# **New Gene to Prevent Fungal Infection**

## Why in News?

According to a recent study, researchers have **identified gene called CSA6** which could **hold the key to prevent fungal infection Candidiasis** that often affects intensive-care unit (ICU) patients, cancer patients and patients receiving immunosuppressive therapy.



## What is Candida Albicans?

- Candida Albicans is a fungal species infamous for causing high rates of morbidity and mortality under certain immuno-compromised conditions such as <u>Acquired Immune</u> <u>Deficiency Syndrome (AIDS)</u> or during cancer treatment.
- It resides in the mucosal linings of the gastrointestinal and urogenital tract of healthy individuals.
- Further, it turns into a pathogen under immuno-compromised conditions breaching the host defense causing superficial as well as life-threatening systemic infection.

## What are the Key Highlights of the Study?

- About:
  - It's a collaborative study between Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore, India and Institut Pasteur, Paris, France.
    - They carried out a large-scale screen to identify regulators of chromosome
    - stability in Candida albicans, a clinically relevant fungal model system.
- Findings:
  - Researchers screened the effect of overexpression of more than a thousand genes of *C. albicans* on genome stability.
  - They were successful in identifying a set of six chromosome stability (CSA) genes that are important for maintaining genome integrity.

- While five of the CSA genes identified in the study are known to be important for cell division in other species, the sixth CSA gene, named CSA6 encoded for a protein that is essential for viability in C. albicans.
- They found that Csa6 was a **critical regulator of cell cycle progression** wherein both overexpression and deletion of CSA6 **lead to reduced growth of C.** *albicans* cells.

### Outcomes:

- It identifies and elucidates the functions of a novel regulator of chromosome stability that is exclusively present in a group of medically relevant human fungal pathogens.
- Besides, it also provides a systematic scheme for identifying genes whose products may serve as potential therapeutic interventions for fungal infections by posing lesser adverse effects on humans.
  - Hence, small molecule modulators that alter expression levels of the gene called CSA6 offer potential avenues for treatment with no side effects in humans.

Source: PIB

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