

### NEWSPAPER HIGHLIGHT

Stanford School of Medicine researchers set a Guinness world record for the fastest genome sequencing technique when they sequenced in five hours and two minutes the genome of an enrolled patient. Normally, it is considered a rapid technique if the sequenced results are returned within a week.

Skeletal muscles normally brim with energy, yet they starve in the absence of Vitamin D, says recent research led by Aneesh kumar A. G. of National Institute of Immunology, New Delhi. This research demonstrates that glycogen stored in the skeletal muscles is not converted into a usable form of energy without Vitamin D.

Research modelling anorthosites – light rocks that formed early in the Moon’s history – yields a new model for the formation of its crust. This theory proposes that crystals remained suspended in liquid magma for hundreds of millions of years as this ‘slushy ocean’ slowly cooled, froze and solidified. The study is published in Geophysical Research Letters.

Mutations can occur when DNA is damaged and left unrepaired. Sequencing hundreds of Arabidopsis thaliana (a flowering weed) plants in the lab, the scientists came across millions of mutations, which when analysed showed a non-random pattern. The study, published in Nature, showed that patches of genome with low mutations had an overrepresentation of essential genes.

An undersea volcano erupted in spectacular fashion near the Pacific nation of Tonga on Saturday, sending large tsunami waves crashing across the shore and people rushing to higher ground. A tsunami advisory was in effect for Hawaii, Alaska and the U.S. Pacific coast.

In the first export order for the BrahMos supersonic cruise missile system, the Philippines has approved a \$374.96 mn contract for the purchase of shore based antiship variant of the missile from India, while discussions are ongoing with a few other Southeast Asian countries. Secretary of National Defence of Philippines Delfin Lorenzana has signed the ‘Notice of award’ for the purchase.

### INVESTOR EDUCATION AND PROTECTION FUND AUTHORITY

1. Investor Education and Protection Fund Authority (IEPFA) signs MoU with IGNOU for promoting Investor Education and Financial literacy among youth through Gyan Darshan channel. Investor Education and Protection Fund Authority (IEPFA) comes under the aegis of Ministry of Corporate Affairs.
2. IEPFA has been established under Section 125 of the Companies Act 2013 for administration of the IEPF fund as per section 125 (3) of Companies Act 2013.
3. **It was set up with the objective to promote awareness amongst financial investors and educate them about unclaimed benefits of companies transferred** to it under the Companies Act 2013 to the rightful claimants.

### RUMINAL ACIDOSIS

1. Veterinarians say that feeding too much sweet Pongal is not good for cows, and causes Subacute Ruminant Acidosis (SARA). The sugary foods that reach the cow’s stomach get fermented abnormally and cause a health issue in the cows and other ruminant animals called Subacute Ruminant Acidosis (SARA).
2. **In severe cases, it is called Ruminant Acidosis, which is a bovine metabolic disease that affects feedlot as well as dairy cattle. Acidosis is usually associated with the ingestion of large amounts of highly fermentable, carbohydrate-rich feeds, which results in the excessive production and accumulation of acids in the rumen. If too much acid is produced, it may even turn fatal.**
3. Symptoms - Liver abscesses, variable intake and/or milk production. Animals become sick because Ruminant Acidosis destroys millions of microbes, consisting of a variety of protozoa, bacteria and other microbial organisms that reside in their stomach.
4. **These microbes help the cattle digest hay, grass and other feed and enable them to produce the tasty milk.** Treatment - Appropriate treatment will be given based on the cow’s microbe health in the stomach of the animal.
5. But the animal will take days to recover; during the period of recovery, the milk yield will come down drastically. Festival-related Ruminant Acidosis is mostly found in cattle in urban areas where people cross the limit while feeding the animals with sweet.

### SOUTH CHINA SEA

1. The U.S. State Department says that China’s claims in the South China Sea is inconsistent with international law as reflected in the UN Convention on the Law of the Sea 1982. South China Sea is an arm of the western Pacific Ocean that borders the Southeast Asian mainland.
2. **South China Sea is connected by Taiwan Strait with the East China Sea and by Luzon Strait with the Philippine Sea. It is bounded by the Taiwan Strait, Taiwan, the Philippines, Borneo, the Gulf of Thailand, the Malay Peninsula, and the Asian mainland.**
3. South China Sea and East China Sea together form the China Sea. Dispute in the South China Sea go back decades. They involve Brunei, China, Malaysia, the Philippines, Taiwan and Vietnam, all with contesting claims.

### ADVANCED VARIANT OF BRAHMOS

1. An extended range sea-to-sea variant of the BrahMos supersonic cruise missile was test fired from the recently commissioned stealth guided missile destroyer INS Visakhapatnam. BRAHMOS is a universal long range supersonic cruise missile system. It is a joint collaboration between the DRDO (India) and NPOM (Russia).
2. **BRAHMOS has been designed with two variants for Anti-Ship and Land-Attack roles. The range of the missile was originally capped at 290 km as per obligations of the Missile Technology Control Regime (MTCR).** Following India’s entry into the club in 2016, the range would be extended to 450 km and to 600km at a later stage.
3. Variants - BRAHMOS Weapon Systems can be launched from

After a low of 33 days in 2020, Parliament saw only a small improvement in 2021 by functioning for 58 days, keeping the Opposition outcry alive on the reduced number of working days. In 2021, the Assemblies of Gujarat, Maharashtra, Rajasthan, Odisha, Haryana, Punjab, Himachal Pradesh, West Bengal and Uttar Pradesh worked for 11 to 43 days with Punjab lowest in the tally and Odisha at the top. These States have been randomly picked. The Constitution does not prescribe a minimum number of sittings. Article 174 of the Constitution only says that the State legislature has to meet within six months of the last session.

Year 2021 tied with 2018 as the sixth warmest on record, find studies conducted by NASA and National Oceanic and Atmospheric Administration. Global temperatures were 0.85 degrees Celsius warmer in 2021 than the average for the baseline period from 1951 to the present. Earth was about 1.1 degrees Celsius warmer than preindustrial levels.

Two U.S. senators have proposed a law aiming to end China's alleged "chokehold" on rare earth metal supplies, a statement by the lawmakers said on Friday. The law — proposed by Democrat Mark Kelly and Republican Tom Cotton — would aim to ensure the United States can guarantee its supplies of rare earth minerals.

China said it would begin implementing a strategic agreement with Iran, strengthening economic and political cooperation between the two countries as Beijing blasted Washington's sanctions on Tehran. China and Iran signed the agreement last year after years of talks, with the wide ranging partnership set to span areas including energy, security, infrastructure and communications.

U.S. intelligence officials have determined a Russian effort is under way to create a pretext for its troops to further invade Ukraine, and Moscow has already prepositioned operatives to conduct "a false flag operation" in eastern Ukraine, according to the White House.

Reacting to a series of reports and public statements in Nepal criticising Prime Minister Narendra Modi's comments on expansion of the road to Lipulekh, the Indian Embassy in Kathmandu said it has conveyed India's "unambiguous" position to the Nepali government. "The Government of

land, sea, sub-sea and air (Sukhoi-30s) against surface and sea-based targets beyond RADAR horizons. Submarine launched version has capability of being launched from around 50 meters below the water surface.

4. BrahMos equipped Sukhoi-30s have a range of 1,500 kms at a stretch without mid-air refuelling. The system has been inducted and is operational with the Indian Navy (IN) as well as the Indian Army (IA). INS Visakhapatnam is the first of four ingeniously designed and built Project-15B class stealth guided missile destroyers and was commissioned in 2021.

#### **AYUSHMAN BHARAT HEALTH INFRASTRUCTURE MISSION**

1. The scheme aims at strengthening healthcare infrastructure across the country. Its objective is to fill gaps in public health infrastructure, especially in critical care facilities and primary care in both urban and rural areas. Through this, critical care services will be available in all the districts of the country with more than five lakh population through exclusive critical care hospital blocks, while the remaining districts will be covered through referral services. People will have access to a full range of diagnostic services in the public healthcare system through a network of laboratories across the country, and integrated public health labs will be set up in all the districts.

2. Integrated public health labs will also be set up in all districts, giving people access to "a full range of diagnostic services" through a network of laboratories across the country. An IT-enabled disease surveillance system will be established through a network of surveillance laboratories at block, district, regional and national levels. All the public health labs will be connected through the Integrated Health Information Portal, which will be expanded to all states and UTs.

3. Institutions to be set-up under the scheme: Under the scheme, a national institution for one health, four new national institutes for virology, a regional research platform for WHO South East Asia Region, nine biosafety level-III laboratories, and five new regional national centres for disease control will be set up.

4. Benefits and significance of the scheme: **It will provide support for 17,788 rural health and wellness centres in 10 high-focus states. Further, 11,024 urban health and wellness centres** will be established in all the States.

#### **SIR CREEK PACT**

1. Siachen and Sir Creek have long been termed "low hanging fruits" in the past for resolution between India and Pakistan and the two countries have held 13 rounds of Defence Secretary-level talks on Siachen, the last one in June 2012. However, there has been no resolution yet on the issue.

2. Sir Creek is a 96-km strip of water disputed between India and Pakistan in the Rann of Kutch marshlands. Originally named Ban Ganga, Sir Creek is named after a British representative. The Creek opens up in the Arabian Sea and roughly divides the Kutch region of Gujarat from the Sindh Province of Pakistan.

3. The dispute lies in the interpretation of the maritime boundary line between Kutch and Sindh. Before India's independence, the provincial region was a part of the Bombay Presidency of British India. But after India's independence in 1947, Sindh became a part of Pakistan while Kutch remained a part of India. Pakistan claims the entire creek as per paragraphs 9 and 10 of the Bombay Government Resolution of 1914 signed between then the Government of Sindh and Rao Maharaj of Kutch. The resolution, which demarcated the boundaries between the two territories, included the creek as part of Sindh, thus setting the boundary as the eastern flank of the creek popularly known as Green Line.

4. But India claims that the boundary lies mid-channel as depicted in another map drawn in 1925, and implemented by the installation of mid-channel pillars back in 1924. In its support, it cites the Thalweg Doctrine in International Maritime Law, which states that river boundaries between two states may be divided by the mid-channel if the water-body is navigable.

5. Apart from strategic location, Sir Creek's core importance is fishing resources. **Sir Creek is considered to be among the largest fishing grounds in Asia. Another vital reason is the possible presence of great oil and gas concentration under the sea**, which are currently unexploited thanks to the impending deadlock on the issue.

#### **NEW ISRO CHIEF**

1. Somanath was recently appointed the tenth chairman of the Indian Space Research Organisation (ISRO).

**India's position on the India-Nepal boundary is well known, consistent and unambiguous. It has been communicated to the Government of Nepal," said the embassy spokesperson in a statement.**

**The Union Power Ministry o released revised guidelines for charging infrastructure for electric vehicles to enable faster adoption by ensuring safe, reliable and affordable infrastructure. Among other things, the guidelines allow an individual or an entity to set up charging stations without the requirement of a licence provided they meet the technical, safety and performance standards. They allow EV owners to charge their vehicles at their residence or offices using their existing electricity connections.**

**2.**He will assume the charge as the Secretary of the Department of Space and the Chairman, Space Commission, upon the superannuation of K Sivan later this week.