

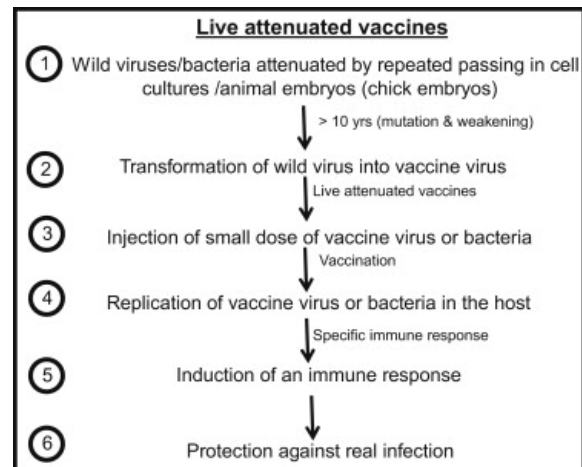
### Varicella (chickenpox)

- It is an acute, highly contagious disease caused by varicella-zoster virus (VZV), a member of the herpesvirus family. Only one serotype of VZV is known, and humans are the only reservoir.
- VZV transmission occurs via droplets, aerosols, or direct contact with respiratory secretions, and almost always produces clinical disease in susceptible individuals. While mostly a mild disorder in childhood, varicella tends to be more severe in adults

### Varicella Vaccines

- Current varicella vaccines are attenuated vaccines based on the Oka VZV strain that has been modified through sequential propagation in different cell cultures.
- The attenuated strain is grown in cell culture, purified and lyophilized.
- Reconstituted vaccine is injected subcutaneously. Varicella vaccine has also been included in a combination vaccine with measles mumps rubella (MMRV).

- A vaccine which contains higher level of the virus has also been developed for the prevention of shingles in the elderly
- Live attenuated vaccines contain a version of the living virus that has been weakened so that it does not cause serious disease in people with healthy immune systems.



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#### Oxygen producing material

- Oxygen producing materials made from meteorites found on Mars have been produced using a robotic artificial intelligence (AI) chemist.
- The research, published in Nature Synthesis, provides a proof of concept for generating oxygen and may have implications for future manned missions to Mars.

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- Potential future manned missions to Mars will require oxygen as it is essential to human activity on the planet, being used in rocket propellants and life support systems.
- One of the ways to make these potential missions more cost-effective in the long term and less complex would be to use resources already present on the planet to create oxygen, rather than transport materials from Earth.
- Recent evidence of water on Mars and analysis of the elemental composition of meteorites found on the planet could provide an opportunity to make catalysts using Martian resources.
- China and others developed a robotic AI chemist that is able to create catalysts that can be used to produce oxygen from Martian materials without human intervention.
- A machine learning based weather forecasting model from Google DeepMind leads to better, faster, and more accessible 10 day weather predictions than existing approaches, according to a new study.
- The model, dubbed “Graph Cast,” outperformed traditional systems in 90% of tested cases.
- It also performed well in predictions related to extreme events, for which it was not directly trained.
- Machine learning based weather prediction (MLWP), which can be trained from historical data, offers an alternative.

### Biosensor for studying neuropeptide

### A new sensor toolkit for studying neuropeptides

- New biosensors have helped reveal the activity of neuropeptides in the brain, researchers report, providing novel tools for studying the release, function, and regulation of these crucial signalling molecules in vivo.
- According to a study, the approach has the potential to address

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### AI powered weather forecasting

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questions regarding neuropeptides and their roles in health and disease.

- In the brain, neuropeptides are signalling molecules in the body that regulate many physiological functions, including digestion, metabolism, and sleep.

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### Mussels

- The same bundle of nonliving filaments that mussels use to anchor themselves within their environment can also be jettisoned on demand.
- Mussels create this quick release interface by way of a neurochemically mediated junction, where billions of motile cilia hold fast to interlinked biopolymer sheets.
- The ability to produce stable and strong connections between living tissues and nonliving surfaces is crucial for a wide range of advanced biomaterials applications.
- Mussel is the common name used for members of several families of bivalve molluscs, from saltwater and freshwater habitats.

- These groups have in common a shell whose outline is elongated and asymmetrical compared with other edible clams, which are often more or less rounded or oval



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### People fleeing Myanmar

- In a spillover of the civil war in Myanmar, more than 1,500 nationals of India's neighbouring country, took refuge in Mizoram's Champhai district early this Monday following a gunfight between the Myanmar Army, and pro democracy militias in the country's western Chin State abutting Mizoram.
- Reports indicate that the attacks on the ruling military junta (or the Tatmadaw) involving the Chin National Army (CNA) and the Chin Defense Force among others led to the capture of two bases the

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Khawmawi and Rihkhawdar military camps by the rebels.

civilian displacements to more than two million since the coup.

### What is the situation in Myanmar?

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- The attacks in Chin State coincidentally followed a major coordinated attack on regime forces by three ethnic armed groups the Myanmar National Democratic Alliance Army (MNDAA), Ta'ang National Liberation Army (TNLA) and the Arakan Army (AA) in Myanmar's north Shan State abutting China.
- The coordinated attacks, termed "Operation 1027" on October 27, by the Three Brotherhood Alliance as the three groups called their collective, led to serious setbacks for the junta's forces in Shan State and brought about a sequence of other rebel attacks including those in the Chin State.
- Scores of military outposts and bases were either abandoned by the junta forces or were captured by the rebels, with the UN stating that 60,000 people in Shan State and 2,00,000 overall in the country have been displaced following the current hostilities taking the total number of