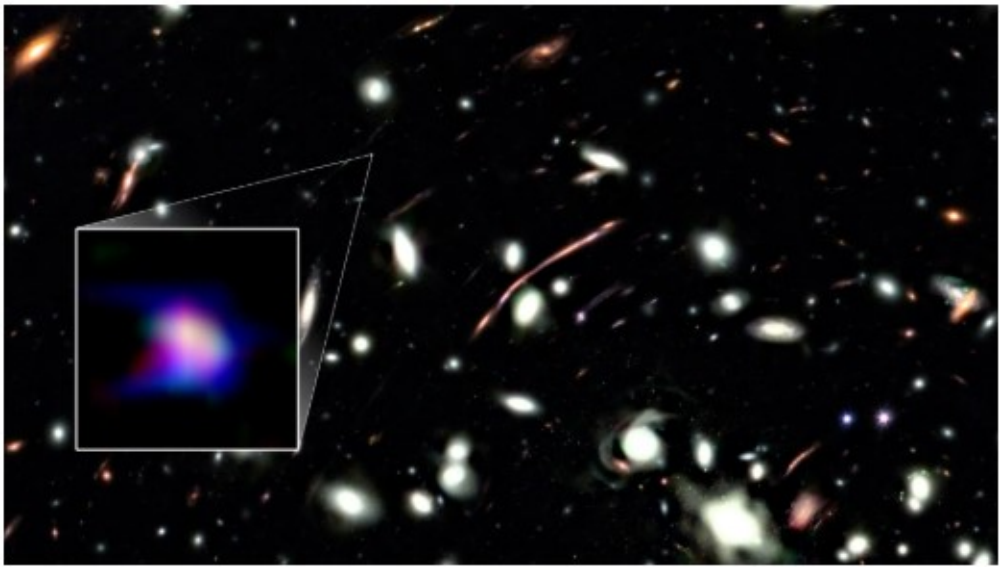
Pristine galaxy from 13 billion years ago

Prelims: *Current events of National and International Importance| Science and Technology*

Why in News?

*Using the James Webb Space Telescope (JWST) and gravitational lensing, an international team led by Associate Professor Kimihiko Nakajima of Kanazawa University discovered LAP1-B, a tiny, ultra-faint galaxy seen as it existed about **13 billion years ago** (roughly 800 million years after the Big Bang).*

- **Extreme Chemical Primitiveness-** LAP1-B has an oxygen abundance about **1/240th that of the Sun**, making it the most chemically primitive star-forming galaxy identified to date.
- Because heavier elements like oxygen and carbon formed later inside early stars, its gas closely resembles the primordial universe.
- **Gravitational Lensing & Spectroscopy-** Researchers used the massive galaxy cluster **MACS J0416** as a natural cosmic magnifier alongside JWST's Near-Infrared Spectrograph (NIRSpec).
- LAP1-B is so faint and star-poor that it does not show up in standard NIRCam images.
- **Clues to Early Galaxies-** The findings may carry chemical fingerprints from the universe's first stars and help explain a long-standing mystery about some of the oldest, faintest galaxies near the Milky Way.



Reference

Science Daily| Pristine galaxy from 13 billion years ago

