suddenly, things changed around us and fear seeped into our lives. Lockdown after lockdown resulted in questions of uncertainty, which loomed into our heads, I hope I don't get affected by COVID? What happens if I remain asymptomatic but become a virus-carrier? Nevertheless, one good message was learnt by all, during this pandemic and that has been **"SCIENCE STARTED TO MATTER"** Little habits were learned and unlearned. Trying not to touch the door handle and lift button. Coughing into one's elbow, without looking silly, maintaining physical distance, yet being socially connected. Most importantly, we learned what is essential in life, and what we could and couldn't live without. Coronavirus has sparked a wave of innovation, and countries/institutions/individuals are ready to share their COVID-19 related research efforts.

Everyone's life has been affected, be it students and staff. Many of us thought, as to how we could contribute in terms of science and to society at large. In a short span of time and with lot of hard work a COVID-19 testing facility was setup. We prepared sanitizer by the name "MELLANBY", dedicated to the first director of CDRI. Repurposed drug for COVID 19 was quickly identified that has been indigenously prepared and is undergoing phase III clinical trial. This issue of the newsletter brings in glimpses of our lives and research during COVID-era.

(**Ritu Trivedi**)
Editor-in-Chief

Editorial Board

A sneak peek into campus life during lockdown...

- Dr. Niti Kumar

With sudden announcement of nation-wide lockdown, life seemed to come to a stand-still. I realized that I did not have enough groceries in kitchen, so frantically started online ordering from Bigbasket. Unfortunately all the orders got canceled and then panic calls were made to local grocery stores, but they also seemed helpless due shortage of supplies and reckless stock-piling of grocery by locals. There were also discussions among the CDRI-residents that we can pool-in orders and turn-wise procure grocery, milk and other essentials for residents. But this also could not materialize at a larger level due to logistic issues. However, at local level, neighbors started helping each other for purchase of medicines and other essentials. While, I was waiting for supply chain to resume in Jankipuram extension, I received a call from my friend's 7 year old son, Kovid, living in Mumbai. In a depressing tone, he said, “Massi please do something, everyone is making fun of my name and I am stuck in my balcony, can't go out for playing.” He was expecting that as a scientist, I tell him the magical solution through which “COVID infection” will disappear so that he can resume his normal life as “lovable KOVID”. To his dismay, I did not have any solution to give him. The same evening, I saw kids in the campus racing their bicycles and cheerfully shouting “corona hai…corona hai” and asking each other keep distance. The lockdown did not affect playful activities of kids or morning and evening walks of residents. All of them were trying to maintain their normal routine with physical distancing. Many students started open-air

badminton, few of them started gardening and trying new cooking recipes. The parents of our colleagues, who got stuck in Lucknow, exchanged their life experiences and stories of their native place. The lockdown actually made our campus more lively. People sat on side-walks to discuss about coronavirus cases, arogyasetu app, government policies, debate about myths and facts of corona or even discussed currently aired episodes of Ramayana and Mahabharata in doordarshan. Despite the lockdown stress and exhaustion of daily home-chores, we were all connected through CDRI campus. We enjoyed sunrise-sunset, chirping of birds, blooming of flowers and lush-greenery.

While the lockdown connected us to each-other in the campus, many of our countrymen faced both human and natural tragedy and lost their loved ones. As we are in unlocking period, we have to maintain physical distancing and stay socially connected.

Photo credit: Dr. Vijay Verma, National Laboratory Animal Facility

Photo credit: Ritika Gupta (Endocrinology)

Photo credit: Dr. Kumaravelu (Pharmacology)

When Life is Locked Down...

- Dr. Kashif Hanif

Keeping myself abreast with latest news in area of drug and diseases is a daily ritual for many of us. In the evening of each languor day, our departmental group gathers at tea break and discuss day's activity ranging from science to policies. So, we (our group of scientists) were having a tea break discussion in the beginning of December 2019. Then, one of my colleague suddenly started telling about a new flu spreading in China and then for the first time, I heard name of 'Coronavirus'. We simply smiled and shrugged off this as a normal flu which would go with departure of winter. Anyway, I started keeping a track of the disease and it became a topic of discussion during our tea breaks. By end of December, COVID-19 (Coronavirus infection) has congealed into a threatening infection and city of Wuhan in China went under a lockdown, a word I practically heard for the first time. Still, I was pretty sure that COVID-19 is a local infection which would be controlled by China. As we ushered in the new year of 2020, COVID-19 started expanding its

reach in Hong Kong and South Korea. By end of January 20, COVID-19 had spread its tentacles in Europe and was knocking at the door of USA across Atlantic. Number of casualties and infections were scaling up daily in Italy and USA. However, we in India were confident that virus would not jump over south of Himalayas. But we proved wrong very soon as first infection of COVID-19 was reported from Kerala. I remember vividly, when I said in our usual tea break though virus had reached Indian shores but we Indian, because of strong immunity and young population, would defeat COVID-19.

Since beginning of Feb 20, virus started causing havoc in Europe and America and even Indian news papers also started giving figures of COVID infection but still things looked quite normal in our country. As we stepped in March, large swaths of Europe and America were beginning to fall prey to infection and undergoing lockdown. WHO also now sounded alarm bell acknowledging that world is staring a big pandemic in the form of COVID-19. Numbers of infected people were slowly catching up in India and now we also became worried. Few of my colleagues conjectured that India might also undergo a lockdown.

It was mid of March when enemy finally reached at the door and a famous Bollywood singer was found corona positive in Lucknow. District Magistrate immediately announced sealing of many areas of Lucknow and now the enormity of situation was slowly sinking in. It was the friday, when news came that hon'ble Prime Minister of India Shri Narendra Modi Ji would address the nation. Though nothing was announced but people were somewhat sure that address would revolve around COVID-19. Hon'ble Prime Minister appeared on the screen and appreciated health workers for their efforts in fighting COVID-19 and then announced something unheard so far; Janta

Curfew on Sunday. On Monday, we were starting our new week when government of Uttar Pradesh, as well as some other states announced a limited lockdown of few days. So it became extension of our weekend and we thought life would return normal soon in one or two days. Alas, we were proved wrong again and hon'ble Prime Minister announced a 21 day lockdown starting from 24 March 2020.

Now, all of us were going to experience something that never happened in our life time. First thing that crept in my mind whether we are well stocked for next three weeks. So, together with wife, I drove to nearby grocery store. As expected it was thronged by a number of people and with great struggle, we were able to buy some provisions for home. Next day on 24 March, everything came to a standstill. Institute, labs and all sorts of research activity and experiments were halted. All the scientists were worried and contacting colleagues and guiding students through Whatsapp as all the experiments were to be stopped in appropriate manner. However, by the end of the day, all the things related to lab were sorted out. Now, I was relaxed and was planning to enjoy these forced holidays for next three weeks, however, worst was

yet to come. Two days later, RWA of scientist apartment barred the entry of all maids and house helps. This really complicated the things. Anyway, both me and my wife sat together and chalked out plans how to share household chores. Now the life had taken a completely new turn. After getting up in the morning and warming up my body by walk and exercise, I was busy in mopping the floor and doing dishes and my better half was busy in dusting and cooking. Afternoons were spent in taking siesta or reading research articles and in the evening I took lonely strolls around the apartments as hardly anybody was leaving their apartment's confines. By the end of first week, it began to look that life has lost its pace, momentum and discipline. You cannot go anywhere and cannot see anybody. I tried to kill my boredom by reading, watching web series and BBC series and playing with my daughter, but slowly this imprisonment was making me, as others also, anxious.

Watching television was also not helping. All the time, all the channels were parroting same thing; number of corona patients which was increasing every hour. Channels were beaming the heart wrenching scenes from different states where millions of workers were walking barefoot towards their homes as they have been rendered jobless and penniless due to lock down. All these scenes were quite depressing. Very soon COVID-19 burnt a hole in the pocket also as government stopped dearness allowances of all its employees for next one year. Now we really felt the pinch of lockdown at both personal and professional front.

Some news which could give consolation were also trickling down. Government and Ministry of Science of Technology announced big programs for drugs and vaccines for COVID-19. News of CDRI initiating drug development programme and testing for COVID-19 filled me with a tinge of satisfaction that scientific fraternity was at the forefront at this hour of crisis. Time was very slowly dragging and staying at home without doing anything productive was becoming unbearable. I was hoping that things will improve in three weeks but corona was not sparing anyone. Number of infected person was increasing in leaps and bounds. On 14 April, I was optimistic that lockdown will be lifted and we would get back to our normal life but lockdown was further extended for three more weeks.

Everyone was either behind the walls or mask to save himself/herself from wrath of corona. Seeing people with face masks or talking at distance was slowly becoming new normal. Experts were warning that Covid-19 was here to stay for an extended period of time and reality was dawning on that life would not be same as we knew it earlier.

In second lockdown, I tried my hand in drawing; explored store to find some old novels but the confines of the home had really became joyless. I was counting the days for the lockdown to be over. On the other hand corona infection has spread its claws all over the country as the numbers were piling up. Hospitals were overcrowded. The thought that anybody can be the victim of corona had made the people really anxious.

Finally, after second lockdown, limited staff of institute was allowed to resume their duty. After 40 days, the glimpse of sprawling building CDRI made me realise that I cannot stay away from doing science. This lockdown, I can say, was one in lifetime experience that nobody would like to taste again.

India, an emerging hotspot for breast cancer: Worries and trends

- Khushboo Sinha and Dibyendu Banerjee

Breast cancer is an extremely heterogeneous disease and statistically the most frequent malignancy among females worldwide. In India, it ranks as the number one killer among all female cancers, surpassing even cervical cancer in recent times. The ICMR report of 2016 estimates that the number of breast cancer patients in India may reach upto 1,797,900 by the end of 2020. Breast cancer can be divided into different subtypes each having a different clinical manifestation, which makes it difficult for specific both subtyping and treatment. A very aggressive form of breast cancer (called the Triple Negative Breast Cancer or TNBC), is characterized by the lack of expression of estrogen, progesterone and Herceptin (HER2/neu) receptors. The aggressive nature and a higher prevalence of TNBC is a prominent factor causing death among breast cancer patients in the Indian population. Unfortunately, India is currently the world capital for TNBCs and is emerging as a hotspot for this aggressive form of breast cancer with a prevalence rate ranging between 20 and 43% in different Indian cities. Nagpur has the highest number of these malignancies, followed by Srinagar, Guwahati, Mumbai, Chennai, Bangalore, Delhi, Pune and Hyderabad respectively.

The India fact sheet of the Globocan report, 2018 states that there is an increase in the breast cancer incidences in India by 10 per cent from 145,000 in 2012 to 162,468 in 2018. Moreover, the Indian females diagnosed with this dreadful malady are a decade younger than those of the western countries. Due to lack of awareness and

screening programmes, breast cancers in India are detected at an advanced stage, and is a major factor responsible for the high mortality rate. The high cost of treatment is another factor that prevents Indian patients from affording the most advanced treatment options. Some of the FDA approved drugs and their costs are enlisted in the following table.

Table 1: Drugs for breast cancer

FDA APPROVED DRUGS	COST OF TREATMENT
Docetaxel	Rs.11,915 to Rs.7500 per 80 mg vial
Letrozole	Rs.5,445 for 30 tablets (2.5 mg)
Trastuzumab	Rs.1,35,200 per vial of 450 mg

An economic and psycho-social burden

According to WHO report of 2018, the lack of generic medicines, insufficient supply of wholesale medicines and high retail markups are some of the reasons for the high costs of treatment of breast cancer in India. In spite of FDA approved drugs available for it, many patients surrender their lives to this dreadful malady due to lack of cost effective diagnosis and the heavy cost of treatment. Reportedly, about half of the Indian women with breast cancer go entirely without

treatment. Females diagnosed with breast cancer suffer from psychological stresses arising due to disfigurement of body, disturbed sex life with partner, inability to care for their children and family. This leads to other psychological disturbances like anxiety, depression, adjustment disorders and post-traumatic stress disorders (PTSD). The patient's family members also undergo challenging emotional situations like struggling with their daily lives and losing their dear ones, thus affecting their psychological and social well-being.

Saving women, the nurturer of the family system

Women's health has been a neglected sector in India for decades and urgent steps must be taken to help women suffering from breast cancer. Breast cancer not only poses a significant economic burden to families of patients but also to the country as a whole. Compared to the USA, India has a lower overall incidence of breast cancers but a much higher mortality rate. This increasing mortality rate among breast cancer patients in what we need to worry about and address in the next 5 years. Efforts must be made to provide low cost diagnostics and affordable treatment options for the disease. The government needs to follow a focused strategy to combat the increasing incidences of breast cancers in the different Indian cities. Awareness campaigns as well as screening programs for breast cancer will be of great benefit to women who are the nurturing face of the family system to survive a healthy life in the face of such devastating malady.

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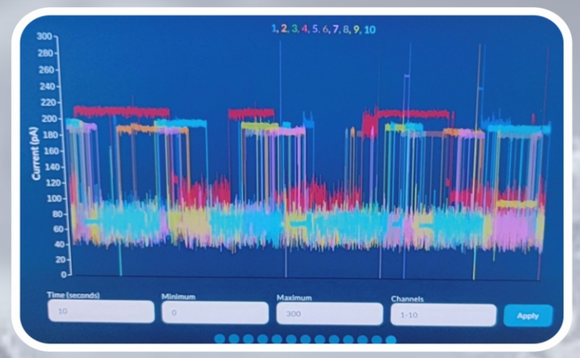
Nature Breathes Again

Birds of CSIR-CDRI Campus

Photography by- Ravindranath, CSIR-CDRI



Genome Sequencing
so far, 125 SARS-CoV-2 genomes have been sequenced.

Drug repurposing
Phase III clinical trial of Umifenovir ongoing

CDRI's efforts in Nation's fight against covid-19 pandemic

COVID-19 Testing Facility
So far, more than 50,000 samples have been tested.

Novel Diagnostic Tools
CSIR-CDRI has designed dual labelled probe for RT-PCR.

Colours of Life

Flowers of CSIR-CDRI Campus

Photography by- Ravindranath, CSIR-CDRI

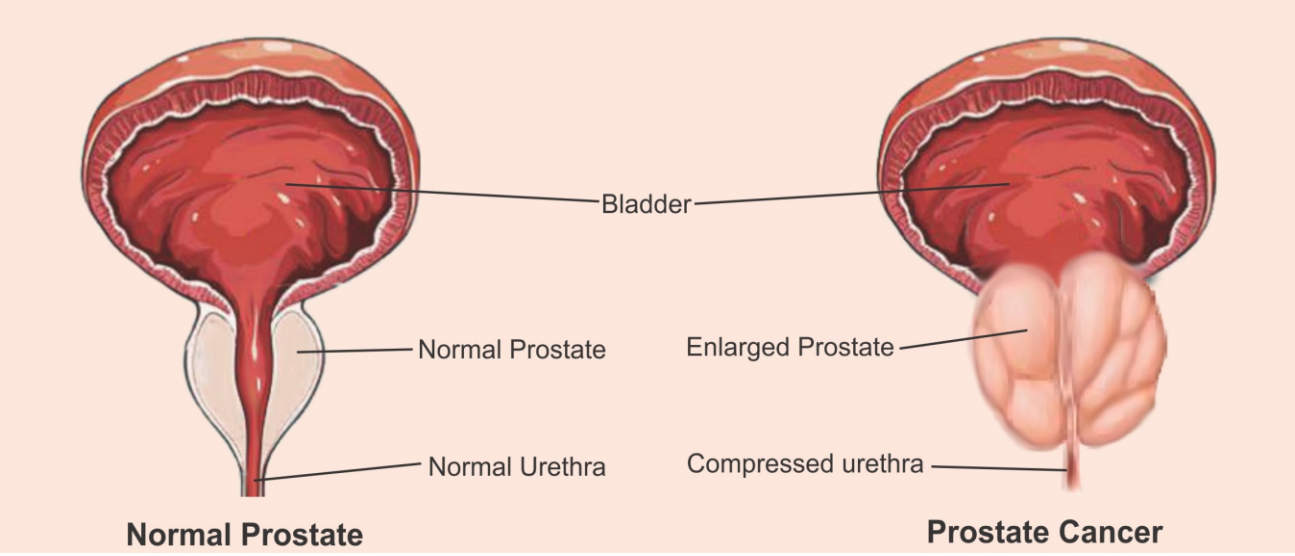
Prostate Cancer: Disease and Awareness

Deependra Singh, Nidhi Srivastava and Monika Sachdev

Prostate cancer, a slowly progressing disease occurs in the aging men. Prostate cancer is a form of cancer that develops in the gland of the male reproductive system, called prostate. Prostate cancer is the second most common cancers among the men internationally and the third most frequent cause of cancer mortality globally. Its pathogenesis is relatively poorly understood and its aetiology believed to be associated with genetic, hormonal, diet, age related and environmental factors. Testosterone plays a very important role in progression of cancer. The basal cells of prostate are most common site for origin of cancer

Early prostate cancer stage doesn't normally cause any symptoms, until the prostate has grown large enough to disturb bladder or press the

urethra that drains the urine. These symptoms called as prostate urinary symptoms. The screening process for prostate cancer starts with a Digital Rectal Examination (DRE), wherein the physician manually palpates the gland, looking for hard or nodular areas. Although this examination method has few limitations, nevertheless it is quick and easy method for diagnosis



Schematic representation of normal vs prostate cancer (Source)

A more sensitive tool is Trans-rectal ultrasound scan (TRUS) which is based on the principle of using high-energy sound waves to generate a sonogram to visualize abnormalities in prostrate gland. Besides this, blood test based diagnosis of involves detection of Prostate Specific Antigen (PSA) which is found at high levels in blood during prostate cancer. However, high PSA levels are also found in conditions of enlarged and inflamed prostate, hence PSA-based detection has to be complemented with other confirmatory test for detection of prostate cancer. MRI scans and possibly a biopsy (transperineal biopsy / transrectal biopsy) testing are the effective ways to diagnose prostate cancer. Prostate cancer has four-stages and it can metastasize and recur even after treatment. Based on the stage of prostate cancer, treatment will require surgery, radiotherapy/chemotherapy/hormonal or immuno therapy. The incidence rate of prostate cancer is constantly and rapidly increasing in India. The cancer projection data shows that the number of cases will become double by 2020. Men over the age of 40-50 with a family history of prostate cancer should consult their doctor for active surveillance, and testing for prostate cancer using the PSA test and DRE as part of their annual health check-up. Prostate cancer awareness

Prostate Cancer Awareness - Prevention, Symptoms and Treatment

programs need to be arranged to recognize millions of cases of this disease and to change the status quo. This awareness will ensure access of therapy to all patients with early diagnosis and engage them with research protocols of prostate cancer that can move this field forward. Prostate cancer management require research efforts to (i) reduce oxidative stress, (ii) sustain strong immunity, (iii) lower chronic inflammation, (iv) support detoxification of administered drugs. At the same time, controlling blood sugar and insulin levels are also directly linked with prostate cancer, which basically change the life style of a person. These efforts should not be just for men who live in urban areas. A majority of men with prostate cancer in the rural area and smaller cities should also be treated in community centres, where offers for clinical trials or treatments are very minimal.

CSIR-CDRI - Industry collaborations for COVID-19 therapeutics

Tie-up with M/s Medizest Pharmaceuticals Pvt. Ltd

CSIR-CDRI has synthesized an antiviral molecule Umifenovir for COVID 19, which is presently available as anti-viral drug in few countries and therefore, may show positive results against COVID-19. The indegenised process tachnology has been licensed to M/s Medizest Pharmaceuticals Pvt. Ltd., Goa on April, 24 2020. The technology demonstration happened on April 27-29, 2020 after receiving necessary permission from Central Drugs Standard Control Organization (New Drugs Division) for initiating the Phase III clinical trial with Umifenovir.

Tie-up with M/s MARC Laboratories Ltd.

An MoU has been signed with M/s MARC Laboratories Ltd., on August 19, 2020 for repurposing Niclosamide, an antihelminthic drug for clinical trials for Covid-19. MARC's sister concern has manufacturing license of Niclosamide. We are now collaborating with a common understanding about the possible use of Niclosamide for the treatment of Covid 19 and executing clinical trials as per the regulatory requirements.

Tie-up with Biotech Desk Pvt. Ltd.,

Collaboration with Biotech Desk Pvt. Ltd., Hyderabad is a joint project under PPP mode for production of Indigenous qRT-PCR (INDIFLUORAMP) kit for testing Covid 19 with Make-in-India ingredients. This would provide to us a self-reliance in RT-PCR based testing for coronavirus and other infections.

Projects under discussion with Industry

We are looking for industries for technology transfer of compounds like Nitazoxanide and its key starting material 2-amino-5-nitro-thiazole. We, at CSIR-CDRI have developed an industrially-viable improved synthesis method for both these compounds. At the moment these are being imported from China. CDRI team has developed an improved nitration-free and industrially viable synthetic route for preparing the KSM 2-amino-5-nitro-thiazole in lab scale (5 g batch), which can be up- scaled to kilogram batch and even more as per the industry requirement. Nitazoxanide has been developed as a room temperature protocol to get purity without any column chromatography.

CDRI Awards 2020 for Excellence in Drug Research in Life Sciences

Dr. Bushra Ateeq, IIT, Kanpur

Area of Research: Molecular Oncology and therapeutics, Cancer Biomarkers.

Dr. Ateeq's primary research focus is to understand the complex molecular events involved in prostate and breast cancer progression, identify early diagnostic markers and valuable therapeutic targets. Her research group is investigating the underlying mechanism for the increased SPINK1 expression in a subset of aggressive prostate cancer and its role in cancer metastases. Her group is also exploring the role of microRNAs in mutually exclusive expression of SPINK1 and ETS genetic rearrangements in prostate cancer patients.

Dr. Ravi Manjithaya, JNCASR, Bengaluru

Area of Research: Autophagy in health and disease

Dr. Manjithaya adopts chemical biology approaches to understand autophagy in health and especially in disease contexts such as neurodegeneration, intracellular infection and cancer. His research has not only shed light about this interesting process, but also has revealed significant therapeutic implications. The high content and high throughput platform established in the lab has generated drug like molecules such as 6 Bio, XCT 790 and Acacetin, thus validating our approach. In order to further translate and realise the potential of this platform and the drug candidates, our lab through JNCASR has entered into an agreement with a CRO and drug discovery company, Vipragen private limited. The company will now have access to utilize our platform for further screening of small molecule libraries for drug discovery process and they are also now carrying out the pharmacokinetics and dynamics of the hits identified in our laboratory.

CDRI Awards 2020 for Excellence in Drug Research in Chemical Sciences

Dr. Surajit Ghosh, IIT, Jodhpur

Area of Research: Development of new therapeutic leads targeting microtubule in Cancer and Alzheimer's Disease

Microtubule is one of the key cytoskeleton components in the eukaryotic cell and plays crucial role in cell division, cell proliferation, signal transduction and function. Therefore, this filament has been the key target for the development of anticancer drugs as well as neuroprotective drugs. Dr. Ghosh's area of research focuses on the development of new therapeutic leads targeting microtubule in the context of both cancer and Alzheimer's disease. He has significantly contributed in these areas and published more than 70 international research articles in front-ranking journals, in the area of Drug Development and Chemical Neurobiology.

Honours & Awards

Prof. Tapas K. Kundu received Shri Om Prakash Bhasin Award 2019 in the field of Health & Medical Sciences

Prof.Tapas K. Kundu has made significant contributions in the area of Epigenetics and Gene Regulation in human with special emphasis on disease and therapeutics, through the Chemical Biology, approach. He is not only elucidating the mechanisms of transcription regulation through the epigenetic modifications, but also targeting them to design new generation diagnostics, as well as therapeutics for cancer and neurodegerative disorders. He has discovered a few small molecule modulators of epigenetic enzymes, some of which have already commercialized as academic reagents, and a couple of these are progressing towards development of antineoplastic therapeutics. Remarkably, they have shown that the specific activation of p300/CBP by small molecule activator, discovered by the group could result in almost complete recovery of memory in the neurodegenerative disease model. This activation could also dramatically lead to repairing of spinal injury in mice and rat. These innovations are in the process of translation.

Dr. Prabhat Ranjan Mishra has been elected as Fellow of National Academy of Sciences (NASI), Prayagraj in 2019.

He is working in the niche area of translational research and focuses on the development of nano-therapeutics. He has made outstanding contribution in mechanistic understanding of targeted nano-therapeutics through ligand-receptor interactions, receptor mediated endocytosis and endosomal pH responsiveness to achieve higher therapeutic index with low toxicity of drugs. Overall, his contributions signify a major role in establishing specific delivery of drugs through innovative nano-therapeutics to bypass the biological barriers.

Dr. Ritu Trivedi (FNASc) received TATA Innovation Award 2019 for her work in the area of Metabolic Bone Disorders.

Her research work has led to the commercialization, in the form of products. These outcomes not only have societal benefits but are knowledge based asset to the institute. She has established relationship of declining sex steroid levels in aging women and men to bone loss, complimented by animal studies and molecular bone biology tools examining bone cells at different stages of differentiation. Her seminal work in the area of "Osteoarthritis", a disease that has become an epidemic is benefitting society at large.

Dr. Niti Kumar received SERB Women Excellence Award 2020.

Her research group is trying to understand the protein quality control machinery in human malaria parasite. This machinery involves components of protein folding and degradation machinery. Her research group has shown that human malaria parasite has evolved a diverged protein quality control machinery which may help the parasite to keep its metastable and aggregation-prone proteome in soluble and functional state. This potentially gives a survival advantage to the parasite during proteotoxic stress conditions encounfered in its lifecycle in both human and mosquito. Using comprehensive biochemical, molecular and structural tools, her group is trying to investigate role of different heat shock proteins (HSPs) and E3-ligases in maintenance of cellular proteostasis in parasite.

हड्डियों में दम डालेगी देसी...

सीडीआरआइ के वैज्ञानिकों ने सौ साल पुराने तरीके से खोजी ...

स्वास्थ्य समाज

अनुसंधान

केंद्रीय औषधि अनुसंधान संस्थान (सीडीआरआइ) के वैज्ञानिकों ने आसपास पाए जाने वाले कैसिया ऑक्सीडेंटलिस पौधे (कसुंदा) से एक आयुर्वेदिक दवा तैयार की है...

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https://epaper.timesgroup.com/Olive/ODN/TimesOfIndia/#
February 18, 2020

Centre for research at CDRI to find cheaper drugs

Times News Network

Lucknow: The Central Drug Research Institute will soon get a 'centre of excellence for affordable therapeutics'. The centre will promote research for drugs that are cheaper. During its annual day celebrations on Monday, Cipla Foundation, under its corporate social responsibility, agreed in principle to open the centre at the institute in the presence of Cipla chairman YK Hamied. The scientific institute's celebration was all about recognising exemplary work by scientists. The CDRI award 2020 for excellence in drug research in chemical sciences category was announced for Prof Surajit Ghosh of IIT-Jodhpur.

In ... award ... stant p... from th... gical sci... ring at IIT... Ravi Manj... low at JNCA... These awards ... during the C... day in Septemb...

The award fo... the year—a Rs 3 ... ze—was conferred ... rendra and Monik... and their research ... their technology of 's... zed fraction enriche... N-012-0001 for the mana... of benign prostatic h... sia'.

Eleven research ... with more than six im... tors, were awarded a... centive award of Rs 1... publication.

The celebration ... marked with an oratio... mied who spoke on t... 'science and society'. ... sed on extending or m... the use of drugs alrea...

CDRI's 'nano spinach' that fights osteoarthritis gets a US patent

Mohita.Tewari@timesgroup.com

Lucknow: If Popeye was a cartoon character in 2020, he would have not only gained muscles by eating spinach but also got stronger bones and armour ... osteoarthritis.

... nano-formulation ... can help fight osteo... ... a recent rese... ... Drug Rese...

during the annual day celebrations held on Monday.

According to principal scientist Prabhat Ranjan Mishra, the spinach formulation discovered by CDRI helps in curing the gradual wear and tear of cartilage that later leads to osteoarthritis. "Eating spinach won't help fight osteoarthritis as a patient can't ... enough..."

SPINACH A DAY ...

डॉ. रितु त्रिवेदी को इनोवेशन फेलोशिप

lucknow@inext.co.in

LUCKNOW (14 Feb): सीडीआरआई की सीनियर साइंटिस्ट डॉ. रितु त्रिवेदी को अनुसंधान कार्यों के लिए टाटा इनोवेशन फेलोशिप से सम्मानित किया गया है। यह फेलोशिप नवीन वैज्ञानिक ज्ञान और उन्नत प्रौद्योगिकीय के माध्यम से ट्रांसलेशनल रिसर्च करने वाले वैज्ञानिकों को दी जाती है। डॉ. रितु ... मेटाबोलिक अस्थि रोग ... किया है।

डॉ. रितु त्रिवेदी

प्रचलित दवाओं के शोध पर जोर दे सीडीआरआइ

केंद्रीय औषधि अनुसंधान संस्थान (सीडीआरआइ) को स्टार्टअप की तरह काम करना चाहिए। नवीन औषधि अनुसंधान के बजाय अधिक जोर प्रचलित दवाओं पर शोध (रीपरपजिंग) को देना चाहिए। इससे होने वाली आय से नए मॉलीक्यूल की रिसर्च पर आने वाले खर्च को जुटाएं। सीडीआरआइ के 69वें वार्षिकोत्सव पर 45वें सर एडवर्ड मेलानबी व्याख्यान देते हुए यह बात सिप्ला के अध्यक्ष डॉ. वाईके हामिद ने कही। ...

बेस्ट टेक्नोलॉजी का अवॉर्ड देते डॉ वाईके हामिद व निदेशक प्रो. तापस के. कुंडु • जागरण

मिला पुरस्कार

- सर्वश्रेष्ठ प्रौद्योगिकी के लिए पुरस्कार डॉ. टी नरेंद्र और डॉ. मोनिका सचदेव की टीम को विनाइन प्रोस्टेटिक हाइपरप्लासिया (बीपीएच) के प्रबंधन के लिए दिया गया।
- सर्वश्रेष्ठ पेटेंट के लिए पुरस्कार डॉ. रितु त्रिवेदी, डॉ. पीआर मिश्रा, डॉ. राकेश मौर्या और टीम को अस्थि संबंधी विकारों के बचाव एवं प्रबंधन के लिए बनाए गए फार्मूलेशन संबंधी ग्रुप पेटेंट को दिया गया।
- ग्यारह शोध पत्र सर्वश्रेष्ठ प्रकाशन के लिए वार्षिक प्रोत्साहन पुरस्कार को चुने गए। ...

औषधि अनुसंधान के लिए पुरस्कार

वार्षिकोत्सव पर औषधि अनुसंधान के लिए प्रतिष्ठित सीडीआरआइ पुरस्कार 2020 की घोषणा की गई। सीएसआइआर के स्थापना दिवस पर पुरस्कार दिए जाएंगे। सर्वश्रेष्ठ प्रौद्योगिकी, पेटेंट और प्रकाशन के लिए वार्षिक प्रोत्साहन पुरस्कार एवं शोध को अकादमिक कॅरियर उपलब्धि पुरस्कार, सर्वश्रेष्ठ प्रौद्योगिकी के लिए तीन ... प्रोत्साहन पुरस्कार दिया गया।

'Spinach can repair torn cartilage cells'

▶Continued from P 1

She said even with a limited dosage, it has higher efficacy.

She said at present, the drugs available in the market are generally painkillers that result in liver damage over a period of time, but this formulation does not come with such side-effects.

Spinach not only has the ability to improve bone strength but it also possesses an inherent ability to repair cartilage cells at the affected site, she added.

The team also got support from retired senior scientist Rakesh Maurya in spinach nano formulation.

The team performed the experiment on rats by giving them the dose for 28 days and observed that it repaired and cured their degenerated cartilage.

It didn't have any toxicity and even low doses of the nano was very effective.

The research named 'formulation for the prevention and treatment of bone a related disorder, osteoarthritis' was published in an international journal named BMC Complementary and Alternative Medicine and was granted a patent recently.

NBT नवभारत टाइम्स

http://epaper.navbharattimes.com/details/113131-309195-1.html

कोरोना से जंग | सीडीआरआई ने विकसित की दवा निर्माण की प्रॉसेस टेक्नॉलजी

उमीफेनोविर के क्लिनिकल ट्रायल को मंजूरी

■ एनबीटी, लखनऊ: कोविड-19 के खिलाफ चल रही जंग के बीच उमीफेनोविर दवा को नई उम्मीद के तौर पर देखा जा रहा है। ... सीएसआईआर-सेंट्रल ड्रग रिसर्च इंस्टिट्यूट (सीडीआरआई) ने इस दवा के निर्माण की प्रॉसेस टेक्नॉलजी विकसित कर ली है। इसके साथ इस दवा के क्लिनिकल ट्रायल के लिए भी मंजूरी मिल गई है। ...

कोशिकाओं में जाने से रोकने के साथ रोग प्रतिरोधक क्षमता बढ़ाने में भी कारगर साबित हो सकती है। फिलहाल सिर्फ रूस और चीन में इंफ्लूएंजा के लिए इसका इस्तेमाल किया जाता है। बाकी किसी देश में यह दवा उपलब्ध नहीं है। कोविड-19 का संक्रमण शुरू होने पर कई जगह इसके इस्तेमाल पर रिसर्च शुरू हुई है। इस बीच संस्थान ने रेकॉर्ड समय में ...

क्लिनिकल ट्रायल की मंजूरी मिल गई है। क्लिनिकल ट्रायल सफल रहा तो तो इस दवा को किफायती दर पर देश में ही बनाया जा सकेगा। संस्थान ने यह दवा बनाने के लिए गोवा की मेडिजेस्ट फार्मास्युटिकल्स को प्रॉसेस टेक्नॉलजी का लाइसेंस दिया है।

जल्द शुरू होगा ट्रायल

सीएसआईआर के महानिदेशक डॉ. शेखर मांडे ने कहा कि उमीफेनोविर दवा का क्लिनिकल ट्रायल बहुत महत्वपूर्ण है। मंजूरी मिलने के बाद जल्द से जल्द दूसरे चरणों पर विचार किया जा रहा है, ताकि आम लोगों को जल्द ही दवा उपलब्ध हो।

इस टीम ने विकसित की तकनीक

उमीफेनोविर के निर्माण की प्रॉसेस टेक्नॉलजी डॉ. अजय कुमार श्रीवास्तव, चंद्रभूषण त्रिपाठी, नयन घोष, नीलांजना मजूमदार, डॉ. रविशंकर रामचंद्रन की टीम ने विकसित की है। इन वैज्ञानिकों का दावा है कि इस दवा की रोग निरोधक क्षमता बहुत अधिक है। यह कोविड-...

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https://epaper.livehindustan.com/imageview_145693_85915880_4_54_18-06-2020_3_i_1_sf.html

सीडीआरआई कोरोना की दवा बनाने के करीब

अच्छी खबर

लखनऊ | निज संवाददाता

कोरोना वायरस के बढ़ते प्रकोप के बीच एक राहत देने वाली खबर आई है। सीडीआरआई ने कोरोना की सटीक दवा खोजने का दावा किया है। संस्थान को एंटीवायरल ड्रग उमिफेनोविर को कोविड-19 के इलाज के लिए फेज थ्री क्लीनिकल ट्रायल की भारत सरकार के औषधि महानियंत्रक (डीसीजीआई) से इजाजत मिल गई है। यह ट्रायल केजीएमयू, लोहिया संस्थान और एरा मेडिकल कॉलेज में भर्ती मरीजों पर होगा।

सीडीआरआई के निदेशक प्रो. तपस कुंडू ने बुधवार को बताया कि 15 मार्च से संस्थान के वैज्ञानिकों की टीम ड्रग री-पर्पजिंग मेथड से कारगर दवाई खोजने में जुटी थी। शुरुआती चरण में वैज्ञानिकों ने 120 संभावित मॉलिक्यूल को चिन्हित (स्क्रीनिंग) किया। स्क्रीनिंग करते हुए पहले 30 और आखिर में 4-5 कारगर मॉलिक्यूल खोज निकालने में कामयाबी मिली।

कोशिका में वायरस का प्रवेश रोकेगी दवा: प्रो. तपस कुंडू के मुताबिक, इस दवा की खासियत यह है कि यह वायरस को मानव कोशिकाओं में प्रवेश करने और उससे जुड़ने से रोकेगी। कोशिका से जुड़ न पाने पर यह मानव शरीर को नुकसान नहीं पहुंचा पाता। जिसके बाद मानव शरीर की प्रतिरक्षा प्रणाली इसे नष्ट कर देती है। वायरस को हर स्टेज... सक्षम है। यह वायरस... से प्रवेश करता है...

10-12 रुपये होगी कीमत

प्रो. कुंडू ने बताया कि दवा बहुत सस्ती होगी। निर्माण के बाद इसकी कीमत 10-12 रुपए प्रति टैबलेट आएगी। हालांकि अभी यह तय नहीं है कि यह टैबलेट या कैप्सूल के रूप में आएगी। इस दवा के लिए भारत में उपलब्ध है। यह दवा राष्ट्रीय कार्यक्रम का हिस्सा हो सकती है।

15 मार्च से संस्थान के वैज्ञानिक इस री-पर्पजिंग दवाई खोजने...

वैज्ञानिकों के प्र...

सीएसआईआर के महा... शेखर मांडे ने सीडीआ... वैज्ञानिकों डॉ. अजय ... चंद्र भूषण त्रिपाठी, नय... नीलांजना मजूमदार के...

...drug for Covid-19 treatment

PNS ■ LUCKNOW

In the battle against Covid-19, CDRI has received permission from the Drug Controller General of India to conduct clinical trials of a drug which it has come up with recently. CDRI director Tapas Kundu said it would be one of the cheapest drugs for the treatment of Covid-19.

"Central Drug Research Institute has received permission for carrying out controlled trials of efficacy, safety and tolerability of antiviral drug 'Umifenovir'. The phase-III clinical trials will be carried out at KGMU, RMLIMS and Era's Lucknow Medical College & Hospital," media spokesperson Sanjeev Yadav said.

"This drug has a good safety profile and it acts by preventing entry of virus into human cells and also by priming..."

An autorickshaw driver shows a bottle of sanitiser which he uses ... coronavirus pandemic

time and licensed the ... nomical process techn... for manufacturing and market-...

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https://epaper.jagran.com/epaper/17-feb-2020-11-lucknow-edition-lucknow-page-32.html

आविष्कार नया, दिल-दिमाग की एक दवा

हार्टअटैक और स्ट्रोक मरीजों के लिए सीडीआरआइ ने ईजाद की ज्यादा असरकारक जीवनरक्षक दवा

स्पा शिवहरे • लखनऊ

केंद्रीय औषधि अनुसंधान संस्थान (सीडीआरआइ) ने 10 साल के शोध के बाद बड़ी उपलब्धि हासिल की है। हार्टअटैक और ब्रेन स्ट्रोक के रोगियों के लिए संस्थान ने नई जीवनरक्षक ...

जागरण विशेष

बड़ी कामयाबी

- ड्रग कंट्रोलर ने परीक्षण की दी अनुमति
- अमेरिकी और भारतीय पेटेंट स्वीकृत
- आठ बिलियन के ग्लोबल मार्केट पर नजर

प्रो. तपस कुमार कुंडू

डॉ. विवेक भोसले

वर्तमान की दवाएं ज्यादा कारगर नहीं

शोध टीम

डॉ. दिनेश दीक्षित, डॉ. मनु दीक्षित, डॉ. ... डॉ. संजय बत्रा, डॉ. एके द्विवेदी, डॉ. अमित मिश्रा, ... डॉ. मनोज बर्थवाल, डॉ. रवी भट्ट, डॉ. शरद शर्मा, ... डॉ. विवेक भोसले।

लंबे वक्त बाद विकसित हुई दवा

वैज्ञानिक डॉ. विवेक भोसले बताते हैं कि देश ... संस्थान, बल्कि देश के लिए यह बहुत बड़ी ... डिजीज (सीवीडी) मौत की सबसे बड़ी वजह है ...

स्वास्थ्य सेवा पर कानून बनना चाहिए: डॉ. हामिद

सीडीआरआई के वार्षिक समारोह में सोमवार को व्याख्यान देने पहुंचे सिप्ला के अध्यक्ष डॉ. वाईके हामिद का गर्मजोशी से स्वागत किया गया।

लखनऊ | निज संवाददाता

सीडीआरआई के वार्षिक समारोह में सोमवार को 45वें सर एडवर्ड मेलानबी व्याख्यान में मुख्य अतिथि सिप्ला कंपनी के अध्यक्ष डॉ. वाईके हामिद ने कहा कि भारत को विश्व फार्मेसी की राजधानी माना जाता है। भारतीय फार्मा उद्योग की बिक्री 2017 में 33 बिलियन डॉलर आंकी गई थी। जो इस साल बढ़कर 50 बिलियन डॉलर हो गई है।

ऑस्टियोपोरोसिस औ... तकनीक हस्तांतरित

समारोह के दौरान संस्थान ... एस्टेरॉयड के सेवन से होने ... ऑस्टियोपोरोसिस बीमारी को दूर करने की औषधि की तकनीक का हस्तांतरण किया गया। गुजरात की मेसर्स फॉर्मेन्जा हर्बल प्राइवेट लिमिटेड को इसका लाइसेंस प्रदान किया गया है।

वार्षिक प्रोत्साहन पुरस्कार डॉ. टी नरेंद्र, डॉ. मोनिका सचदेव और रिसर्च टीम को...

वैज्ञानिक डॉ. नीति का आज सम्मान

लखनऊ। मलेरिया के इलाज में दवाओं की खोज और नए लक्षणों की पहचान पर ... रही ... वरिष्ठ वैज्ञानिक डॉ. ... सीएसआईआर ... 2020 ... भवन में ... दिवस पर ... के हाथों ... पुरस्कार 40 व... वैज्ञानिकों ... कार के तहत ... राशि प्राप्त होगी ... वर्ष के हिसाब से ... अनुदान के ...

...भी चमकाया नाम...

//epaper.livehindust... view_70174_105664... 02-2020_0_i_1_sf.htm

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कोरोना इलाज को सीडीआरआई की ड्रग रेडी

एंटीवायरल ड्रग उमिफेनोविर को मिली परीक्षण की अनुमति

लखनऊ (एसएनबी)। सेंट्रल ड्रग रिसर्च इंस्टीट्यूट (सीडीआरआई) को एंटीवायरल ड्रग उमिफेनोविर की उपयोगिता, सुरक्षा और ... क्लीनिकल परीक्षण के लिए ... तीसरे चरण के ... भारत सरकार के औषधि महानियंत्रक (डीसीजीआई) से प्राप्त हो गयी है। ...

क्लीनिकल परीक्षण लखनऊ के केजीएमयू, डा. राम मनोहर लोहिया इंस्टीट्यूट ऑफ मेडिकल साइंसेज तथा एराज मेडिकल कॉलेज एंड हॉस्पिटल में किया जाएगा

http://www.rashtriyasahara.com/imageview_15494_130388350_4_2_18-06-2020_5_i_1_sf.html

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केजीएमयू से मिले नमूनों से कोरोना का इलाज तलाशेगा सीडीआरआई

करार के दौरान मौजूद केजीएमयू व सीडीआरआई के अधिकारी।

माई सिटी रिपोर्टर

लखनऊ। कोरोना वायरस कोविड 19 के इलाज और वैक्सीन के लिए सीडीआरआई के वैज्ञानिक केजीएमयू से मिले नमूनों की जांच करेंगे। इनसे मिली जानकारी का सिलिको मॉडल पर परीक्षण भी होगा। कोरोना पर शोध के सहयोग के लिए दोनों संस्थाओं में अनुबंध ...

दोनों संस्थानों के बीच हुआ अनुबंध

वायरस स्ट्रेंस की डिजिटल और आणविक निगरानी कर रहा है। केजीएमयू के नमूनों से मिलने वाले वायरस स्ट्रेंस की सीक्वेंसिंग के विश्लेषण को टीम रखी गई है, जो वायरल सिक्वेंस के म्यूटेशन का प्रस्तावित उपचार रणनीतियों में होने ...

COVID-19: Interactive Infection

The entanglement of two faces depicting human and SARS-CoV-2 embodies the test-pathogen interaction: on one hand the ability of human immunity-to eliminate the virus, and on the otherside, the Insidious tendency of the virus to embed within the host.

Artist Maninder Singh from CSIR-CDRI, Lucknow