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HERVH

A mechanism that quietly removes unfit cells that don't express a particular gene before an embryo starts to develop is discovered.

- HERVH is a virus-like gene that's important in maintaining pluripotency.
- Human embryonic stem cells express a gene called HERVH.
- HERVH itself is also a transposon but without the ability to jump and plays a protecting role.

  Transposons (jumping genes) are dangerous little pieces of DNA that can insert themselves into different regions of the genome, damaging it and leading to cell death.

- Research shows that the inner cell mass expresses HERVH.
- The non-committed cells does not express HERVH and eventually die and get eliminated out of development.
- HERVH actually protects the cells in the inner cell mass from the damage inflicted by transposons.
- But the non-committed cells which don't express HERVH, are killed off by the uncontrolled transposon activity.

  Inner cell mass is a blob of pluripotent cells that gathers towards one side of the embryo and the other cells arrange themselves around this blob.

References

1. The Hindu - A mechanism that quietly removes unfit cells before you're born

Immersive Reality

A French crime series shows the police using immersive technology to recreate the 3D image of a crime scene.

- Immersive reality creates a new virtual reality by using 360-degree space.
- Immersive reality immerses the user in a new reality using special and sensing technologies and augmented reality.
- Immersive reality technologies uses sensing technologies and spatial computing.
- **Applications -** They find wide range of applications which includes -

    - Virtual fitting rooms
    - Immersive learning experience.
    - Virtual layouts for construction of houses and residential locality.
    - Advertisement and marketing providing interactive ads and better recall value.

Underlying Technologies

- **Extended Reality (XR) -** It is an umbrella term encapsulating Augmented Reality (AR), Virtual Reality (VR), Mixed Reality (MR), and everything in between.
- **Augmented Reality (AR) -** It is the overlay of digital content on the real-world environment.
- It uses different tools to make the real and existing environment better and provides an improved version of reality.
- Examples - Snapchat filters, Pokémon Go
- **Virtual Reality (VR) -** It is a simulated 3D environment that enables users to explore and interact only with the virtual environment.
- The users need to wear devices such as headgears or goggles to interact with the environment.
- **360 VR -** This technology is an interactive and immersive VR that allows the user to be in the middle of a virtually created scene.
- **Mixed Reality (MR) -** It is a mix of virtual reality and augmented reality in which one can interact with the digital as well as the real world simultaneously.
- It integrates digital objects and real-world in such a way that it makes it look like the objects really belong there.
- **Spatial computing** - It allows to use computer graphics, images and other functions in the backdrop of a physical space instead of a computer screen.
- It enables computers to blend in with the physical world in a natural way.



References

1. New Indian Express - Seamless transition from real to virtual

Manual Scavenging

The Ministry of Social Justice said that a total of 530 districts across the country had so far reported themselves to be free of manual scavenging.

- The Ministry have differentiated manual scavenging from hazardous cleaning of sewers in its 2013 and 2018 survey.
- India had seen no deaths due to manual scavenging in the last 5 years.
- 330 people had died while being engaged in cleaning sewers and septic tanks.
- **Zero manual scavenging -** 100% of districts in States like Bihar, Rajasthan, Tamil Nadu and a few others have declared themselves free of manual scavenging.
- **High -** States having highest number of districts still having manual scavenging -
    - Jammu and Kashmir, Manipur, Telangana, Andhra Pradesh, West Bengal, and Jharkhand.
- Only about 15% to 20% of the districts in several States and UTs are manual

scavenging free.

Government Measures

- **App -** *Swachata mobile app* launched in 2016 to report instances of manual scavenging in real time.
- **Scheme -** *NAMASTE scheme* had been launched for mechanisation of sewer work.
- The scheme for rehabilitation of manual scavengers has now been merged with the NAMASTE scheme.
- **Legislation -** Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013.
- **Body -** National Commission for Safai Karamcharis (NCSK) works for the welfare of the safai karamcharis and also monitors the implementation of the Manual Scavengers Act.

References

1. The Hindu - 530 districts reported as free of manual scavenging: Centre
2. The Hindu - Problem of manual scavenging eliminated, claims MoSJ

World Cities Culture Forum

Bengaluru has become the first Indian city to become part of the World Cities Culture Forum (WCCF).

- World Cities Culture Forum (WCCF) was founded in 2012 by Justine Simons OBE, London's Deputy Mayor for Culture & the Creative Industries.
- WCCF is a global network of cities that share research and intelligence, and explore the role of culture in future prosperity.
- The network currently has 40 cities spanning six continents.
- Bengaluru is set to join the league of cities like New York, London, Paris, Tokyo and Dubai among others.
- WCCF will work in collaboration with UnboxingBLR Foundation in Bengaluru.
- **Summit -** The annual world cities culture summit is hosted on a rotating basis by city partners.
- The summit allows city leaders to share ideas and knowledge about the role of culture as an organising principle for the sustainable city of the future.
- **Last Summit -** Helsinki (Capital of Finland) hosted the World Cities Culture Summit 2022.

Bengaluru

- Bengaluru (formerly Bangalore), is a microcosm of the new aspirational India.
- The capital of Karnataka is also known as the Garden city of India.
- It is the fastest growing city in India with its population over 16 million in 2023 (one million in 1950).
- Known as 'Silicon Valley of India' as 35% of India's one million IT professionals are employed in Bengaluru.
- It houses more than 30 government and private museums that showcase the city's rich

history, art and culture.
- India's first interactive music museum opened in 2019.
- South India's first major private art museum, the Museum of Art and Photography (MAP), opened in February 2023.

References

1. The Hindu - Bengaluru becomes first Indian city to join WCCF
2. TOI - Bengaluru: 1st Indian city to be member of culture forum
3. World Cities Culture Forum

Resource Efficiency Circular Economy Industry Coalition (RECEIC)

The Resource Efficiency and Circular Economy Industry Coalition (RECEIC) was launched by Union Minister for Environment, Forest and Climate Change.

- Resource Efficiency Circular Economy Industry Coalition (RECEIC) is an industry-driven and a self-sustaining initiative which would continue to function beyond India's G20 presidency.
- RECEIC was launched on the sidelines of 4th G-20 Environment and Climate Sustainability Working Group meeting.
- **Aim -** It is aimed at promoting resource efficiency and circular economy practices globally.
- The coalition is structured around the 3 guiding pillars of
    - Partnerships for impact
    - Technology cooperation
    - Finance for scale
- **Members -** 39 companies headquartered in 11 different countries have joined the coalition as its founding members.
- The MNCs pledged to adopt resource efficiency and circular economy principles to address environmental challenges rising from waste.
- **Headquarters of RECEIC -** Will be located at Federation of Indian Chambers of Commerce and Industry (FICCI) in New Delhi.
- **Functions -** It will enhance resource efficiency and accelerate circular economy transition.
- The coalition will facilitate knowledge-sharing, best practice sharing, and sustainable practices among the participating industries.

Circular Economy

- The circular economy is a model of production and consumption which extends the lifecycle of products.
- In a circular economy, products are designed for durability, reuse and recyclability, and materials for new products come from old products.
- As much as possible, everything is reused, remanufactured, recycled back into a raw material, used as a source of energy, or as a last resort, disposed of.

References

1. PIB - RECEIC to be launched by Shri Bhupender Yadav MoEF&CC
2. PIB - Union Minister launches RECEIC in Chennai
3. The Hindu - 39 MNCs come together for circular economy coalition
4. Deccan herald - G20 countries launch coalition to promote circular economy

