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BIOTECH EXPRESS

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National Conference on
BIOPROSPECTING AND BIOTECHNOLOGY

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Learners Intellectual sanctuary

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Editorial in News

Scientists from IISER – Mohali generated an anti-dot for Russell viper venom

Dr Sharvan Sehrawat's group has selected and characterized venom-specific single domain antibodies (sdAbs) from a constructed phage display library of camelid variable region of heavy chain of the heavy chain antibodies (VHHs).

To supplement the current and future demand of biotherapeutics in dealing with snakebites, the Sehrawat lab at IISER Mohali has generated and selected a less immunogenic but potent anti-Russell Viper Venom single domain antibody from an in-house constructed phage display library of unique antibody derivative also known as Variable region of Heavy chain of Heavy chain antibody (VHH). The selected binder exhibited superior biological, biochemical and biophysical properties. The binder proved valuable in neutralising the toxicity caused by Russell viper venom in acellular and cellular assays as well as in experimentally intoxicated animals. Future goal of the groups is to target multiple targets in the venom to generate a multivalent formulation.

According to the paper, Snakebites inflicted injuries remain a major public health challenge particularly in tropical and subtropical countries leading to more than a hundred thousand deaths annually. Recognizing their impact on human lives, World Health Organization re-inducted snakebites in the list of neglected diseases. Resource-limited population is predominantly affected by snakebites and the management is further complicated by rampant misdiagnosis and under-reporting 2008). The four major venomous snakes i.e., *Daboia russelii* (Russell's viper), *Naja naja* (Spectacled cobra), *Bungarus caeruleus* (Common krait) and *Echis carinatus* (Saw scaled viper) belong to the Viperidae and Elapidae families. The dose of the injected venom and the time-lapse post bite majorly contribute to the severity of disease that primarily involves cardiovascular and nervous systems. A majority of snake bite survivors develop one or the more permanent disabilities.

Approximately 70–90% of venom's dry weight consists of enzymatically active proteins such as the phospholipases, oxidoreductases, transferases, hydrolases, hyaluronidases and lyases. Many of these enzymes act in synergy to cause the toxicity. Therefore, the value of monoclonal antibodies that target specific epitopes has not been generally favored for managing snakebites.

Anti-venom sera (AVS) remain the cornerstone therapy for snakebites for over a century but suffer from potentially life-threatening yet common ill effects such as anaphylaxis and serum sickness. Furthermore, the current demand of AVS exceeds the supply globally, which further underscores the need of discovering effective alternatives. The startling discovery of heavy chain antibodies (HCAbs) in the sera samples of camelids and their efficient antigen binding abilities paved the way for exploiting their unique features for therapies as well as diagnosis.

The group tested whether lesser immunogenic derivatives of such antibodies also known as single domain antibodies (sdAbs) or the nanobodies could neutralize the toxicological effects caused by Russell's viper venom (RVV). They demonstrated the neutralizing potential of sdAbs selected against secretory phospholipase A2, gp 12B, one of the components of RVV, not only using acellular and cellular assays but also in zebrafish as a vertebrate model organism. Such binders could serve as an effective therapeutic alternative intervention for managing snakebites.

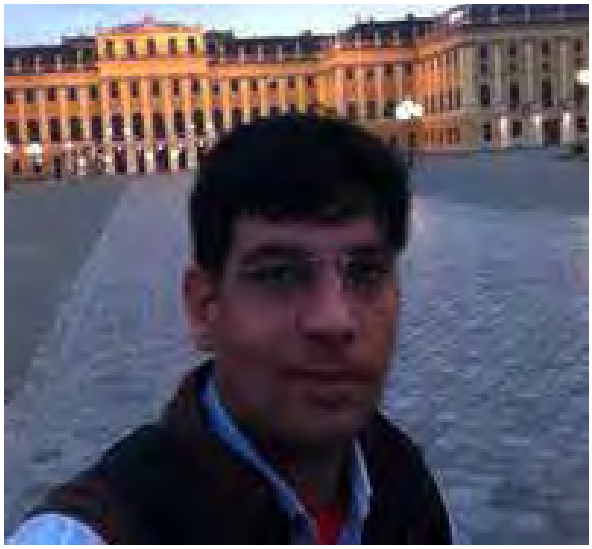

Photo: **Dr. Sharvan Sehrawat**

About Dr. Sharvan Sehrawat and his lab

Dr Sharvan is Assistant Professor of Biological Sciences in IISER, Mohali. His lab is working on Induction of an adaptive immune response and its maintenance in the memory phase forms the basis of lasting protective immunity against infectious diseases and provides clue for successful vaccination. After receiving help from CD4 T cells, pathogen-specific CD8 T cells are appropriately activated to control the spread of intracellular pathogens such as viruses. Animal models are used to investigate host-pathogen interaction. For studying the function and differentiation of adaptive T and B cells, one has to secure sufficient number of antigen-specific cells in naive state but in a normal host the frequency of T cells specific to any given antigen is very low and frustrates attempts at isolating such cells in meaningful numbers. His laboratory aim to understand the function and differentiation of CD8 T cells during infection with endemic pathogens such as dengue virus, Chikungunya virus and protozoan parasites such as Plasmodium in addition to herpes viruses, the latter being the most successful pathogen. Employing various molecular and immunological approaches, we try to understand the host-pathogen interaction. His lab is also putting efforts in developing novel animal models to study immunity and immunopathology during viral infections in addition to antibody engineering area.

Photo: **Current team members in Dr. Sehrawat's lab IISER-Mohali**

Guest Article

CIRCADIAN CLOCK MEDIATED REGULATION OF LEAF SENESCENCE

Priya Paul[1], Bhabani Prasad Mondal[2] and Shivani Nagar[3]

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Introduction

Dynamic physiological and metabolic regulatory networks are involved in adaptation of organisms under changing environmental conditions and circadian clock provide timing information for these adaptations (Kim et al., 2019). The most effective way to entrain the circadian clock of animals and plants are by light-dark cycle to exactly 24 hours (Bunning, 1973). The current consensus is that cell-autonomous core oscillator of circadian clock comprises three interlocking negative feedback loops. The three loops are morning loop, central loop and the evening complex (Figure1). Morning loop is comprised of *circadian clock- associated 1* (CCA1), late elongated hypocotyl (LHY) and pseudo- response regulator gene (PRR5/7/9) (Pokhilko et al., 2012). CCA1/ LHY supress PRR7/9 and PPR genes repress CCA1/LHY by recruitment of histone deacetylase 6/19 (Wang et al., 2013). In central loop, timing of cab expression 1 (TOC1) and CCA1/ LHY reciprocally repress each other. Moreover, early flowering 3 (ELF3), ELF4 and LUX arrhythmo (LUX) together form the evening complex (EC). Entrainment of circadian clock by environmental signal regulates several aspects of growth and development in plants, like- photosynthesis, stomatal opening- closure, flowering time and senescence etc. and ultimately provides fitness benefit to higher plants (Wang et al., 2018).Thus the core oscillator serves as a master regulator in whole life span of plant.

The term senescence is specifically used in plants. Senescence can be defined as systemic, active developmental process which involve reallocation of nutrients and other biomolecules form senescing part to the growing parts and ultimately leads to death of particular tissue or organ in plants. More precisely, senescence does not means death by negligence. Extremely coordinated cellular network is involved in controlling leaf senescence, which is integrated with internal signals like- nutrients status, hormone signalling, ROS level along with environmental signals (Wang et al., 2018). Circadian clock and senescence have been found tightly interconnected with each other, but the exact regulation of triggering leaf senes-

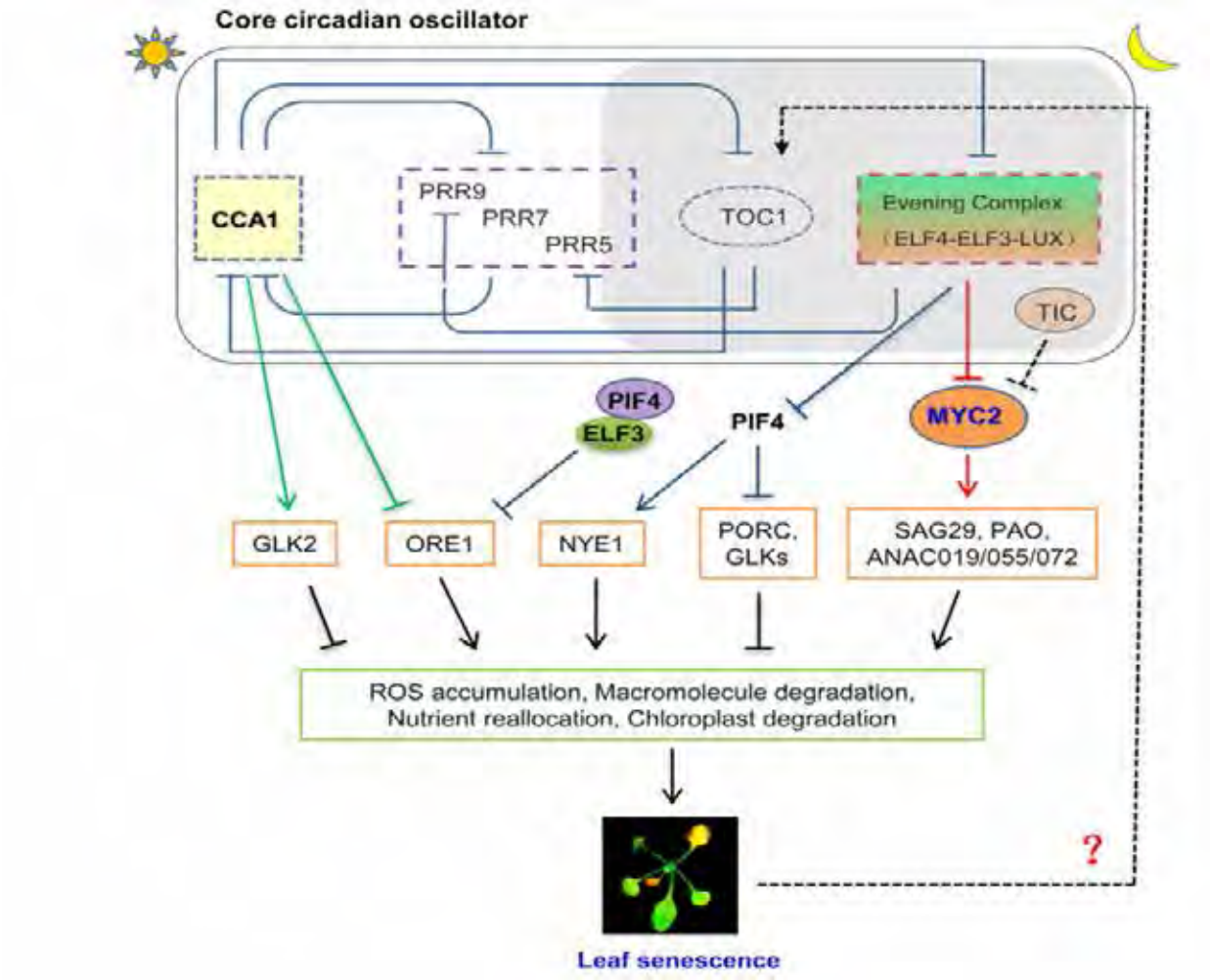


Fig1: Core components of circadian clock modulating leaf senescence.

cence by circadian clock remains unknown in higher plants. Recently it was found that, the mRNA and the protein abundance level of SAGs at transcriptional and post transcriptional level are regulated by the core components of circadian oscillator (Zhang et al., 2018). Unravelling this circadian clock mediated regulation of leaf senescence will help in understanding the complex regulatory networks for fitness and adaptive advantage in higher plants. The signalling pathways of leaf senescence modulated by circadian clock can be classified to age-dependent pathway, environmental conditions induced pathway, and internal hormones induced pathway.

Age dependent leaf senescence via transcriptome reprogramming is an autonomous signaling pathway

Molecular genetic studies using *Arabidopsis thaliana* have identified many senescence-associated genes (SAGs). Among them, *ORESARA 1* (*ORE1*, also named *NAC2*, *NAC6*, and *NAC092*) is a (NAC domain transcription factor) age- and ethylene-induced senescence regulator that positively regulates senescence initiation (Kim et al., 2009, Rauf et al., 2013) and chlorophyll degradation. GLKs (Golden2-like transcription factors) act as critical maintainers of

chloroplast activity (Rauf et al., 2013) and overexpressing *GLK2* delays leaf senescence. Recently it has been found that the protein interaction between ORE1 and GLKs (GLK1, GLK2) regulates the balance between growth and senescence. The progressive accumulation of ORE1 counteracts the function of GLKs and eventually shifts the balance toward senescence initiation and CCA1 directly binds to the promoters of these genes and control their expression (Song et al., 2018). With aging, the reduced expression of *CCA1* attenuates the inhibition on ORE1 and reduces GLK2 expression and leads to accelerated leaf senescence. Apart from this, EC transcriptionally inhibit the process of leaf senescence by inhibiting phytochrome interacting factor 4(PIF4) and PIF5. In contrast to CCA1, PIF4 and PIF5 increases with aging as they are the positive regulator of senescence (Song et al., 2018). Thus it can be reasonably hypothesized that, EC mutants will show precocious leaf senescence as they have higher level of PIFs and ORE1 and these needs further detail study. Taken together, all the above evidences are revealing highly coordinated network of circadian clock regulation on natural leaf senescence.

The multiple hormones signalling such as Jasmonic acid (JA), salicylic acid (SA), ABA are involved in controlling onset of leaf senescence. Jasmonate (JA), a lipid-derived phytohormone, is known as an important endogenous signal in inducing leaf senescence. Transcriptomic profiling analysis prevails that EC is closely involved in JA signaling and response, consistent with accelerated leaf senescence unanimously displayed by EC mutants upon JA induction. EC directly binds to the promoter of MYC2, which encodes a key activator of JA- induced leaf senescence, and repress its expression. Genetic analysis further demonstrated that the accelerated JA- induced leaf senescence in EC mutants is abrogated by myc2myc3myc4 triple mutation. Collectively, these results reveal a critical molecular mechanism illustrating how the core component of circadian clock (EC) gates JA signaling to regulate leaf senescence (Zhang et al., 2018). Time for coffee (TIC) has been is a nuclear regulator which perform its circadian function from middle to late subjective night (Hall et al., 2003). TIC also repress MYC2 protein level and acts as negative regulator in JA signaling (Shin et al., 2012). Likewise, SA mediated expression of defensive genes are also under the control of CCA1 indicating close interplay between clock components and SA mediated leaf senescence (Wang et al., 2018). In addition, in dark induced senescence ABA plays crucial role downstream to PIFs as abscisic acid insensitive 5 (ABI5) is direct target gene of PIF4 and PIF5 (Zhang et al., 2018). Interestingly, PIFs and ABI5 regulate the expression of ORE1 which is a key senescence promoter gene. For better understanding of senescence - window concept interlinked to circadian clock are becoming a promising area of research.

Onset of leaf senescence is also favored by environmental stresses. Among those stresses, light deprivation leading towards leaf senescence is highly correlated with circadian system. Among various circadian clock components, it was found that only EC components are connecting circadian clock with light deprived onset of senescence mediated through PIFs. ELF3 has been shown working upstream of PIFs and repress PIFs, in consistent with that EC mutants senesced faster under light conditions (Wang et al., 2018).

In conclusion, it can be said that a complex cellular network is involved in governing the initiation and the process of leaf senescence regulated by circadian clock (Figure-2). Moreover, leaf senescence is also

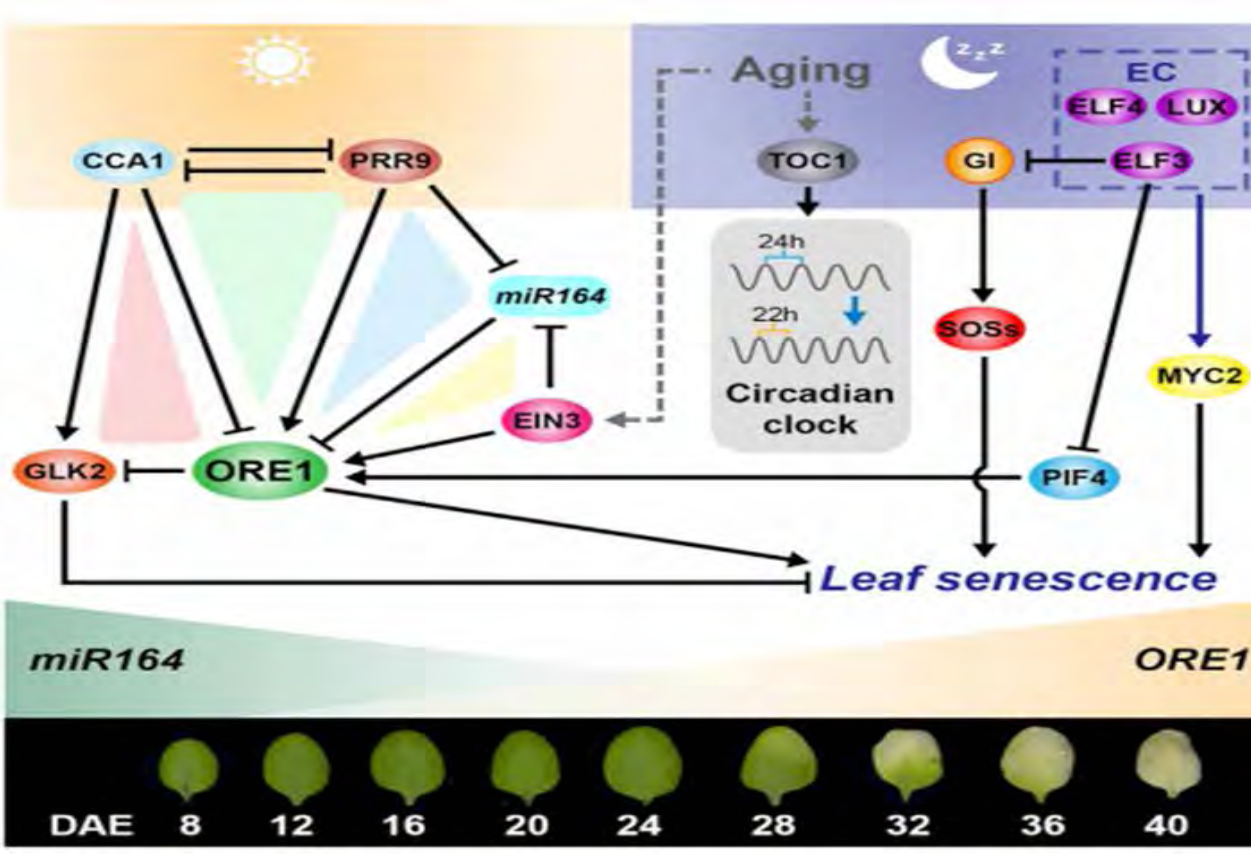


Fig 2: Cellular network between circadian clock and aging in Arabidopsis.

triggered by ROS homeostasis, while circadian clock and cellular redox state daily influence each other , partly via CCA1 (Lai et al., 2012) and the mechanisms remains to be further discovered. Thus, circadian clock , the central pacemaker, tightly connected with leaf senescence via aging dependent pathways, plant hormone signaling pathways, ROS homeostasis and external stresses mediated pathways to ensure proper fitness and yield to plants. These complex networks needs more detailed research for better understanding of underlying regulatory networks.

References:

1. Bünning, E., and Moser, I. (1973). Light-induced phase shifts of circadian leaf movements of Phaseolus: comparison with the effects of potassium and of ethyl alcohol. Proceedings of the National Academy of Sciences, 70(12), 3387-3389.

2. Hall, A., Bastow, R. M., Davis, S. J., Hanano, S., Mcwatters, H. G., Hibberd, V., et al. (2003). The time for coffee gene maintains the amplitude and timing of Arabidopsis circadian clocks. Plant Cell 15, 2719–2729.

3. Kim, H., and Hong, S. (2019). Role of the circadian clock in fine-tuning the process of leaf senescence in plants. Translational Medicine of Aging.

4. Kim, J. H., Woo, H. R., Kim, J., Lim, P. O., Lee, I. C., Choi, S. H., et al. (2009). Trifurcate feed-for-

ward regulation of age-dependent cell death involving miR164 in Arabidopsis. Science 323, 1053–1057.

5. Lai, A. G., Doherty, C. J., Mueller-Roeber, B., Kay, S. A., Schippers, J. H., and Dijkwel, P. P. (2012). Circadian clock-associated 1 regulates ROS homeostasis and oxidative stress responses. Proc. Natl. Acad. Sci. U.S.A. 109, 17129–17134.

6. Pokhilko, A., Fernandez, A. P., Edwards, K. D., Southern, M. M., Halliday, K. J., and Millar, A. J. (2012). The clock gene circuit in Arabidopsis includes a repressilator with additional feedback loops. Mol. Syst. Biol. 8:574.

7. Rauf, M., Arif, M., Dortay, H., Matallana-Ramirez, L. P., Waters, M. T., Gil, Nam, H., et al. (2013). ORE1 balances leaf senescence against maintenance by antagonizing G2-like-mediated transcription. EMBO Rep. 14, 382–388.

8. Shin, J., Heidrich, K., Sanchez-Villarreal, A., Parker, J. E., and Davis, S. J. (2012). Time for coffee represses accumulation of the MYC2 transcription factor to provide time-of-day regulation of jasmonate signaling in Arabidopsis. Plant Cell, 24, 2470–2482.

9. Song, Y., Jiang, Y., Kuai, B., and Li, L. (2018). Circadian clock- associated 1 inhibits leaf senescence in Arabidopsis. Frontiers in plant science, 9, 280.

10. Wang, L., Kim, J., and Somers, D. E. (2013). Transcriptional corepressor TOPLESS complexes with pseudoresponse regulator proteins and histone deacetylases to regulate circadian transcription. Proc. Natl. Acad. Sci. U.S.A. 110, 761–766.

11. Wang, Y., Zhang, Y., and Wang, L. (2018). Cross regulatory network between circadian clock and leaf senescence is emerging in higher plants. Frontiers in plant science, 9, 700.

12. Zhang, Y., Wang, Y., Wei, H., Li, N., Tian, W., Chong, K., and Wang, L. (2018). Circadian evening complex represses jasmonate-induced leaf senescence in Arabidopsis. Molecular plant, 11(2), 326-337.

NEWS IN FOCUS

Prof Ashok Pandey again made it to the top of Highly Cited Researchers list of Clarivate Analytics

Professor Ashok Pandey is a Distinguished Scientist at CSIR-Indian Institute for Toxicology Research and former Chief Scientist & Head of Biotechnology Division at CSIR's National Institute for Interdisciplinary Science and Technology at Trivandrum.

He has over 40 years of experience in the field of Biotechnology and Research. His major research interests are in the areas of microbial, enzyme and bioprocess technology, which span over various programs, including biomass to fuels & chemicals, probiotics & nutraceuticals, industrial enzymes, solid-state fermentation, etc. He has more than 1185 publications/communications, which include 16 patents, 51 books, 130 book chapters, 460 original and review papers, etc with h index of 83 and more than 27,500 citations. He has transferred several technologies to industries and has done industrial consultancy for about a dozen projects for Indian/international industries.

He is Founder President of the Biotech Research Society, India (www.brsi.in); International Coordinator of International Forum on Industrial Bioprocesses, France (www.ifibiop.org), Chairman of the International Society for Energy, Environment & Sustainability (www.isees.in) and Vice-President of All India Biotech Association (www.aibaonline.com).

Prof Pandey is editor-in-chief of Bioresource Technology, Honorary Executive Advisors of Journal of Water Sustainability, Journal of Energy and Environmental Sustainability, Subject Editor of Proceedings of National Academy of Sciences (India), and editorial board member of several international and Indian journals. He is editor-in-chief of a book series on Current Developments in Biotechnology and Bioengineering, comprising nine books published by Elsivier.

LIST OF SELECTED AWARDEES FOR S. RAMACHANDRAN - NATIONAL BIOSCIENCE AWARD FOR CAREER DEVELOPMENT - 2019

National Bioscience Awards for Career Development are conferred in recognition of outstanding contributions of scientists below 45 years of age who are engaged in basic and applied research in Biological Sciences including Biotechnology, Agricultural, Medical, Environmental Sciences and other related areas.

The award recognizes the significant contributions made by scientists in their respective domain research areas with potential for product and technology development. A maximum of 10 awards are given every year. Each Award carries a cash prize of Rs 2.00 lakh, a citation and trophy along with research grant @ Rs 5 lakhs/yr lakh for a period of three (3) years.

1. Dr. Chandrima Das, Saha Institute of Nuclear Physics (SINP), Kolkata
2. Dr. Subba Rao Gangi Setti, Indian Institute of Science (IISc.), Bangalore
3. Dr. Kayarat Saikrishnan, Indian Institutes of Science Education and Research (IISER), Pune
4. Dr. Santosh Chauhan, Institute of Life Sciences (ILS), Bhubaneswar, Odisha
5. Dr. N. Ravi Sundaresan, Indian Institute of Science (IISc.), Bangalore
6. Dr. G. Venkatasubramanian, National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru
7. Dr. Tapas Kumar Manna, Indian Institutes of Science Education and Research (IISER), Thiruvananthapuram
8. Dr. Benu Brata Das, Indian Association for the Cultivation of Science, Kolkata
9. Dr. Kausik Chakraborty, CSIR-Institute of Genomics and Integrative Biology (IGIB), New Delhi
10. Dr Naveen C. Bisht, National Institute of Plant Genome Research (NIPGR), New Delhi

Janaki Ammal- National Women Bioscientist Award 2019

The Department recognizes the contribution of senior and young women scientists in the country who are working in biology and biotechnology areas. The National Women Bioscientist Award is conferred under two categories-Senior and Young.

The senior category award recognizes life time contributions of scientists who have made significant contributions in their research fields. The Award for Senior category carries a cash prize of Rs 5.00 lakh along with citation and a gold medal. The young category award is given to women scientists below 45 years of age who have contributed significantly towards unraveling challenges in various areas of biosciences & biotechnology. The Award carries a cash prize of Rs 1.00 lakh; a citation; Gold Medal and a Research Grant of Rs 5.00 lakhs/ per annum for a period of 5 years.

The winners of this year are:

Senior Category

Dr. E.V. Soniya, Scientist G

Rajiv Gandhi for Biotechnology, Thiruvananthapuram, Kerala

RESEARCH INTERESTS - Her research is understanding the vmolecular mechanisms working behind the interactions of plants with both biotic and abiotic factors, especially the plant-pathogen interactions and plant stress responses, and the molecular details of metabolic pathways for the production of secondary metabolites.

Young Category

1. Dr. Kavita Babu, Associate Professor

Indian Institute of Science (IISc.), Bangalore

RESEARCH INTERESTS - interested in understanding the molecules and mechanisms that are in play during a synaptic function. Her work utilizes the free-living nematode, Caenorhabditis elegans to study how neurons "talk" to each other.

2. Dr. Shilpee Dutt, Principal Investigator

ACTREC, Navi Mumbai

RESEARCH INTERESTS - Therapy resistance in cancer, DNA damage and repair, epigeneitcs, glioblastoma, leukemia

DMRC Jodhpur Institute renamed to National Institute for Implementation Research on Non-Communicable Diseases (NIIRNCD)

Dr. Harsh Vardhan, Hon'ble Union Minister of Health and Family Welfare, Science and Technology and Earth Sciences and Sh. Gajendra Singh Shekhawat, Hon'ble Union Minister of Jal Shakti visited ICMR's -Desert Medicine Research Centre (DMRC), Jodhpur as Chief Guest for the renaming ceremony of DMRC Jodhpur Institute to National Institute for Implementation Research on Non-Communicable Diseases (NIIRNCD).

This National Institute will now focus on National level research with field stations located in other parts of the country. The Hon'ble Ministers also laid the foundation stone of the administrative block of the Institute. At the event Dr. Harsh Vardhan, Hon'ble Union Minister appreciated the research work being done by the Institute and said that generally any institute is named first and its action plan is prepared later; but this Institute has demonstrated the advantages of implementation research; made an action plan and now it is named after its work.

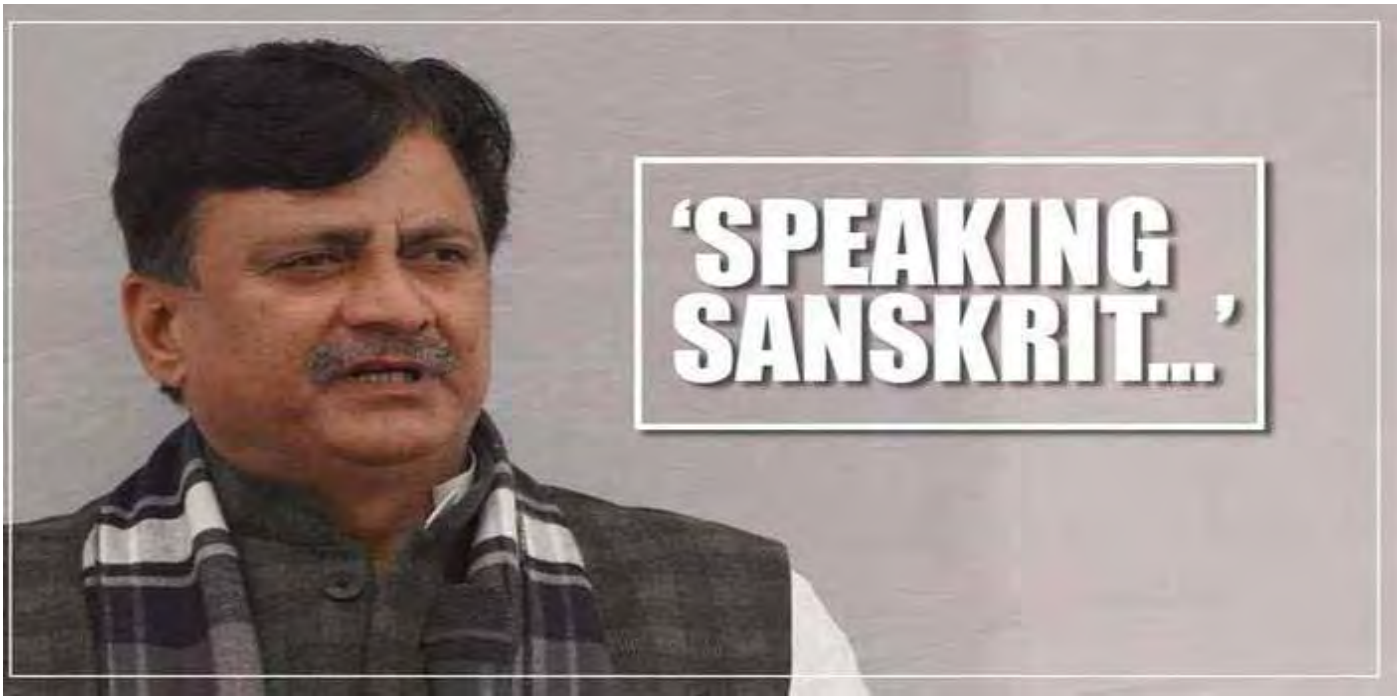
In the coming years, this institute will work for the people of the country by facilitating and carrying research in the area of Non Communicable diseases. Hon'ble Union Minister further mentioned that Indian Council of Medical Research (ICMR), along with all its institutes, have been working since 1911 for the betterment of health of the people.

Sh. Gajendra Singh Shekhawat, Hon'ble Union Minister of Jal Shakti said that I am happy to know that ICMR has taken this important initiative and has chosen Rajasthan for the same. He also said that after becoming a national Institute, its reputation has not been confined to Jodhpur or Rajasthan, but the Institute will serve the needs of the entire nation with respect to NCDs. He wished the Institute all the best for its future activities.

Addl. DG ICMR and Director NIIRNCD Dr. G.S.Toteja, briefed the Ministers about the research activities of the institute since its inception in 1984. He informed that under the mega community based study on sickle cell anaemia, more than one lakh tribal population have been screened and cards related to their status as normal/carrier or diseased have been distributed to them. He also informed that under another project for early detection of breast cancer in women, about 84,000 women have been trained for breast self-examination and out of these women, 489 were found to be suspected of breast cancer, out of which 9 women have been confirmed with breast cancer cases and are currently undergoing treatment.

Dr. Toteja said that the Institute will continue to work in collaboration with the State Government for the community so that effective health care reaches to the poorest. Dr Harsh Vardhan congratulated Dr. G.S. Toteja, for not confining only to collecting data or publishing research papers but also educating masses on prevention of diseases.

Speaking Sanskrit Prevents Diabetes, Cholesterol? : BJP Leader



BJP MP Ganesh Singh says according to NASA, if computer programming is done in Sanskrit, it will be flawless. Ganesh Singh on Thursday said that according to a research done by a US-based academic institution, speaking Sanskrit language on a daily basis boosts the nervous system and keeps diabetes and cholesterol at bay.

Participating in a debate on the Sanskrit universities bill, he also claimed that according to a research by US space research organisation NASA, if computer programming is done in Sanskrit, it will be flawless.

More than 97 per cent of the languages in the world, including few Islamic languages, are based on Sanskrit, Mr Singh said.

Union Minister Pratap Chandra Sarangi, who spoke in Sanskrit on the bill, said the language is very flexible and a single sentence can be spoken in many ways. He said various English words such as brother and cow are derived from Sanskrit. Mr Sarangi said the promotion of this ancient language will not impact any other language.

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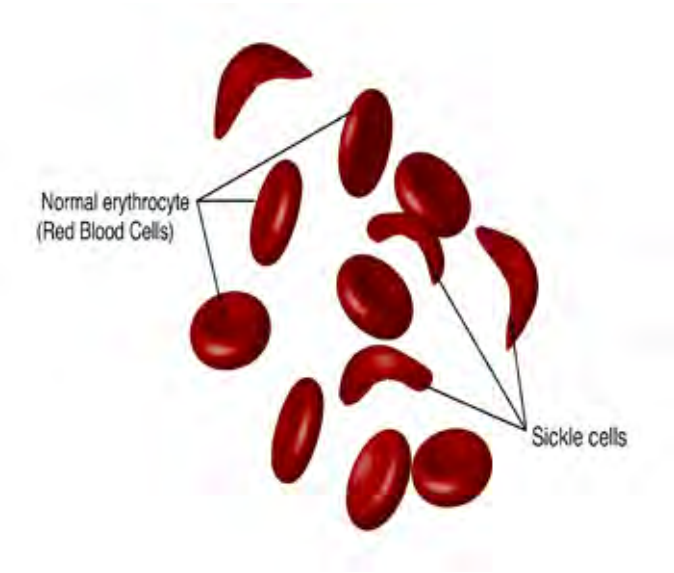
NEWS: Govt. & Industry

New Novartis medicine Adakveo® (crizanlizumab) approved by FDA to reduce frequency of pain crises in individuals living with sickle cell disease



Novartis announced today that the US Food and Drug Administration (FDA) approved Adakveo® (crizanlizumab), previously known as SEG101, to reduce the frequency of vaso-occlusive crises (VOCs), or pain crises, in adult and pediatric patients aged 16 years and older with sickle cell disease.4 Adakveo represents the first FDA-approved medicine in sickle cell disease that binds to P-selectin –a cell adhesion protein that plays a central role in the multicellular interactions that can lead to vaso-occlusion. The medicine is expected to be available to patients in the coming weeks.

The FDA's decision to approve Adakveo 5 mg/kg is based on results of the 52-week, randomized, placebo-controlled SUSTAIN trial, which showed that Adakveo significantly lowered the median annual rate of VOCs to 1.63 vs 2.98 compared to placebo (P=.010), which is equivalent to a 45% reduction. Reductions in the frequency of VOCs were observed among patients regardless of sickle cell disease genotype and/or hydroxyurea use.

"We know this drug can decrease the frequency of sickle cell pain crises in a significant and clinically meaningful way," said Kenneth Ataga, MD, Director, Center for Sickle Cell Disease, University of Tennessee Health Science Center at Memphis, and Principal

Investigator of the SUSTAIN trial. "The approval of crizanlizumab is an important advancement for people living with this very difficult condition."

The most common adverse reactions (incidence > 10%) were nausea (18%), arthralgia (18%), back pain (15%) and pyrexia (11%).

"The approval of Adakveo marks a new era in the treatment of sickle cell disease, a genetic condition that places an extraordinary burden of unpredictable pain crises on patients and their families," said Susanne Schaffert, PhD, President, Novartis Oncology. "The stories we have heard from patients about their sickle cell pain crises are devastating. We are pleased to help reimagine medicine together with the sickle cell community and offer new hope for fewer VOCs." Considered the clinical hallmark of the disease, sickle cell pain crises are triggered, in part, by multicellular interactions that form clusters of cells, which can block or reduce the blood flow to organs. Sickle cell pain crises can be frequent and sudden, and are associated with an increased risk of life-threatening complications. They also are the main reason why individuals living with sickle cell disease go to the emergency room and are admitted to the hospital.

"Patients with sickle cell disease often face unique challenges, and have long suffered silently through unimaginable pain crises," said Beverley Francis-Gibson, President and CEO of the Sickle Cell Disease Association of America. "We are excited to have a new medicine that may help many of the thousands of people living with sickle cell disease by reducing the frequency of these potentially dangerous and painful episodes."

Bengaluru to Host 107th Indian Science Congress in January 2020

The 107th session of the Indian Science Congress Association, will be held at the University of Agricultural Sciences, Bengaluru from 3 to 7, January 2020 under the theme 'Science and Technology: Rural Development'. As per tradition, this prestigious conference will be inaugurated by the Hon'ble Prime Minister of India, Narendra Modi in presence of other state min-

Image Caption: Dr. C N Ashwath Narayanan, Deputy Chief Minister and Minister Higher Education, Medical Education and IT, BT and S&T, Government of Karnataka unveiling the logo of 107th Indian Science Congress)

isters and dignitaries. The five days event will bring together more than 15,000 delegates from the scientific fraternity and academia, R&D institutes, defence, government, PSUs and Corporate Houses. The Pride of India Expo 2020 which is organized concurrently with the Indian Science Congress is a confluence of new ideas, innovations and products surrounding the entire canvas of scientific world will also be inaugurated simultaneously.

FDA Approves Sanofi's Toujeo to Treat Childhood Type 1 Diabetes

Children and adolescents (aged 6 to 17 years) living with type 1 diabetes achieved comparable reduction in average blood sugar (HbA1c) and similar risk of low blood sugar events with Toujeo® (insulin glargine 300 Units/mL) compared to insulin glargine 100 Units/mL (Gla-100), according to results presented at the International Society for Pediatric and Adolescent Diabetes 45th Annual Conference in Boston, Massachusetts.

"We know that living with type 1 diabetes means dealing with highs and lows in blood sugar, which are worrying and present substantial challenges for young people," said Prof. Dr. Thomas Danne, Director of the Department of General Pediatrics and Endocrinology/Diabetology at the Children's Hospital on the Bult, Hannover Medical School, Germany. "In addition to the trial demonstrating safety and efficacy, the percentage of patients with severe hypoglycemia, and the percentage with hyperglycemia with ketosis, were numerically lower with Toujeo."

The trial, EDITION JUNIOR, is the first randomized, controlled trial comparing Toujeo vs Gla-100 in this group of patients. The study met its primary endpoint with comparable reductions in average blood sugar over 6 months with both treatments and similar risk of low blood sugar events (hypoglycemia). The percentages of patients who experienced severe hypoglycemia and who experienced high blood sugar (hyperglycemia) with ketosis were numerically lower with Toujeo. As these are serious short-term complications, these findings are clinically important for people with type 1 diabetes.

Based on these data, the European Medicines Agency's Committee for Medicinal Products for Human Use adopted a positive opinion on October 17, recommending expanding the current indication for Toujeo in the Europe Union for the treatment of diabetes mellitus in adolescents and children (6 years

and older).

"Across the globe, between 50 and 80 percent of young people living with type 1 diabetes need more treatment options to help them achieve an average blood sugar level below 7.5%," said Dietmar Berger, Global Head of Development at Sanofi. "By taking this step toward investigating an additional option for children and adolescents living with diabetes, we hope to provide another treatment for them and their physicians, to develop an individualized treatment plan that helps patients better manage their disease."

The European Commission will make a final decision on this additional indication in the coming months.

About the study

The EDITION JUNIOR study compared Toujeo to Gla-100 in 463 children and adolescents (aged 6 to 17 years) treated for type 1 diabetes for at least one year and with HbA1c between 7.5% and 11.0% at screening. Participants continued to use their existing mealtime insulin.

The study met its primary endpoint, confirming non-inferior reduction of HbA1c with Toujeo vs Gla-100 after 26 weeks (mean reduction 0.4% vs 0.4%; difference: 0.004%, 95% CI -0.17 to 0.18; upper bound was below the pre-specified non-inferiority margin of 0.3%).

Over the same period, a comparable number of patients experienced one or more anytime (24h) documented low blood sugar (hypoglycemia) events. Numerically fewer patients using Toujeo experienced severe hypoglycemia, or experienced one or more episodes of high blood sugar (hyperglycemia) with ketosis compared, with those using Gla-100.

The number of adverse events was comparable between the two treatment groups (65.2% vs 65.8% of patients reported any treatment-emergent adverse event). No unexpected safety concerns were reported, based on the established profiles of both products.

Alnylam Announces Approval of GIVLAARI™ (givosiran) by the U.S. Food and Drug Administration (FDA)

The leading RNAi therapeutics company, announced today that the U.S. Food and Drug Administration (FDA) approved GIVLAARI™ (givosiran) injection for subcutaneous use for the treatment of adults with acute hepatic porphyria (AHP). AHP is a family of ultra-rare, genetic diseases characterized by debilitating, potentially life-threatening attacks and, for some patients, chronic manifestations that negatively impact daily functioning and quality of life. Long-term complications of AHP can include chronic neuropathic pain, hypertension, chronic kidney disease and liver disease. GIVLAARI was shown to significantly reduce the rate of porphyria attacks that required hospitalizations, urgent healthcare visits or IV hemin administration at home.

"We believe the approval of GIVLAARI represents a landmark event for the advancement of precision genetic medicines, providing new hope for patients and their caregivers living with the debilitating manifestations of AHP and unpredictable nature of AHP attacks, as well as for the doctors who diagnose and treat these patients. We are grateful to the investigators, patients and families who have helped make this new treatment option a reality for the AHP community. We also commend the FDA for recognizing the immense medical need and granting this approval so quickly," said John Maraganore, Ph.D., Chief Executive Officer of Alnylam. "GIVLAARI now becomes our second RNAi therapeutic to be approved in the last 16 months, and the world's first-ever GalNAc-conjugate RNA therapeutic to be approved, representing a watershed moment for a technology uniquely pioneered by Alnylam scientists. We believe today's news reinforces the promise and potential of RNAi therapeutics as a whole new class of medicines and brings us one

important step closer to fulfilling our Alnylam 2020 goals of building a multi-product, global commercial company with a deep clinical pipeline to drive growth and an organic product engine to fuel sustainable innovation."

The FDA approval of GIVLAARI was received in less than four months after acceptance of the NDA, and was based on positive results from the ENVISION Phase 3 study, a randomized, double-blind, placebo-controlled, multinational study of 94 patients with AHP, at 36 study sites in 18 countries – the largest ever interventional study conducted in AHP. In ENVISION, AHP patients on GIVLAARI experienced 70% (95% CI: 60%, 80%) fewer porphyria attacks compared to placebo. GIVLAARI also resulted in a similar reduction in intravenous hemin use, as well as reductions in urinary aminolevulinic acid (ALA), and urinary porphobilinogen (PBG).

In the pivotal ENVISION study, the most common adverse reactions (reported in at least 20% of patients) with GIVLAARI were nausea (27%) and injection site reactions (25%). Other adverse reactions seen in patients treated with GIVLAARI (occurring over 5% more frequently than placebo) include rash, serum creatinine increase, transaminase elevations and fatigue. As previously reported, one patient in the GIVLAARI clinical development program experienced an anaphylactic reaction which resolved with medical management.

"Adults with AHP now have a new treatment option that has demonstrated the ability to reduce the frequency of porphyria attacks by specifically addressing factors associated with attacks and other disease manifestations of AHP," said Manisha Balwanii, M.D., M.S, Associate Professor of the Department of Genetics and Genomic Sciences and Department of Medicine at the Icahn School of Medicine at Mount Sinai and principal investigator of the ENVISION study. "With the approval of GIVLAARI, and based on the efficacy data from the ENVISION study, I hope to see my patients and those across the country be able to live more normal lives with fewer porphyria attacks."

"The FDA approval of GIVLAARI is an important milestone for our community, as we now have a new treatment option for adults living with acute hepatic porphyria," said Kristen Wheeden, Executive Director, American Porphyria Foundation. "AHP can have a profound impact on the lives of patients and their families. Porphyria attacks are associated with severe, incapacitating pain, often requiring hospitalization for management. In addition, many patients struggle on a daily basis with chronic symptoms related to their disease. The approval of GIVLAARI is exciting for our community."

Alnylam is committed to helping people access the medicines they are prescribed and will be offering comprehensive support services for people prescribed GIVLAARI through Alnylam Assist®. Visit AlnylamAssist.com for more information or call 1-833-256-2748.

GIVLAARI is expected to be available for shipment to healthcare providers in the U.S. by year-end. HCPs can initiate the process now by visiting www.AlnylamAssist.com and completing and submitting a Start Form.

MiMedx Ex-Senior Executives Indicted on Fraud Charges

Parker Petit and William Taylor face criminal and civil cases

Two former senior executives of MiMedx Group Inc. MDXG -1.12% were indicted on accounting-fraud charges, capping a tumultuous period for the high-profile maker of tissue grafts.

The Justice Department unsealed an indictment Tuesday against Parker H. Petit and William Taylor, accusing them of engaging in an accounting fraud during 2015 and 2016 that overstated the company's revenues and misled investors.

The Securities and Exchange Commission separately filed a civil suit against MiMedx, Mr. Petit, Mr. Taylor and Michael Senken, the company's former chief financial officer, accusing them of conducting a "pervasive" accounting fraud from early 2013 to late 2017. The SEC said MiMedx agreed to settle the case, without admitting or denying wrongdoing, and pay $1.5 million, subject to court approval.

Mr. Petit is MiMedx's former chief executive, and Mr. Taylor is its former president. All the executives denied the allegations.

"Bringing this [SEC] investigation to conclusion is another step toward the company's commitment to resolve past issues and move forward without distraction from our efforts in advanced wound care," said M. Kathleen Behrens, who chairs the MiMedx board.

The company said it was cooperating with the continuing Justice Department investigation.

MiMedx's accounting practices were the subject of a 2018 investigation by The Wall Street Journal which found that the company sometimes shipped more products than had been ordered and booked them as sales, a practice known as channel stuffing.

In a statement, Mr. Petit's lawyer said the former executive "adamantly denies the charges" and "will vigorously defend himself in court."

A lawyer for Mr. Taylor said his client didn't commit the offenses outlined by New York federal prosecutors and characterized the charges as stemming from a flawed internal company investigation that was "designed to appease government regulators by scapegoating executive management." A lawyer for Mr. Senken said he strongly denies the SEC's allegations.

The government said the former MiMedx executives

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improperly booked sales to distributors to meet financial projections. For example, in 2015, the indictment says, MiMedx was having difficulties meeting those projections so Mr. Petit and Mr. Taylor began recognizing revenue on products dispensed to four distributors, two in Texas, one in Tennessee and another in Saudi Arabia.

According to the SEC, Messrs. Petit, Taylor and Senken conducted the fraud through side arrangements with some of MiMedx's large distributors that misstated millions of dollars of revenue in financial statements relied upon by investors.

The SEC is asking the executives to return pay received during the period of the alleged fraud, pay penalties and be permanently barred from acting as officers or directors of any public company.

In June 2018, MiMedx, based in Marietta, Ga., said it would have to restate its financial statements going back to 2012. That work hasn't been completed.

In May, the company acknowledged that its injectable wound-care products hadn't met regulatory standards, including for purity and sterility, more than two years after MiMedx told the Food and Drug Administration that it had complied with the requirements.

Even though the products didn't meet the standards, MiMedx continued to sell them to health-care providers such as the Veterans Health Administration, the Journal reported.

Mr. Petit is a well-known entrepreneur in his home state of Georgia and has donated generously to his alma maters. At Georgia Institute of Technology, he funded a professorial chair for engineering in medicine, endowed the Petit Institute for Bioengineering and Bioscience and helped fund a biotechnology building that bears his name.

He also donated $10 million, at least half in MiMedx stock, to the athletics program at Georgia State University.

Merck and Bayer's Investigational Drug Vericiguat Meets Primary Endpoint in Phase 3 Study of Patients with Worsening Chronic Heart Failure

Merck (NYSE: MRK), known as MSD outside the United States and Canada, today announced that the Phase 3 VICTORIA study evaluating the efficacy and safety of vericiguat, a soluble guanylate cyclase (sGC) stimulator being developed to treat patients with worsening chronic heart failure, has met the primary efficacy endpoint. Vericiguat reduced the risk of the composite endpoint of heart failure hospitalization or cardiovascular death in patients with worsening chronic heart failure with reduced ejection fraction (HFrEF) compared to placebo when given in combination with available heart failure therapies. Vericiguat is being jointly developed with Bayer AG.

"VICTORIA is the first large contemporary outcomes study to focus exclusively on a population with worsening chronic heart failure who have a high risk for cardiovascular mortality and repeated heart failure hospitalizations. We are pleased vericiguat met this primary endpoint and look forward to sharing the detailed findings of the study," said Dr. Roy Baynes, senior vice president and head of global clinical development, chief medical officer, Merck Research Laboratories.

"Heart failure affects more than 60 million patients worldwide. Despite advances in therapies and prevention efforts, the cardiovascular event rates remain high," said Dr. Joerg Moeller, member of the Executive Committee of Bayer AG's Pharmaceutical Division and head of Research and Development. "There is a high unmet need for new treatment options to reduce

the risk of death and hospitalizations. We are pleased with the positive outcome with vericiguat as the first sGC stimulator evaluated in patients with worsening chronic heart failure with reduced ejection fraction."

The results of the VICTORIA study will be presented at an upcoming medical meeting in 2020.

About the VICTORIA Trial (NCT02861534)

VICTORIA is a randomized, placebo-controlled, parallel-group, multi-center, double-blind, Phase 3 study of vericiguat versus placebo when given in combination with available heart failure therapies in patients with worsening chronic heart failure with reduced ejection fraction (HFrEF) following a decompensation event, defined as heart failure hospitalization or receiving an intravenous diuretic for heart failure without hospitalization. The primary endpoint of the study is the composite of time to first occurrence of cardiovascular death or heart failure hospitalization. Secondary endpoints include time to occurrence of cardiovascular death, time to first occurrence of heart failure hospitalization, time to total heart failure hospitalizations (including first and recurrent events), time to the composite of all-cause mortality or heart failure hospitalization, and time to all-cause mortality. The study enrolled 5,050 patients who were randomized to receive either vericiguat once daily (titrated up to 10 mg) or placebo when given in combination with available heart failure therapies. The study, which was co-sponsored by Merck and Bayer, was conducted in collaboration with the Canadian VIGOUR Centre and the Duke Clinical Research Institute in more than 600 centers in 42 countries.

About Heart Failure With Reduced Ejection Fraction

Heart failure with reduced ejection fraction (HFrEF), formerly known as systolic heart failure, is characterized by the compromised ability of the heart to eject blood sufficiently during its contraction phase. In the U.S., 6.5 million people have heart failure, and approximately 40-50% of these patients have HFrEF. Annually, approximately 30% of patients with symptomatic chronic heart failure will experience worsening of the disease, which is marked by progressive symptoms and/or a recent heart failure event. Approximately half of patients with worsening chronic HFrEF are re-hospitalized within 30 days of the worsening event, and an estimated one in five patients with worsening chronic HFrEF will die within two years.

About the Worldwide Collaboration Between Bayer and Merck

Since October 2014, Bayer and Merck (known as MSD outside of the United States and Canada) are in a worldwide collaboration in the field of sGC modulators. The collaboration brings together two leading companies that have stated their intent to fully evaluate this therapeutic class in areas of unmet medical need. The vericiguat program is being co-developed by Bayer and Merck.

The World Health Organization (WHO) has issued new recommendations to help countries reach the 8.1 million people living with HIV who are yet to be diagnosed, and who are therefore unable to obtain life-saving treatment.

"The face of the HIV epidemic has changed dramatically over the past decade," said Dr Tedros Adhanom Ghebreyesus. "More people are receiving treatment than ever before, but too many are still not getting the help they need because they have not been diagnosed. WHO's new HIV testing guidelines aim to dramatically change this."

HIV testing is key to ensuring people are diagnosed early and start treatment. Good testing services also ensure that people who test HIV negative are linked to appropriate, effective prevention services. This will help reduce the 1.7 million new HIV infections occurring every year.

The WHO guidelines are released ahead of World AIDS Day (1 December), and the International Conference on AIDS and Sexually Transmitted Infections in Africa (ICASA2019) which takes place in Kigali, Rwanda on 2-7 December. Today, two thirds of all people with HIV live in the African Region.

The new "WHO consolidated guidelines on HIV testing services" recommend a range of innovative approaches to respond to contemporary needs.

Responding to changing HIV epidemics with high proportions of people already tested and treated, WHO is encouraging all countries to adopt a standard HIV testing strategy which uses three consecutive reactive tests to provide an HIV positive diagnosis. Previously, most high burden countries were using two consecutive tests. The new approach can help countries achieve maximum accuracy in HIV testing.

WHO recommends countries use HIV self-testing as a gateway to diagnosis based on new evidence that people who are at higher HIV risk and not testing in clinical settings are more likely to be tested if they can access HIV self-tests.

The Organization also recommends social network-based HIV testing to reach key populations, who are at high risk but have less access to services. These include men who have sex with men, people who inject drugs, sex workers, transgender population and people in prisons. These "key populations" and their partners account for over 50% of new HIV infections. For example, when testing 99 contacts from social networks of 143 HIV-positive people in the Democratic Republic of Congo, 48% tested positive for HIV.

The use of peer-led, innovative digital communications such as short messages and videos can build demand- and increase uptake of HIV testing. Evidence from Viet Nam shows that online outreach workers counselled around 6 500 people from at-risk key population groups, of which 80% were referred to HIV testing and 95% took the tests. The majority (75%) of people who received counselling had never been in contact before with peer or outreach services for HIV.

WHO recommends focused community efforts to deliver rapid testing through lay providers for relevant countries in the European, South-East Asian, Western Pacific and Eastern Mediterranean regions where longstanding laboratory-based method called "western blotting" is still in use. Evidence from Kyrgyzstan shows that HIV diagnosis which took 4-6 weeks with the "western blotting" method now takes only 1-2 weeks and is much more affordable resulting from policy change.

Using HIV/syphilis dual rapid tests in antenatal care as the first HIV test can help countries eliminate mother-to-child transmission of both infections. The move can help close the testing and treatment gap and combat the second leading cause of stillbirths globally. More integrated approaches for HIV, syphilis and hepatitis B testing is also encouraged.

"Saving lives from HIV starts with testing," says Dr Rachel Baggaley, WHO's Team lead for HIV Testing, Prevention and Populations. "These new recommendations can help countries to accelerate their progress and respond more effectively to the changing nature of their HIV epidemics."

At the end of 2018, there were 37.9 million people with HIV worldwide. Of these, 79% had been diagnosed, 62% were on treatment, and 53% had reduced their HIV levels through sustained treatment, to the point at which they have substantially reduced risk of transmitting HIV.

Novartis to Acquire The Medicines Company for $9.7B

Novartis has entered an agreement to acquire The Medicines Company, a U.S.-based biopharmaceutical company, for 9.7 billion. The deal bolsters Novartis' cardiovascular drug portfolio with the addition of inclisiran.

The Medicines Company recently unveiled data from its comprehensive clinical program consisting of three Phase III trials (ORION-9, 10 and 11) for inclisiran involving over 3,600 high-risk patients with ASCVD and FH. In all trials, inclisiran demonstrated potent

and durable LDL-C reduction with an excellent safety and tolerability profile. Furthermore, inclisiran's potentially first-in-class, twice-yearly dosing schedule allows administration during patients' routine visits to their healthcare professionals and will likely contribute to improved patient adherence and sustained, lower LDL-C levels. The Medicines Company expects to file regulatory submissions in the U.S. in the fourth quarter of 2019 and in Europe in the first quarter of 2020. An ongoing clinical trial (ORION-4) will evaluate the cardiovascular morbidity and mortality benefits of inclisiran.

"We are excited about entering into an agreement to acquire The Medicines Company as inclisiran is a potentially transformational medicine that reimagines the treatment of atherosclerotic heart disease and familial hypercholesterolemia," said Vas Narasimhan, chief executive officer, Novartis. "With tens of millions of patients at higher risk of cardiovascular events from high LDL-C, we believe that inclisiran could contribute significantly to improved patient outcomes and help healthcare systems address the leading global cause of death. The prospect of bringing inclisiran to patients also fits with our overall strategy to transform Novartis into a focused medicines company and adds an investigational therapy with the potential to be a significant driver of Novartis' growth in the medium to long term."

Marie-France Tschudin, president, Novartis Pharmaceuticals, said, "Novartis has a longstanding history of delivering breakthrough cardiovascular treatments for patients, and I am very excited about the opportunity to add inclisiran to our cardiovascular portfolio. This transformational, new investigational medicine has the potential to meaningfully address one of the largest areas of underserved patient need. We believe our strong capabilities and global footprint can help drive broad worldwide access to this much needed treatment."

Panacea Biotech launches ViLACT for diabetes patients

Panacea Biotech Limited has announced launch of brand ViLACT in India. ViLACT is used in the treatment of Uncontrolled Type 2 Diabetes Mellitus patients with HbA1c >6.5 per cent.

Panacea Biotec

Innovation in support of life

As per AIOCD MAT October 2019 data, the total market size of this molecule and its combination is Rs. 969 crores and is growing at the rate of 4 per cent.

Vildagliptin is a new oral antidiabetic agent that enhances pancreatic islet cell responsiveness to glucose, is an incretin enhancer, a potent and selective inhibitor of dipeptidyl peptidase-4 (DPP-4), the enzyme responsible for the rapid degradation of the incretin hormones glucagon-like peptide-1 (GLP-l) and glucose-dependent insulinotropic peptide (GIP).

This activity increases levels of active incretins and enhances pancreatic islet responsiveness to glucose, thus, improving insulin secretion and reducing inappropriate glucagon production, improving insulin sensitivity, improving postprandial lipid and lipoprotein metabolism, and reducing fasting and prandial glucose and HbA1c.

Diacar Strategic Business Unit (SBU) has launched ViLACT brand family. This will open up a new segment for accelerated growth of the SBU. The ViLACT brand will be an affordable, high quality medicine in the armamentarium of a physician treating patients with Diabetes.

Positive Trastuzumab Trial Data Offers Hope for Struggling Breast Cancer Patients

AstraZeneca and Daiichi Sankyo presented positive data from their Phase II single-arm DESTINY-Breast01 trial of trastuzumab deruxtecan (DS-8201) in HER2-positive metastatic breast cancer patients who received two or more previous HER-2 targeted regimens. The objective response rate (ORR), which was the primary endpoint, was 60.9% with the drug alone.

These patients had already undergone about six previous treatments. On the trastuzumab treatment, they showed no further disease progression for a median of 16.4 months. Typically, this patient group's health would continue to deteriorate after approximately six months.

"This is a totally unprecedented clinical benefit," Jose Baselga, AstraZeneca's executive vice president of Oncology R&D, told Reuters.

In a statement, Baselga said, "The clinically meaningful and durable responses seen among these patients illustrate the potential of trastuzumab deruxtecan to establish a new standard of care. These results are impressive, as women with this advanced stage of breast cancer have already endured multiple prior therapies for HER2-positive metastatic breast cancer."

HER2 is a tyrosine kinase receptor growth-promoting protein. It is generally associated with aggressive cancer and poor prognosis in breast cancer.

Trastuzumab deruxtecan is the lead product in the antibody drug conjugate (ADC) franchise of the Daiichi Sankyo Cancer Enterprise as well as the most advanced program in AstraZeneca's ADC platform. ADCs use an antibody to more precisely deliver a chemotherapy drug to cancer cells. AstraZeneca and Daiichi Sankyo entered into the collaboration in March 2019. It is a global deal, except in Japan where Daiichi Sankyo holds exclusive rights. Under the agreement, AstraZeneca could pay up to $6.9 billion to Daiichi.

In the trial, patients hit a disease control rate (DCR) of 97.3% with a median duration of response (DoR) of 14.8 months. There was a median progression-free survival (PFS) of 16.4 months. The median overall survival (OS) hasn't been met yet, with an estimated survival rate of 86% at one year.

DESTINY-Breast01 is the first of a planned 28 clinical trials with trastuzumab deruxtecan. Other studies will investigate breast cancer in earlier treatment periods, as well as in lung and gastric cancer.

The companies have already applied for approval with the U.S. Food and Drug Administration (FDA).

"These results are particularly striking as trastuzumab deruxtecan prompted a high level of durable tumor

reduction among patients, the majority of whom had exhausted most if not all standard therapies for HER2-metastatic breast cancer," said Ian E. Krop, principal investigator of the trial and associate chief, Division of Breast Oncology, Susan F. Smith Center for Women's Cancers, Dana-Farber Cancer Institute. "We are excited by these results and their potential to help patients with this advanced stage of breast cancer."

Safety and tolerability of the drug was consistent with that seen in the Phase I clinical trial. The most common Grade 3 or higher adverse events related to treatment were decreased neutrophil count, anemia, nausea, decreased white cell count, decreased lymphocyte count and fatigues. About 13.6% of patients had confirmed interstitial lung disease (ILD) related to treatment. Four deaths were associated with ILD. ILD is a broad group of disorders that cause scarring, or fibrosis, of the lungs.

Roche brings drug for small cell lung cancer to India

Drug firm Roche India on Thursday said it has launched Atezolizumab used for the treatment of small cell lung cancer in India after getting nod from Drugs Controller General of India.

"Atezolizumab is the first cancer immunotherapy to receive an approval in India for the first line treatment of extensive-stage small cell lung cancer (ES-SCLC) when given in combination with chemotherapy," Roche India said in a statement.

The cancer immunotherapy harnesses the person's immune system to combat cancer more effectively for better results, it added. "Roche is committed to bring to India all the innovations being developed in its pipeline, to benefit patients," Lara Bezerra, chief purpose officer at Roche Products (India) said.

Launching Atezolizumab is an important step for small cell lung cancer patients in India, she added.

Sanofi Pushes Further Into Immuno-Oncology with $2.5 Billion Synthorx Takeover

Paris-based Sanofi announced it is acquiring San Diego-based Synthorx for $68 per share in cash, a value of $2.5 billion. The deal has been unanimously approved by both companies' boards.

Synthorx focuses on immuno-oncology. Its lead product candidate is THOR-707, a form of interleukin-2 (IL-2) that is being developed in multiple solid tumors types as a monotherapy and in combination with checkpoint inhibitors. The companies believe it has the potential to be a best-in-class IL-2 therapeutic for solid tumors.

In addition, Sanofi will gain access to Synthorx's Expanded Genetic Alphabet platform. This is noted as being synergistic with Sanofi's existing platforms, including its Nanobody technology, which allows it

to develop a broad range of novel biologics, including drug conjugates, protein fusions, and multi-specific biologics.

"This acquisition fits perfectly with our strategy to build a portfolio of high-quality assets and to lead with innovation, as you will hear at our Capital Markets Day tomorrow, December 10," said Paul Hudson, Sanofi's chief executive officer. "Additionally, it is aligned with our goal to build our oncology franchise with potentially practice-changing medicines and novel combinations."

This marks efforts by Sanofi to push into the oncology market. It is the first multi-billion acquisition since early January 2018, when Sanofi acquired Waltham, Massachusetts-based Bioverativ for about $11.6 billion. Bioverative was a spinoff by Biogen. About a week later, Sanofi acquired Ghent-Belgium-based Ablynx for $2.4 billion. In April 2018, Sanofi sold its generics division, Zentiva, to Advent International for about $2.4 billion. Advent is a private equity firm.

Earlier this year, Sanofi reported plans to accelerate 17 drug programs. About half of those programs were in cancer. It also planned to abandon about 12 others that were under development. In August, analysts with HSBC indicated that the fastest way for Sanofi to build up its pipeline would be through mergers and acquisitions.

Now Hiring Currently hiring sales representatives, clinical researchers, engineers, science r&d professionals, and other disciplines. Browse Jobs
In 2018, Sanofi and its development partner Regeneron Pharmaceuticals received approval by the U.S. Food and Drug Administration (FDA) for Libtayo (cemiplimab-rwlc) for metastatic cutaneous squamous cell carcinoma (CSCC) or locally advanced CSCC in patients who are not candidates for curative surgery or curative radiation. It was the first immuno-oncology drug of Sanofi's to hit the market.

Synthorx reported a net loss in 2018 of $56.6 million.

Hudson took over as chief executive of Sanofi on September 1. He immediately launched into a broad strategic review, but in October told journalists, "I am bringing a little sense of urgency and prioritization. I have set a tone already that we can move a little bit faster. I think we have the right level of resources although perhaps not always in the right place."

Last week, Sanofi announced plans to sell its Seprafilm unit to Baxter International for $350 million. Seprafilm is a surgical products division.

"We are grateful that Sanofi has acknowledged the value of our Expanded Genetic Alphabet platform and the potential of our pipeline of optimized therapeutics for cancer and autoimmune disorders," said Laura Shawver, president and chief executive officer of Synthorx. "Importantly, Sanofi has a portfolio of therapeutics that holds incredible promise for combining with our cytokine Synthorins to benefit patients around the world. I want to thank our employees and the Sanofi organization for their relentless efforts on behalf of patients."

Switzerland to be country partner at BioAsia2020

Switzerland will be the country partner at the 17th edition of BioAsia2020, to be held here from February 17-19, 2020. "Switzerland recognizes India as a strategic partner in health tech. Hyderabad, a life sciences and healthtech hub, has been an attractive ecosystem for us to engage with," Silvana Renggli-Frey, Deputy Consul-General - Consulate General of Switzerland, told newspersons here on Tuesday.

"As a country partner at BioAsia, we're bringing a holistic representation of the Swiss healthtech ecosystem, spanning corporates to start-ups and academia to investors.

"We're eager to collaborate with the key players in India and pursue new solutions today, for tomorrow," she said.

More than a third of Swiss exports come from the

pharmaceutical industry, making it a significant contributor to the overall economy of Switzerland.
Switzerland has placed itself as one of the most important stock exchanges for lifescience companies in Europe. Also, there is growing interest from innovation centres, start-ups and universities to engage with India.

Jayesh Ranjan, Principal Secretary of Industries & Commerce and Information Technology, Telangana, said: "Both Telangana and Switzerland have inherent strengths in life sciences, and bringing them together will drive significant developments in the life sciences industry globally."

Omega Funds Closes $438 Million Fund VI Aimed at the Life Sciences

Fifteen-year-old Omega Funds raised $438 million to finance its sixth fund aimed at creating and investing in life sciences companies that target the most urgent medical needs. To date, the investment firm has raised more than $1 billion to invest in drug development companies.

This morning, Boston-based Omega Funds announced the closing of Omega Fund VI, L.P. The sitch fund, referred to as Fund VI, is stage-agnostic and is expected to be deployed across companies in the U.S. and Europe, Omega said. Investments in companies will include a number of different approaches, Omega said. Similar to previous funds, Fund VI will include early-venture funding rounds, as well as late-stage public investing. Also, the finances could be used as part of direct secondary transactions, Omega said.

Otello Stampacchia, managing director of Omega Funds, said this is the most exciting time to be investing in the life sciences in over a generation. But, he noted that wise investing requires diverse skills in order to "capture the opportunity set."

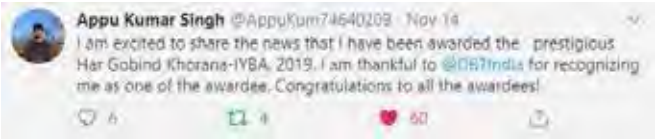
"Fund VI builds on our modus operandi aimed at investing in and, in many cases, actively combining innovative science with exceptional founders and company builders," Stampacchia said in a statement. "We appreciate the trust from our limited partners and their support of our distinctive investment style, which is guided by our conviction in people, products and breakthrough ideas, not by conventional categories. At Omega, we have thoughtfully assembled a team that has the experience, insights and connections needed to successfully identify and harvest innovation from both sides of the Atlantic."

Over the course of the years, Omega has seen some positive successes come from its investments. Omega Funds' portfolio companies have brought 37 new products to market and the firm's investments have contributed to 24 successful portfolio company IPOs and 35 portfolio company exits via M&A, the venture group said in its announcement. Most recently, Omega led the $275 million Series A financing round for Nuvation Bio, an oncology-focused company.

In addition to the announcement of Fund VI, Omega Funds also added industry veteran Bernard Davitian to its team as a partner. Davitian will begin his new duties in January 2020. Davitian previously served as managing director of Sanofi Ventures. Before that, he served as the global head of business development at Sanofi. Prior to Sanofi, Davitian held leadership roles at Fovea Pharmaceuticals, which was sold to Sanofi in 2009. He also spent time at Neurotech Pharmaceuticals.

The addition of Davitian followed the recent announcement that Deirdre Cunnane joined the company as chief operating officer and general counsel. Paulina Hill and Katie Kerfoot also joined Omega Funds as principal and head of investor relations, respectively.

Endorsed BioTweets




Leonid Schneider
"The odd job man says no one in his home village has ever contracted malaria because his powers knock out insects over a six mile radius."
Jesus Chrysler
Man whose deadly farts 'can kill mosquitoes hired to create Mosquito Repellent made from his intestinal gas' thesun.co.uk/news/10522729/...


Elisabeth Bik
Some of the papers I find come to me through anonymous tips, which I appreciate. However, I do not like the tips that just include 20 DOIs without telling me what they think is wrong with them. Please don't make me guess.
Boris Barbour
Quote them per figure? Expertise is expensive! (More reasonably, just ignore them.)


Dr. Renu Swarup @RenuSwarup · Dec 7
Thank you very much Hon'ble Vice President of India @VPSecretariat for your very kind recognition of this very important contribution of @DBTIndia which has been taken forward by @BharatBiotech ,@PMOIndia @drharshvardhan @NITIAayog @MoHFW_INDIA
Vice President of India @VPSecretariat · Dec 3
The first generation, Rotavirus vaccine, ROTAVAC® developed under a Public-Private Partnership with the Department of Biotechnology, Govt. of India, has put India on the global map for setting new standards in pharmaceutical Research and Development. @BharatBiotech #ROTAVAC5D
Show this thread


Prof (Dr.) Balram Bhargava @ProfBhargava · Dec 11
It was a momentous occasion to confer the KP Bhargava Oration award to Dr. Michael Spedding at the World Conference on Pharmacology of Natural products 2019 at National Institute of Nutrition- Hyderabad @ICMRDELHI @ICMRNIN @MoHFW_INDIA @moayush


Retraction Watch @RetractionWatch · Dec 12
A new definition of predatory journals?
JOURNAL
Predatory journals: no definition, no defence
Leading scholars and publishers from ten countries have agreed a definition of predatory publishing that can protect scholarship. It took 1...
nature.com


Kiran Mazumdar Shaw @kiranshaw · Dec 12
The World's Most Powerful Women: The Billionaires On The 2019 List - proud to be recognised as an influencer in global healthcare
The World's Most Powerful Women: The Billionaires On The 2019 List
This year's list includes 13 billionaires who have a combined net worth of $86.7 billion. These women are all actively using the power their wealth ...
forbes.com


Prof (Dr.) Bairam Bhargava @ProfBhargava · Dec 11
I am thankful to Hon'ble Union Minister of Health & Family Welfare Shri @drharshvardhan Ji for accepting our request to rename the Desert Medicine Research Centre- Jodhpur to National Institute for Implementation Research in Non-communicable diseases @ICMRDELHI @MoHFW_INDIA


RGCB Trivandrum @RGCB_Trivandrum · Dec 6
Dr. E.V Soniya, Scientist G @RGCB_Trivandrum has been selected by the @DBTIndia Government of India for the National Woman Bioscientist Award. Congratulations! @drharshvardhan @RenuSwarup


CCMB @ccmb_csir · Nov 27
Our 32 Foundation Day went lovely with Prof Vikram Patel as he spoke and held us all on how #mentalhealth is impacting the #adolescents and youth of India. Such a lovely example of how he and his team tie research and impact at #grassroots @SangathIndia
Mental health issues should be destigmatised, says Harvard professor
Social media has a pernicious influence on impressionable minds, says Dr Vikram Patel
thehindu.com


Alok Dhawan @Alok_Dhawan · Nov 25
My talk at the inauguration of the TEDx Lucknow Chapter
http://youtu.be/KpfpjrB4UQ
@VijyanPrasar @BBCWorld @BillGates @CSIR_IND @CSIR_IITR @anilgb @PrinSciAdvOff
YOUTUBE.COM
Supporting Risk in Science: Emergence of Nanotoxicology in India | Dr. Alok Dhawan | TED...

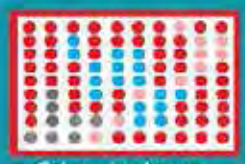

Ministry of Health @MoHFW_INDIA · Dec 15
Who says being a quitter is a bad thing? Quit Smoking, It Kills!
#SwasthaBharat #HealthForAll #vaping #ecigarettes
@PMOIndia @drharshvardhan @AshwiniChoubey @PIB_India @NITIAayog
QUIT SMOKING
DON'T LET IT CRUSH YOUR LIFE.


Invest India - Sweden @InvestIndiaSWE · Dec 15
#Didyouknow - India exports vaccines to 150+ countries. India's vaccine market is valued at approx. USD 3 Bn, of which, two-thirds is exported. Learn more about this lucrative market at bit.ly/It-Biotech #Biotechnology
@BIRAC_2012 @IndiainSweden @SwedeninMumbai @AnnLinde
INVEST INDIA
USD 8-12 Bn
Projected size of India's vaccine market by 2025

Transchymal™ Primary cell solutions
Certificate of Analysis

Name:	
Source	Human Cord Tissue Matrix
Trade Name:	Transchymal™
ID:	Transchymal-CTMSC-134/R
Cells Harvested Date	
Passage No:	
Biosafety Level	1
Organism	Homo sapiens (Human)
Growth properties:	Adherent
Age:	Lot Specific
Morphology	Spindle-Shaped, fibroblast-like
Gender	Lot Specific
Volume/Vial:	5ml (2.3 million cells / 1ml)
No: of Vials	As required
Viability	≥92%
Population Doubling Capacity:	≥ 10 in complete growth medium and support differentiation
Shipped	Frozen
Storage	Liquid nitrogen or for short term storage at -80°C
Quality Assurance:	
Testing	Tested for CD73, CD90, CD105, CD34, and CD45. Primary cells display normal karyotype as assessed by G-banding of 20 metaphase cells.
Sterility Tests	Bacteria & Yeast : Negative Mycoplasma: Negative Endotoxin: Negative

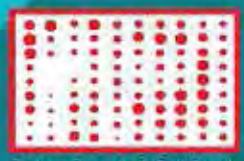
Transchymal + Test compound



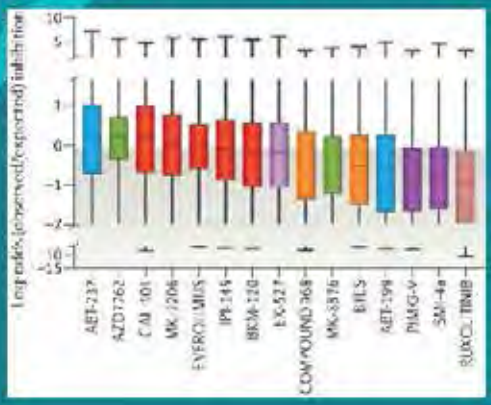
Colorimetric Assays

Turbidity Measurements

Cell Marker Expression



Colony Growth & Cell Death



Transchymal Use Case

- Acute Toxicity
- Chronic Toxicity
- Repeat Dose Toxicity
- Ic50
- Carcinogenicity
- Mutagenicity
- Draize Test
- Developmental Toxicity

Plot No. 70A/B, Door No:8293/ 82/ 2,
Sri Venkateswara, Road No 12. Banjara Hills,
MLA Colony, Hyderabad, Telangana 500034

Visit our website for more information: http://transcellbio.science

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in collaboration with

ICAR- NAARM

Organizes

89th Annual Session of NASI and Symposium

on

Science and Technology based Entrepreneurship Development

21-23 December 2019

Venue

ICAR-National Academy of Agricultural Research Management (NAARM)

Rajendranagar, Hyderabad

INTERNATIONAL CONFERENCE OF CARDIOVASCULAR SCIENCES-2020 (ICCS-2020)

Incorporating Annual Conferences of International Academy of Cardiovascular Sciences (IACS)-India Section & International Society of Heart Research (ISHR)-India Section

(February 21–23, 2020)

THEME

Convergence of Clinicians and Scientists for Cardiovascular Health

CO-SPONSORS

All India Institute of Medical Sciences (AIIMS), New Delhi, India
Society for Promotion and Research in Cardiovascular Sciences (SPARCS),
Academy of Cardiovascular Sciences (ACS)

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Off. Registrar & Dean, DPSRU

ORGANIZING SECRETARY
Prof. Nitish Naik
Department of Cardiology, AIIMS

CHAIRPERSON, LOC
Prof. Ramesh K. Goyal
Vice Chancellor, DPSRU

CHAIRPERSON, LOC
Prof. Vinay Kumar Bahl
Dean, AIIMS

VENUE

DELHI PHARMACEUTICAL SCIENCES AND RESEARCH UNIVERSITY

M.B. Road, Pushp Vihar Sector-III, Opp. Sainik Farm, New Delhi – 110 017, India
E-mail: iccsdelhi2020@gmail.com

MMT 2020

Workshop on Molecular and Microbial Techniques

January 22-24, 2020

Workshop Highlights

Hands on training to the participants in

Molecular detection of pathogen using Loop mediated isothermal amplification | Different visuvalization methods of LAMP products

Protein expression analysis in microbial sources | Chromatographic purification of protein | Enzyme kinetic analysis

Talks from industrial experts

Registration fee : Rs. 2000

Who can participate?
B.Tech, MSc, MTech in Lifescience

Registration @
https://tinyurl.com/yxpq5zwb
Last Date : 31 December 2019

Contact us
mmtsrm2020@gmail.com

Convenors: Dr. P. Rathinasabapathi, Assistant Professor
Dr. E.Selvarajan, Research Assistant Professor

Department of Genetic Engineering
SRM Institute of Science and Technology,
Kattakulathur, Chennai

SRM
INSTITUTE OF SCIENCE & TECHNOLOGY

INTERNATIONAL CONFERENCE ON

ADVANCES IN BIOCHEMISTRY, BIOTECHNOLOGY AND BIOMEDICINE

8-9 February 2020 | New Delhi, India

ORGANIZED BY

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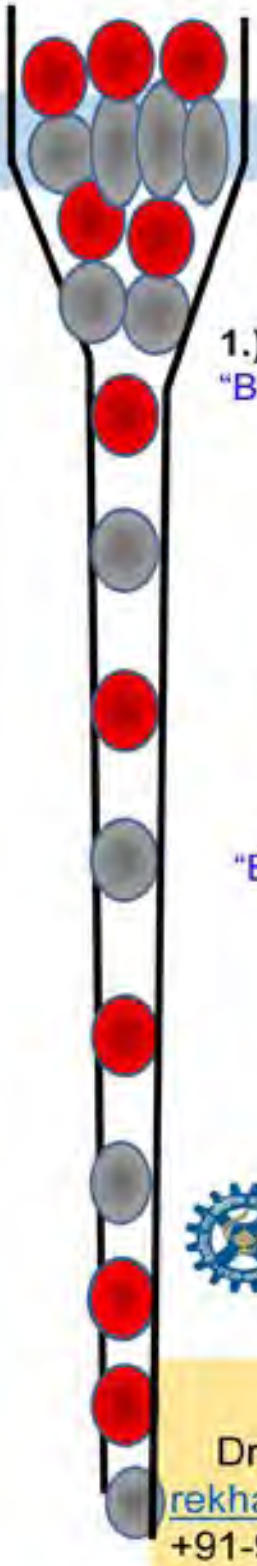
21st INDO-US Flow Cytometry Workshops

(Building Cytometry Community Since 2002)

Organized by

Live Education Task Force (LETF),
International Society for Advancement of Cytometry (ISAC),
Trust for Education and Training in Cytometry (TETC)

27th January - 7th Febuary, 2020



VENUES

1.) CSIR-National Institute of Oceanography (CSIR-NIO), Goa
"Basics of Flow Cytometry and its Applications in Oceanography"
(27th-28th Jan, 2020)

2.) M.S. Ramaiah Medical College, Bengaluru
"Clinical Applications of Flow cytometry"
(29th- 30th Jan, 2020)

3.) Panjab University, Chandigarh
"Flow Cytometry Applications in Biomedical Research"
(2nd- 5th Feb, 2020)

4.) Eternal University, Himachal Pradesh
"Basics of Flow Cytometry and its Applications in Plant Biology"
(6th- 7th Feb, 2020)

TETC
Trust for Education and Training in Cytometry

ISAC
INTERNATIONAL SOCIETY FOR ADVANCEMENT OF CYTOMETRY

National Institute of Oceanography, Goa

RAMAIAH Medical College

Panjab University

Eternal University

Contact Details

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+91-9284999738

Dr. Hemant Agrawal
flowsols@gmail.com
+91-7665130114

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NOTICES

RCB PhD (Int) Degree Program 2020 Admissions (MSc-PhD in Biotechnology)

REGIONAL CENTRE FOR BIOTECHNOLOGY

FELLOWSHIPS The Indian and Foreign students admitted to the program shall receive the RCBRamachandran-DBT fellowship Rs. 16000 per month for the first 2 years of the program, after which the Indian students shall be required to qualify for the junior/senior research fellowships offered by CSIR, ICMR, DBT, or other such funding agencies. The performance of the foreign students, after completion of their MSc component of the program, shall be evaluated by the Student Advisory Committee and based on its positive recommendation the student shall be awarded the RCB-DBT International Doctoral fellowship equivalent to the fellowships offered to Indian studentsfrom different funding agencies as per the relevant DST guidelines. Currently, the amount of the Junior Research Fellowship is Rs. 31000 per month and it is Rs. 35000 per month for the Senior Research Fellowship.

DURATION OF THE PROGRAM The duration of the PhD (Integrated) Degree Program is a minimum of 5 years and a maximum of 7 years.

APPLICATION PROCEDURE Eligible candidates may apply online for admission to the PhD (Integrated) Degree Program of the Regional Centre for Biotechnology. The application fee of Rs. 500 may be paid online. The SC, ST, PWD, Women candidates and foreign students are exempted from payment of the application fee.

ONLINE PAYMENT The last date of registration for PhD (Integrated) Degree Program at RCB is 29 February, 2020 for the Indian Students and 30 March, 2020 for the Foreign Students.

FOR DETAILS ON JGEEBILS https://www.ncbs.res.in/academic/admissions-JGEEBILS

CONTACT DETAILS FOR QUERIES Phone: +91-129-2848800, Email: registrar@rcb.res.in

INSTITUTE OF LIFE SCIENCES

(An Autonomous Institute under the Dept. of Biotechnology
Ministry of Science & Technology, Govt. of India)
Nalco Square,
Bhubaneswar 751023

ILS Bhubaneswar PhD Admissions 2020

Institute of Life Sciences (ILS), Bhubaneswar, an autonomous Institute of the Department of Biotechnology, Ministry of Science & Technology, Government of India engaged in advanced research invites applications from Indian nationals for Ph.D. programs in the following research areas:

1. Cancer Biology
2. Infectious Disease Biology
3. Plant Biotechnology
4. Human Genetics

The applicants are strongly encouraged to visit ILS webpage for detailed information regarding the research activities of the respective faculties.

Application Fees: Applicants except SC/ST/ Physically handicapped are required to send a non-refundable D.D. for Rs.500/- in favour of "Director, Institute of Life Sciences, Bhubaneswar" payable at Bhubaneswar along with duly filled-in application form by the date mentioned below, for each research area.

Fellowship: The fellowship and other emoluments will be as per the guidelines of the funding agencies - SERB/DST/DBT/CSIR/ICMR and as revised from time to time.

To and fro bus/rail fare by the shortest route limited to second class sleeper will be paid to all the candidates appearing for the interview.

List of candidates selected for the interview will be published in the Institute website (www.ils.res.in).

Application to ILS-Ph.D. program does not automatically guarantee that a candidate will be shortlisted for interview. Director, ILS reserves the right to withdraw the procedure without assigning any reasons thereof.

Important dates:

- Last date of receiving applications: 31st December, 2019.
- Date of display of short-listed candidates and instructions in the Institute website: 10th January, 2020.
- Tentative date of interview: 2 nd week of February, 2020.

Interested and eligible candidates may fill-up the prescribed application form as available in ILS website (www.ils.res.in).

GOVERNMENT OF INDIA
DEPARTMENT OF BIOTECHNOLOGY
MINISTRY OF SCIENCE & TECHNOLOGY

TATA INNOVATION FELLOWSHIP: 2019-20

Applications are invited for **"Tata Innovation Fellowship"**, a highly competitive scheme instituted by the Department of Biotechnology, Ministry of Science & Technology, Govt. of India to recognize and reward scientists with outstanding track record in Biological sciences/Biotechnology to find innovative solutions to major problems in health care, agriculture, environment and other allied areas related to life sciences and biotechnology.

ELIGIBILITY

i) The fellowship is open to Indian Nationals residing in India who are below the **age of 55 years** as 31-12-2019.The fellowship is co-terminus with the superannuation of fellow in his/her organization.

ii) The applicant should possess a Ph.D degree in Life Sciences, Agriculture, Veterinary Science or a Master's degree in Medical Sciences, Engineering or an equivalent degree in Biotechnology/ related areas. The applicant must have outstanding contribution and publication in the specific area.

iii) The candidate must have a regular permanent position in a University/Institute/Organization and should be engaged in research and development. If he/she is availing any other fellowship, he/she will have to opt for only one of the fellowships.

iv) The applicant should have spent at least 5 years in India before applying for the fellowship.

v) Evidence of outstanding track record and a deep commitment to find innovative solutions to major problems in health care, agriculture and other areas related to life sciences and biotechnology.

NATURE OF SUPPORT

i) The amount of the fellowship is **Rs. 25,000/- per month** in addition to regular salary from the host institute. If an awardee is receiving salary from an international organization, he/she will be entitled for research grant i.e. contingency only.

ii) In addition, each Fellow will receive a contingency grant of **Rs. 6.00 lakh per annum** for meeting the expenses on consumables, equipment, international and domestic travel, manpower and other contingent expenditure to be incurred in connection with the implementation of ongoing research project under the fellowship.

NUMBER: Five per year.

HOW TO APPLY:

For application format and submission details, please visit DBT website (http://www.dbtindia.gov.in) **Application (2 hard copies)** duly forwarded by the competent authority of host Institute should be sent to *Dr. Kakali Dey Dasgupta, Scientist "É", Department of Biotechnology, Ministry of Science & Technology, Room No.729, 7th Floor, Block-2, CGO Complex, Lodhi Road, New Delhi -110003,* **not later than December 31, 2019**. **Soft copy** of application in the prescribed proforma should be **mandatorily submitted online** through DBT ePromis portal (url: http://www.dbtepromis.gov.in or http://www.dbtepromis.nic.in) on or before **31st December, 2019**.

…….

Indian Institute of Technology Roorkee
Roorkee 247667 Uttarakhand

ADVERTISEMENT FOR FACULTY POSITIONS

Advt. No. IITR/Establishment/2019/02 December 04, 2019

Indian Institute of Technology Roorkee invites applications from Indian Nationals (foreign nationals can be appointed on renewable contract of five years) with outstanding track record for faculty positions at the levels of Professor, Associate Professor and Assistant Professor in the Biotechnology and 24 other disciplines:

Recruitment policies for IITs, as stipulated by the Government of India from time to time, will be applicable. To apply online please click the link below : www.iitr.ac.in/administration/pages/Openings+Faculty.html

Last Date for Applying for Professor and Associate Professor is midnight of January 15, 2020 and for Assistant Professor there is no last date and applications are welcome throughout the year.

More Info: www.iitr.ac.in/administration/uploads/File/recruitment/2019/Advertisement%20for%20faculty%20positions(04122019).pdf

Central University of Himachal Pradesh

Camp Office, Near HPCA Cricket Stadium, Dharamshala, District Kangra (HP)-176215

EMPLOYMENT NOTICE APPOINTMENT TO VARIOUS TEACHING POSITIONS

Online applications are invited from the eligible Indian citizens for the following Teaching positions to be filled up on Regular basis in School of Life Sciences:

Computational Biology and Bioinformatics 1 (ST) 1 (EWS)
Animal Sciences (Zoology) 1 (OBC) 1 (OBC)
Plant Sciences (Botany) 1 (SC) 2 (SC-1, UR-1)

Last Date of receipt of applications: 31.12.2019.

More Info: http://cuhimachal.ac.in/download/2019/job/nov-2019/Employment%20Notice%20(New)_28.11.2019.pdf

SERB DIA

CII
Confederation of Indian Industry

PUBLIC PRIVATE PARTNERSHIP IN

PRIME MINISTER'S FELLOWSHIP FOR DOCTORAL RESEARCH

A Joint Initiative of
Science & Engineering Research Board (SERB), Department of Science and Technology, Government of India and Confederation of Indian Industry (CII)

Scholarship of up to ₹75,000/- per month co-funded by SERB and industry for industry-relevant / sponsored research by full-time PhD Scholars in the areas of Science, Technology, Engineering, Agriculture & Medicine

145 Fellowships Awarded

₹7.5 cr+ SERB Contribution

₹7.5 cr+ Industry Contribution

60+ Institutional Partners

120+ Industry Sponsors

19 Awards to PM Fellows

5 Patents Filed

Companies Currently Supporting the Fellowship Through CII

Abellon Clean Energy | Abhay Nutrition | Arche Biologics | Aurobindo Pharma | Autosys Engineering
Bannari Amman Sugars | Beauscape Farms | Bharat Forge | Bhat Bio - Tech | Cadila Pharmaceuticals
Chemical Resources (CHERESO) | Chimique | Core Diagnostics | Eaton Corporation | Envian Engineers
EON Electric | Evolva | Forbes Marshall | Garment Wash Effectzs | GE India Technology Centre | General Mills India
Godrej & Boyce | Google India | Hindustan Petroleum Corporation Ltd. | Hoganas AB | IBIDEN | Infosys
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Nova Surface Care Centre | Nuziveedu Seeds | Ozone Research and Application India | Paragon Industries
Persistent Systems | Petrotech | PI Industries | Piramal Enterprises | Prathista Industries | Procter & Gamble
Robert Bosch Engineering and Business Solutions | Rohde & Schwarz India | Sahajanand Medical Technologies
Sampurn Agri Ventures | Shell India | Simco Global Technology & Systems
Skymax Research and Regulations | Skymet Weather Services | Solar Agrotech | Sree Akzya Dyeing
Strand Life Sciences | Suyog Infraspaces | Talga Resources | Tata Chemicals | Tata Steel | The Punjab State Cooperative Milk Producers Fed (Milkfed Punjab) | Thermax | United Phosphorus | Vaata Smart
Varsha Bioscience and Technology | Verdenta Hybrid Seeds | Zim Laboratories

To Apply Log On To www.primeministerfellowshipscheme.in

Shalini S. Sharma - shalini.sharma@cii.in | **Neha Gupta** - neha.gupta@cii.in | **Ravi Hira** - pm.scheme@cii.in

Government of India
Ministry of Science and Technology
Department of Science and Technology

CALL FOR APPLICATIONS

DST-SCIENCE, TECHNOLOGY AND INNOVATION POLICY FELLOWSHIP PROGRAMME (DST-STI-PFP 2019)

This fellowship programme provides opportunity for scientists, technologists, engineers and social scientists to develop skills and contribute to STI policy making process at various stages in government, academia and industry. Acknowledging the demand and interest, this year's DST-STI-PFP call is expanded in thematic scope and reach.

Thematic Scope

- **R&D Policy and Ecosystem**
- **STI Indicators and Metrics**
- **Technology Studies**
- **Tech-led Innovation**
- **Industry -Academia Interaction**
- **Industrial R&D**
- **Tech-led Entrepreneurship**
- **S&T and Society Studies**
- **International S&T Engagements**

Hosting & Placement

Selected fellows will be hosted at one of the DST-CPRs or identified active policy group; with provision to be placed at identified S&T agencies (based on mutual consent and selection committee's approval).

Fellowship Tracks

Three fellowship tracks designed for two years with a possible extension of one more year

1. Senior Policy Fellow

- **Eligibility: PhD with 3 years of policy experience**
- **Age Limit: 42 years.**

2. Postdoctoral Policy Fellow

- **Eligibility: PhD**
- **Age Limit: 40 years.**

3. Young Policy Professional

- **Eligibility: Masters' Degree**
- **Age Limit: 30 years.**

In all three tracks, age relaxation of 3 (three) years will be given to candidates belonging to SC/ST/OBC/Physically Challenged & Women candidates.

SUBMISSION DEADLINE: 15 January 2020

Checkout more details:- https://dst.gov.in/ | **Queries:** dststipfp@gmail.com

B4
BUILDING BHARAT BOSTON BIOSCIENCES PROGRAM

CALL FOR APPLICATIONS

B4 VISITING SCIENTISTS PROGRAM

2020-2021

Up to 11 Visiting Scientists will be sponsored to pursue research in fields related to the biosciences at Harvard University and other institutions in the Boston area. The Lakshmi Mittal and Family South Asia Institute, Harvard University will organize seminars at Harvard for Visiting Scientists to discuss their research with the broader community at Harvard and beyond.

Visiting Scientists are expected to reside in the Cambridge vicinity and actively participate in the events and intellectual life of the campus. Visiting Scientists will also contribute to the greater Harvard community by teaching, mentoring, or advising students.

ELIGIBILITY

Faculty who are currently employed in an Indian institution and are less than 42 years of age with at least 7 years of work experience by March 31, 2020. Applicants must be Indian citizens and currently residing in India. They must be currently teaching and researching in biosciences or related fields.

Starting Date: April-May 2020

Duration of the Program: 12 months

Stipend: INR 195,000/month

***Apart from the above mentioned stipend, the visiting scientists are expected to receive their salary from the Indian institution that they are employed in, through these 12 months.**

****Health insurance and round-trip economy travel expenses to and from Boston will also be provided as per the policies of the funding agency.**

Apply at: *https://mittalsouthasiainstitute.harvard.edu/b4-programs-visiting-scientists/*

Deadline to Apply: January 15, 2020

Questions? Please email Program Manager, Savitha G Ananth at savitha_ananth@fas.harvard.edu

This program is a collaboration between IBAB (Bengaluru, India), IISER (Pune, India) & The Lakshmi Mittal and Family South Asia Institute (Harvard University, Cambridge, USA) and is funded by the Department of Biotechnology, Government of India.

Department of Biotechnology, Government of India

IBAB
Institute of Bioinformatics and Applied Biotechnology

The Lakshmi Mittal and Family SOUTH ASIA INSTITUTE HARVARD UNIVERSITY

IISER PUNE

IISc-Raman Postdoc Fellowships 2020 in Biological Sciences

The Indian Institute of Science (IISc) has been recognised as an Institution of Eminence (IoE) by the Government of India. As a part of the IoE initiative, IISc has created the Raman Post-Doc Program, a highly selective Post-Doc program with 50 positions. The Institute invites applications for intensely motivated individuals with an established record of high quality research, for the positions of Raman Post-Docs. Overseas Citizens of India (OCI), Persons of Indian Origin (PIO), and foreign nationals are also eligible to apply.

This is a rolling advertisement and candidates can apply any time during the year. The applications will be reviewed every four months around the following dates: April 30, August 31, December 31.

Candidates will be informed whether they are shortlisted for an interview within two weeks after review. The interview will be held within a month after the above application deadlines, and candidates will be informed of the interview result, within 45 days of the application deadline. A candidate applies for a specific Department or Centre at the Institute. The following are the Departments and Centres within the Biological Sciences Division to which the candidates may apply. Departments/Centres: Biochemistry; Centre for Ecological Sciences; Centre for Neuroscience; Microbiology and Cell Biology; Molecular Biophysics Unit; Molecular Reproduction, Development and Genetics.

Further details about the various departments and interdisciplinary centres, faculty profiles, academic programs, and areas of research are available at the departmental websites and also at (www.iisc.ac.in).

How to Apply:

Candidates must first contact a faculty member in the Institute who is willing to host the candidate. A consent letter or consent email is required from the faculty member as a part of the application package. Candidates should apply using the fillable PDF form. The following documents are required along with the application.

(A) Curriculum Vitae with a list of all publications
(B) PDF files of at least two and up to five important publications
(C) Proposed research plan (up to 500 words)
(D) Consent letter or email from faculty member. Please get in touch with the faculty member offline and obtain the consent of the faculty member for hosting you
(E) Any other relevant information the applicant may like to furnish

The filled-out PDF form must be saved as a PDF file, and a single PDF file needs to be made along with the required documents. This single PDF file must be emailed to the email address: raman.bio@iisc.ac.in a copy to the Faculty member who is willing to host the candidate.

For any further information or queries on the application, please contact raman.bio@iisc.ac.in

Government of India ***Government of India***
Ministry of Science & Technology ***Ministry of AYUSH***
Department of Biotechnology ***National Medicinal Plants Board***

Joint Call for R&D Proposals on Biotech interventions in medicinalplants

Department of Biotechnology (DBT), Ministry of Science & Technology, Govt. of India and National Medicinal Plants Board (NMPB), Ministry of AYUSH, Govt. of India have entered into a Memorandum of Understanding (MoU) for mutual collaboration to explore the possibility of cooperation, convergence and synergy and to have a platform for exchange of information between both the organizations and to have a biotechnological intervention in AYUSH sector.The priority medicinalplant species identified include*Embeliaribes, Saracaasoca, Sidacordifolia, Boswellia serrata, Commiphorawightii, Urariapicta, Desmodiumgangeticum, Nordostachysjatamansi, Bacopa monnieri and Withaniasomnifera*for support for carrying out R&D activities on various aspects of medicinal plants. With an aim of making sustainable availability and use of medicinal plants, both the organizations propose to support R&D proposals in the following thrust areas:

1. Finding substitutes and sustainable alternative plant parts for Rare, Endangered and Threatened (RET) medicinal plant species.
2. Development of bio-actives and marker compounds for authentication of raw medicinal plant materials.
3. Elite identification, development of propagation techniques and conservation.
4. Varietal development and establishment of quality standards in respect of norms related to toxicity and heavy metal content to increase acceptability of botanicals in the international market.
5. Non-destructive methods and sustainable harvesting for priority species such as*Commiphorawightii*.
6. Value addition and technology development through biotechnology tools for priority species such as *Bacopa monnieri and Withaniasomnifera.*
7. Ecological Niche modeling on RET medicinal plants species.

Eligibility: Applications may be submitted by public and private universities, colleges, institutes, non-profit organizations (recognized by DSIR as a Scientific and Industrial Research Organization (SIRO)), with demonstrated expertise, track record and infrastructure.

Norms of Assistance: The fundingof selected R&D proposals will be made by DBT and NMPB following their own existing norms.

How to apply: Applications should full proposals on or before the deadline through DBT eProMIS portal (https://dbtepromis.nic.in) and submit two hard copies toDr. Manoj K. Modi, Scientist 'E', Department of Biotechnology, Block III (5th Floor), CGO Complex, Lodhi Road, New Delhi – 110003 and email the softcopy to manoj.modi@nic.in. The link to submit the proposal can be accessed by registering and logging in as PI in DBT eProMIS portal.

The deadline for submission of full proposal is 31stJanuary, 2020.

For any query, contact Dr. Manoj K. Modi, Scientist 'E', DBT; email: manoj.modi@nic.in.

Notice

Government of India
Ministry of Science and Technology

DEPARTMENT OF BIOTECHNOLOGY

Call for R &D Proposals on "Geriatric Nutrition"

Rationale: The elderly population is rising rapidly in India and is estimated to be over 10% of the total population. The process of ageing is associated with many changes in the body such as poor dentition, loss of appetite and taste, reduced digestive capabilities, lower immunity levels, altered body composition, reduced bone strength, frailty, loss of muscle mass, along with the incidence of chronic disease. With the aim of improving the nutrition and health of the elderly population in the country, the Department of Biotechnology proposes to support R&D proposals in the following research priority areas in the elderly:

1. Characterization, Identifying Biomarkers, Role of nutrition, evaluating Interventions in:
   a) Sarcopenia & Frailty
   b) Cognitive Decline
   c) Anemia
   d) Osteopenia and Osteoporosis
   e) Immunosenescence
   f) Ophthalmic disorders
2. Estimating Recommended Dietary Allowances of macronutrients (energy, protein) and micronutrients (iron, calcium, folate, vitamin D and vitamin B_{12} etc) in elderly.
3. Measurement of Energy expenditure in elderly
4. Measurement of Body composition in elderly.
5. Operational research to formulate and implement food security programs in the elderly from the underprivileged section.
6. Identifying factors (medical, physiological, social, psychological) contributing to poor nutrition in Elderly.

Eligibility: Applications may be submitted by public and private universities, colleges, Institutes, non-profit organizations (recognized by DSIR as a Scientific and Industrial Research Organization (SIRO)). Development of interdisciplinary collaborative research team with involvement of experts from relevant fields is encouoraged.

How to apply: Applicants should submit full proposal on or before the deadline through DBT Epromis portal and submit two hard copies to **Dr. Balendra Singh,** Scientist-C, Department of Biotechnology, Block- 3, Room No.525B, 5th floor, CGO Complex, Lodhi Road, New Delhi – 110003 and email the soft copy to email: vk.addanki@nic.in. The link to submit proposal can be accessed by registering and logging in as P.I in portal: https://dbtepromis.nic.in

The deadline for submission of full proposal is 26th December 2019

For any queries, contact Dr. Balendra Singh, Scientist-C, Email- balendra.singh@dbt.nic.in /Dr. A.Vamsi Krishna, Scientist-E, Email- vk.addanki@nic.in

Biotechnology Industry Research Assistance Council
(A Govt. of India Enterprise)

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