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IIT Delhi replaces IISc Bangalore as highest-ranked Indian institute in QS world university rankings

https://scroll.in/latest/840023/iit-delhi-replaces-iisc-bangalore-as-highest-ranked-indian-institute-in-qs-world-university-rankings

This is also the first time in 14 years that India has three institutes in the top 200 list, with IIT-Bombay being the new entrant.

The Indian Institute of Technology-Delhi has replaced Indian Institute of Science, Bangalore, for the first time as the highest-ranked Indian university in Quacquarelli Symonds World University Rankings 2018. Also, this is the first time in 14 years India has three institutes in the top 200 list, with IIT-Bombay being the new entrant.

Quacquarelli Symonds World University Rankings 2018 upgraded the Delhi institute's rankings from 172nd position to 159, while IISc dropped from 152 to 190. IIT-Bombay rose 40 spots to enter the top-200 club. The Bengaluru institute has dropped in its rankings for the second year in a row.

"This year's results indicate that India is home to three of the world's top 200 universities for the first time since QS's inaugural rankings in 2004. Furthermore, IIT Delhi replaces IISc Bangalore as India's highest-ranked university for the first time since both universities were ranked together," *Mint* quoted an email from the ranking agency.

The Massachusetts Institute of Technology topped the list for the sixth consecutive year, followed by Stanford University and Harvard University, which have retained their positions for two years. The United Kingdom-based ranking agency ranked the California Institute of Technology and University of Cambridge in fourth and fifth position.

Delhi scientists decode how malaria parasites multiply

http://www.ptinews.com/news/8849249_Delhi-scientists-decode-how-malaria-parasites-multiply.html

New Delhi, Jul 2 (PTI) For the first time, scientists have found how malaria parasites multiply rapidly, an advance that may help develop new drugs to combat the deadly disease that affects millions of people globally.

Malaria parasites are transmitted to people through the bites of infected female Anopheles mosquitoes, which infuse the parasite called Plasmodium into humans.

Until now, the mechanism and sites from where DNA replication is initiated, as well as the proteins involved in the process, have been a grey area for scientists.

"During each cycle of multiplication, the genome of the parasite is duplicated through DNA replication. This process of replication begins from some specific sites along the genome, known as origin of replication (OriC)," said Suman Kumar Dhar, Professor at the Special Centre for Molecular Medicine, Jawaharlal Nehru University (JNU) in New Delhi.

"Bacterial genomes usually have only one OriC in their genome, but higher organisms such as humans can have multiple such origin sites. Identifying these origin sites in a given genome is a very difficult task," Dhar told PTI.

In a six-year-long study using computational tools and experimental validation, researchers including Assistant Professor Kushal Shah from the Department of Electrical Engineering, Indian Institute of Technology (IIT) Delhi, found that the parasites replicate from multiple sites in the genome which have similar signature motifs found in yeast.

"The frequency of occurrence of these motifs as potential origins in parasite genome is more than that in higher organism genomes, which means that the parasites will multiply very fast at a given time," Dhar said.

The proteins that are involved in this process have also been found, he added.

It can be understood that by inhibiting the function of these proteins and their binding to these replication sites, parasite growth can be stopped.

"Understanding the process of multiplication will lead to finding new drug targets to combat the disease which is burdened by resistance against conventional drugs including the wonder drug Artemisinin, the discovery of which fetched the Nobel prize last year," Dhar said.

The research team also included Assistant professor Annangarachari Krishnamachari, and research students Meetu Agarwal and Kishanu Bhowmick from JNU.

Malaria remains endemic in India with approximately 14 per cent of the population, or 184 million people, at high risk of malaria transmission, according to a World Health Organization (WHO) report.

About 70 per cent of malaria cases reported from the South East Asia Region (SEAR) are from India, where the number of cases and deaths due to the vector-borne disease in 2014 saw an increase as compared to 2012.

In 2015, the global tally of malaria reached 429,000 malaria deaths and 212 million new cases. One child died from malaria every 2 minutes, according to a WHO report.

These findings were published in the FEBS Journal.

July 2

Celebrated IIT professor H.C. Verma retires, social media reacts

http://www.business-standard.com/article/news-ani/celebrated-iit-professor-h-c-verma-retires-social-media-reacts-117070200088_1.html

H.C. Verma, the one name that survived Science students in their toughest times.

Dr. H.C. Verma, who joined IIT Kanpur as an assistant professor in 1994, took to Twitter to announce his retirement to the world.

"Finally locked my IITK lab and submitted the keys to office. End of 38 years of formal teaching and research," he tweeted.

At IIT Kanpur, he, apart from authoring books on 'Quantum Physics,' taught several courses and guided doctorate students, besides doing some commendable research in Nuclear Physics.

The two-volume book "Concepts of Physics" remains to be Dr. Verma's most celebrated work till date.

Soon after Dr. Verma announced his retirement, his students at the institute and the nation across, took to Twitter to show grief and gratitude, at the same time, to the physicist.

One Twitter user wrote, "No One, Not Even Newton Or Einstein, could have solved all HC Verma problems in one go!" while another tweeted, "End of an era. still remember 'concept of physics'. hallmark of clarity, simplicity and enormous power #HCVerma"

Satish Bharadwaj, IGP PAC Central Zone Lucknow, Bachelor of Engineering in Computer Science, also tweeted, "You will be remembered and missed by many. Physics could not be explained better than the way you taught.

Real prosperity comes through innovation: Prakash Javadekar

http://timesofindia.indiatimes.com/city/bengaluru/real-prosperity-comes-through-innovation-prakash-javadekar/articleshow/59406836.cms

BENGALURU: If the legacies of Nalanda and Takshashila had continued, by now India would have been on top in terms of education, Union minister Prakash Javadekar told students at the Indian Institute of Science (IISc) on Saturday.

Javadekar was at the premier institution on a follow-up visit to CeNSE (Centre for Nano Science and Engineering), set up in 2010.CeNSE students enthralled the minister with several innovative projects, including portable and affordable lab-on-a-chip devices and LED lights used for water purification, among others.

"Real prosperity comes through innovation," he said. "In the next two decades, nanotechnology, internet of things (IOT) and related fields will become key areas for research in the country."

"The only area for improvement is to expand further. Institutions like IISc are truly promoting the Make in India initiative. We are already in the process of setting up 20 world-class institutions, and the interaction with CeNSE students has given much-needed confidence to us," the minister said.

DRDO chief calls for indigenous production of Li-ion batteries

http://www.thehansindia.com/posts/index/Andhra-Pradesh/2017-07-02/DRDO-chief-calls-for-indigenous-production-of-Li-ion-batteries-/309748

DRDO Chairman Dr S Christopher addressing a workshop at NSTL in Visakhapatnam on Saturday

Visakhapatnam: Science and Technological Laboratory (NSTL), Visakhapatnam, organised a one-day national workshop on 'Indigenous Li-ion Batteries for Special Applications' on Saturday in the city.

Inaugurating the workshop, decretary, Defence Research and Developmen and Chairman DRDO S Christopher commended the organisers for facilitating discussion on a very relevant topic related to energy and called for innovation in the vital area of research.

He expressed confidence that the workshop would generate a roadmap towards building a strong manufacturing base for Li-ion batteries in the country in line with the vision of Prime Minister Narendra Modi under the ‘Make in India’ programme.
He exhorted the delegates and the industry, Research and Development labs and academia to synergise their efforts to foster indigenous manufacturing of lithium ion batteries.

Speaking on the occasion, Director General (Naval Systems and Materials), DRDO Samir V Kamat said that the workshop was both timely and apt to discuss on the way ahead for establishing indigenous production base for lithium ion batteries in the country.

Delivering the welcome address, Director of NSTL OR Nandagopan expressed hope that the workshop would provide an opportunity to scientists of DRDO Labs across the country and participant industries and academia to deliberate on the challenges associated with development of Li-ion battery technologies for underwater applications–specifically for submarines and autonomous underwater vehicles.

Workshop convener and associate director of NSTL A Srinivas Kumar presented details of the workshop. He stated that resource persons of repute would throw light on the vast spectrum of technologies and challenges associated with indigenous lithium-ion battery development.

The Flag Officer Submarines, Eastern Naval Command, Rear Admiral, Vennam Srinivas, in his address highlighted the requirement of Lithium-ion batteries to replace existing lead acid batteries in submarines in order to increase the submerged time and improve operational efficiency. He opined that lithium-ion batteries would become a game-changer in underwater warfare.

Many eminent scientists and researchers from ISRO, DRDO, ARCI, IISc, IITs, CSIR laboratories, Navy, various universities and engineering colleges attended the workshop. An exhibition showcasing the capabilities of industries associated with lithium ion batteries was also organised.

July 1

Prof. P. B. Sharma Takes over as President of Association of Indian Universities

http://indiaeducationdiary.in/prof-p-b-sharma-takes-president-association-indian-universities/

New Delhi: Eminent academician Prof. P B Sharma currently the Vice Chancellor of Amity University Haryana, Gurgaon takes over as President of Association of Indian Universities, (AIU) with effect from 1st July, 2017.

A Former Professor of IIT Delhi, Prof Sharma has been the Founder Vice Chancellor of Delhi Technological University and also Founder Vice-Chancellor of Rajiv Gandhi Technology University, Bhopal. A Champion of Quality of Education, Industry Relevant Research and Innovations, Prof Sharma has contributed immensely to the advancement of frontiers of knowledge in the areas of Aero Engineering Technology, Power Plant Engineering, New and Renewable Energy Resources and Knowledge and Innovation Management.

A doctorate from University of Birmingham UK, Prof Sharma has received many awards and recognitions that (which) include Scroll of Honor and Eminent Engineer's Award 2008 by Institution of Engineers (India) and Lifetime Achievement Award by Institution of Industrial Engineering (India). Prof. Sharma is a Fellow of World Academy of Productivity Sciences, Fellow of Institution of Engineers (India), Fellow of Aeronautical Society of India and also a Fellow of ISTE. He has been the Chairman of Central Counselling Board of MHRD and also an Expert Member of the apex body of the Government of India on education – Central Advisory Board of Education (CABE).

In 2013 Prof Sharma was honored by his alma-mater, University of Birmingham, with the Honorary Degree of Doctor of Engineering in recognition of distinguished achievements.

“We are on the threshold of major reforms in Higher Education. Our focus in AIU shall be to inspire our fellow Vice-Chancellors to recast Indian Universities as global hubs of Academic and Research excellence with strong connect to the society and industry” says Professor Sharma.

India to Set Up 20 World Class Research Institutions: HRD Minister Prakash Javadekar

http://www.ndtv.com/education/india-to-set-up-20-world-class-research-institutions-hrd-minister-prakash-javadekar-1719377

India will set up 20 world class institutions across the country to promote research and innovation, said Union Human Resources Development Minister Prakash Javadekar on Saturday.

BENGALURU: India will set up 20 world class institutions across the country to promote research and innovation, said Union Human Resources Development Minister Prakash Javadekar on Saturday. "The government has decided to establish 20 world class institutions across the country to encourage the young talent do research and promote innovation in science and technology," Mr. Javadekar told students of the Indian Institute of Science (IISc) here.

Asserting that through research and innovation the country could achieve sustainable prosperity, the minister said institutions like the IISc would not face a financial crunch as it would be adequately funded.

"GST (Goods and Services Tax) will enable the government to provide more funds to health, education, research and innovation," reiterated Mr. Javadekar while interacting with the faculty and research scholars of the premier institute.

The new indirect tax regime (GST) came into force from Saturday across the country after President Pranab Mukherjee unveiled it in Parliament at the stroke of midnight.

IISc Director Anurag Kumar and other students were present on the occasion.

IIT Guwahati succeeds in regenerating damaged nerve

http://www.thehindu.com/sci-tech/science/iit-guwahati-succeeds-in-regenerating-damaged-nerve/article19193760.ece

Rats with regenerated sciatic nerve exhibited significantly better walking pattern

Researchers at the Indian Institute of Technology (IIT) Guwahati have taken the first successful step in treating peripheral nerve damage which can result from traumatic injuries caused by accidents, physical conflict, bullet wounds as well as during surgical intervention. The nerve conduits synthesised by the researchers and implanted in rats with sciatic nerve injury showed “excellent” functional recovery one year after implantation. The results were published in the journal *Biomedical Materials.*

A team led by Prof. Utpal Bora from the Department of Biosciences and Bioengineering at IIT Guwahati synthesised nerve conduits by electrospinning a mixture of silk fibroin protein and electrically conductive polymer called polyaniline. To produce tubular shaped nerve conduits, the researchers rolled the electrospun sheets multiple times over a stainless steel spindle.

“In tissue engineering, silk fibroin protein is routinely used as a scaffold. Since silk is not electrically conductive we coated it with polyaniline nanoparticles, which is a good electrical conductor,” says Dr. Suradip Das from the Department of Biosciences and Bioengineering at IIT Guwahati and the first author of the paper; he is currently at the University of Pennsylvania, U.S.

Nerves are like electrical wires where the conducting portion of the nerves is covered with myelin (a fatty white substance) sheath secreted by specialized cells called Schwann cells that forms an insulating layer. To fabricate a conduit that mimics this native architecture, the Schwann cells, which surround the axons, were cultured on the conduits. The Schwann cells were found to grow between the multiple layers of silk fibroin-polyaniline composite, and also on the surface and inside of the conduit.

“The Schwann cells produce myelin sheath which act as biological insulators and play a crucial role in nerve regeneration. Our aim was to seed the conduit with Schwann cells so they initiate the regeneration process when the conduits are implanted in animals,” says Dr. Das.

To test how well the nerve conduit synthesised in the lab helped in nerve regeneration, the researchers removed 10 mm of sciatic nerve from rats and implanted the conduit. The surgical area was reopened after six and 12 months.

Compared with untreated animals where the nerve gap was found to have grown further, the conduits in the treated animals showed no deformation or dislocation. The polyaniline was not toxic to rat Schwann cells when 0.1% of polyaniline was used.

Regenerated neurons

“But most importantly, we found regenerated neurons and Schwann cells inside the conduit. And there was myelin sheath over axons in the regenerated tissue from inside the conduits,” he says. “The conduit helped initiating and enhancing the quality of regeneration across the nerve gap.”

In terms of functional neuro-regeneration, the conduits seeded with Schwann cells exhibited as high as 86% velocity of current propagation through the nerve. The ability of the nerves to control muscle contraction was also found to be good at 80%.

“Nerves when electrically stimulated contract the muscles. We stimulated one end of the conduit electrically and recorded electrical output from the muscle. If there is a gap along the conduit then the signals won’t travel,” Dr. Das explains.

Finally, the electrical property of the muscles that are directly innervated was 70%. “If the nerves don’t reach the muscles then we won’t be able to register muscle electrical activity. If there is good muscle electrical response then it is an indication that the nerve has grown and is able to communicate with the muscles and the muscles are not dead,” he says.

Rats with regenerated sciatic nerve exhibited significantly better walking pattern compared with other groups in the study. “This is proof that our work could restore a lot of the sciatic nerve functions in rats,” Dr. Das says.

From rats to pigs

The next step is to conduct trials on pigs, which are genetically and physiologically closer to humans. “We have plans to undertake trials on pigs to collect more animal data,” says Prof. Bora. But conducting trials on bigger animals might be a challenge in India. “Conducting research on higher animals is proving to be difficult in India,” says Dr. Kushal K. Sarma from the College of Veterinary Science, Khanapara, Guwahati and one of the authors of the paper.

“There is a growing demand for nerve implants with increasing number of road accidents but there are no indigenously developed nerve conduits available in India. We have taken the first step to make locally developed nerve implants available in India,” Prof. Bora says.