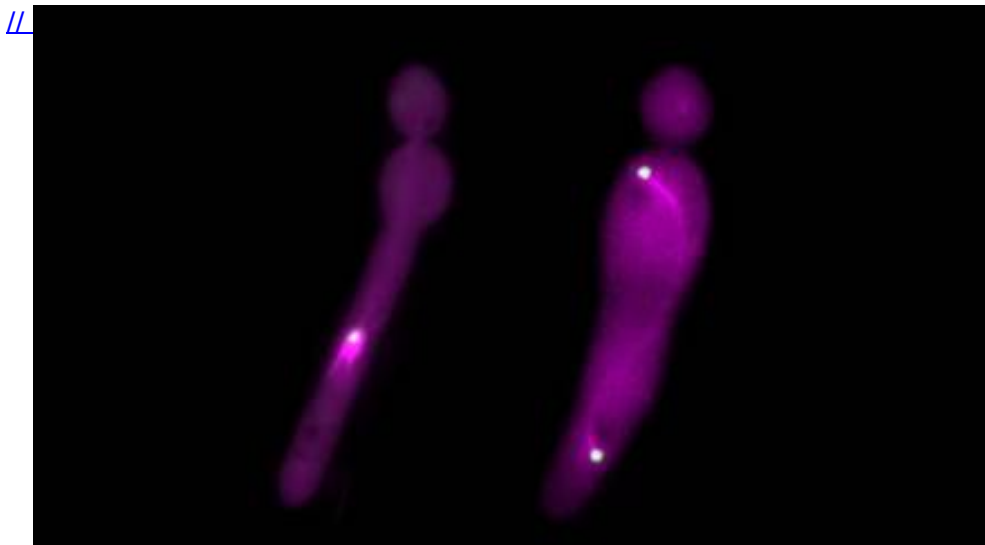




New Gene to Prevent Fungal Infection

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 **Acquired Immune Deficiency Syndrome (AIDS)** 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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