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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
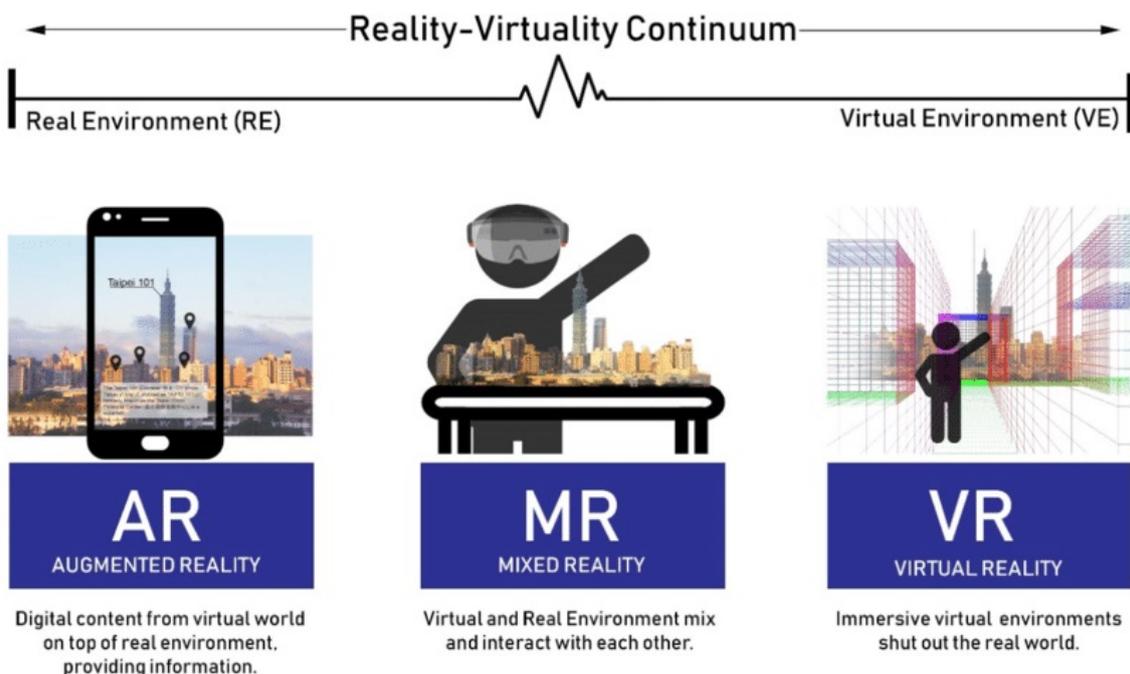
Immersive Reality

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