CSA6 Gene to prevent fungal infection

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In news– A newly identified gene(CSA6) can hold the key to prevent fungal infection Candidiasis that often affects intensive-care unit (ICU) patients, cancer patients and patients receiving immunosuppressive therapy.

About the new gene-

- **The gene called CSA6 has been identified in Candida albicans, a fungal species infamous for causing high rates of morbidity and mortality** under certain immuno-compromised conditions such as AIDS or during cancer treatment.
- The **fungal species residing in mucosal linings of the gastrointestinal** and **urogenital tract** of healthy individuals **turns into a pathogen under immuno-compromised conditions breaching the host defense** causing superficial as well as life-threatening systemic infection.
- In a recent study, researchers carried out a large-scale screen to identify regulators of chromosome stability in C. albicans, a clinically relevant fungal model system.
- They individually screened the effect of overexpression of more than a thousand genes of C. albicans on genome stability and 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.

- **The study represents the first-ever report of such an extensive screen in the human fungal pathogen C. albicans.**
- 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.**

Note:

- Candida albicans is an opportunistic pathogenic yeast that is a common member of the human gut flora. It can also survive outside the human body.
- It is detected in the gastrointestinal tract and mouth in 40–60% of healthy adults.