

Amphotericin B (AmB)

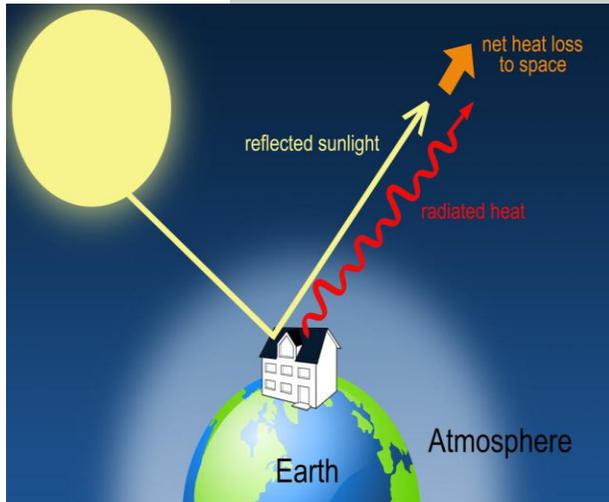
- A structurally modified antifungal agent has shown reduced toxicity in mice and in human kidney cells while retaining its antimicrobial properties, according to a paper published in Nature.
- Amphotericin B (AmB) is an antifungal agent produced by bacteria and has been used as a last line of defense against severe fungal infections for many decades.
- It achieves this by forming sponge like aggregates that bind to a molecule known as ergosterol (which is found in bacterial and fungal cells and performs a similar function to mammalian cholesterol).
- This binding results in the extraction of ergosterol from the membrane, which leads to fungal cell death. Despite being effective, AmB is highly toxic in humans particularly in renal cells.

The Hindu

Passive radiative cooling

- Two recent studies provide evidence that passive radiative cooling materials work.
- Passive radiative cooling approaches that use glass and ceramic based materials are more versatile, making them more attractive for a wide range of outdoor passive cooling applications.
- The microporous glass coating enables a temperature drop of about 3.54 degrees Celsius during daytime and night time, respectively.
- The ceramic composite can produce highly efficient light scattering and high thermal emission.
- Passive daytime radiative cooling (PDRC) is a zero-energy building cooling method proposed as a solution to reduce air conditioning, lower urban heat island effect, cool human body temperatures in extreme heat, move toward carbon neutrality and control global warming by enhancing terrestrial heat flow to outer

space through the installation of thermally-emissive surfaces on Earth that require zero energy consumption or pollution

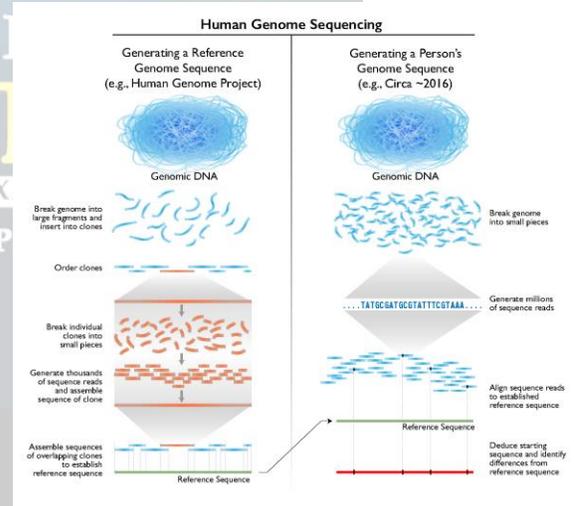
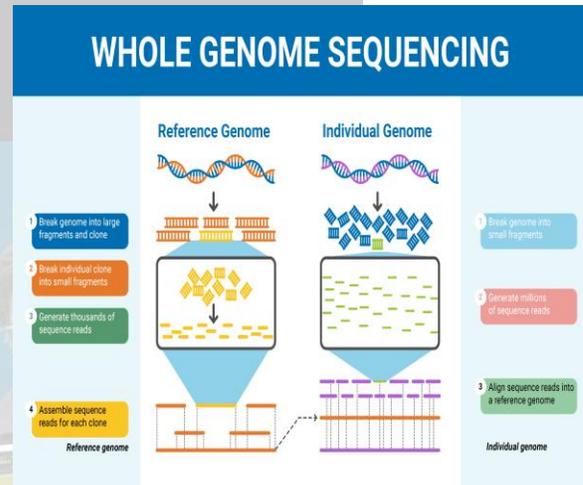


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Genome sequencing

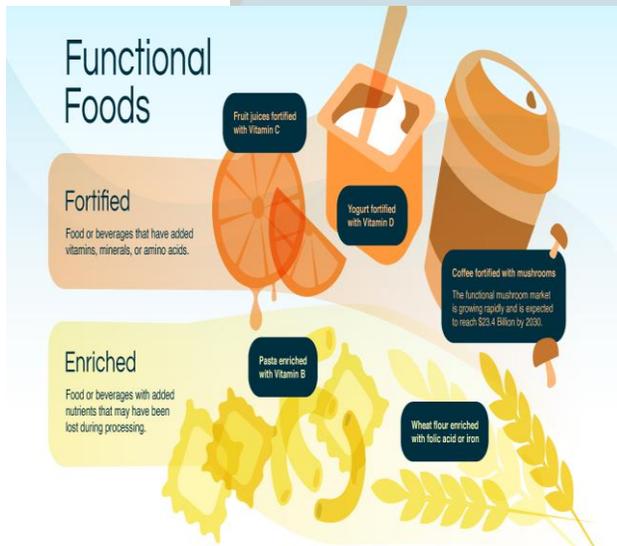
- Researchers in Nepal are carrying out environmental surveys and genomic sequencing to determine the cause of an eye infection that can cause children to lose their vision within days.
- Symptoms begin with a painless reddening and loss of pressure in one eye.
- Cases of seasonal hyper acute pan uveitis seem to spike every two years, baffling scientists.

- Now researchers are racing to examine a possible link with white moths of the genus *Gazalina*, which swarm through Nepal at the end of the monsoon season.



The Hindu

Functional food



- The growing body of clinical evidence suggests that almond, which can be bought in any dry fruits shop, consumption is associated with several health benefits.
- Other dry fruits that also offer health benefits are cashew nuts, raisins, walnuts, dates, apricots and pistachio.

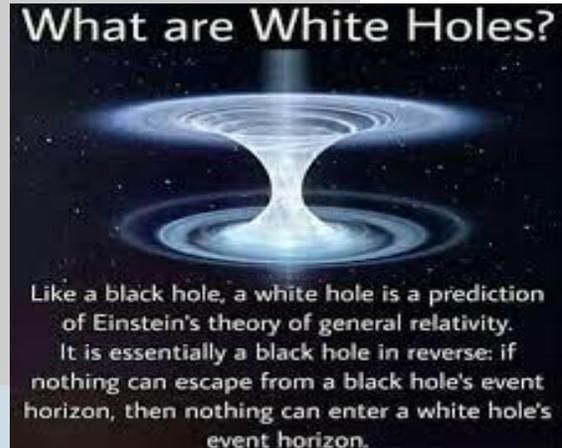
- Besides dry fruits, 'wet fruits' such as bananas, grapes, guavas, oranges and mangoes offer health benefits, as Charaka pointed out.
- Such healthy foods are also called 'functional foods', since they offer health benefits beyond their nutritional value.
- Some examples are oats, and millets like bajra, ragi, jowar, and soya proteins, besides the fruits.
- Functional foods are defined broadly as foods that provide more than simple nutrition; they supply additional physiological benefit to the consumer
- Functional foods have ingredients that offer health benefits which extend beyond their nutritional value.
- Some types contain supplements or other additional ingredients designed to improve health.

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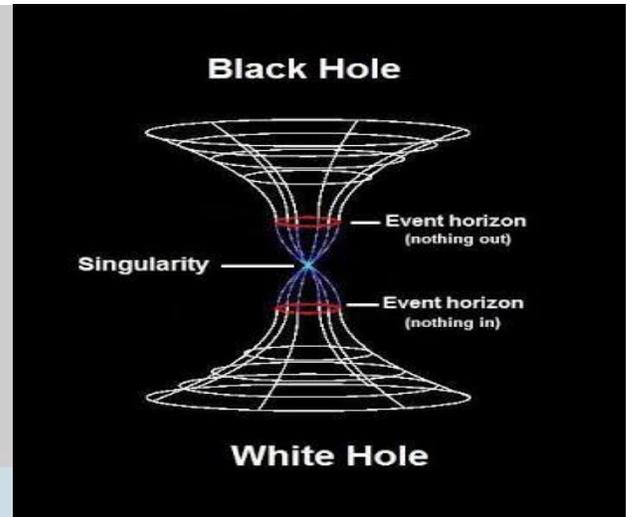
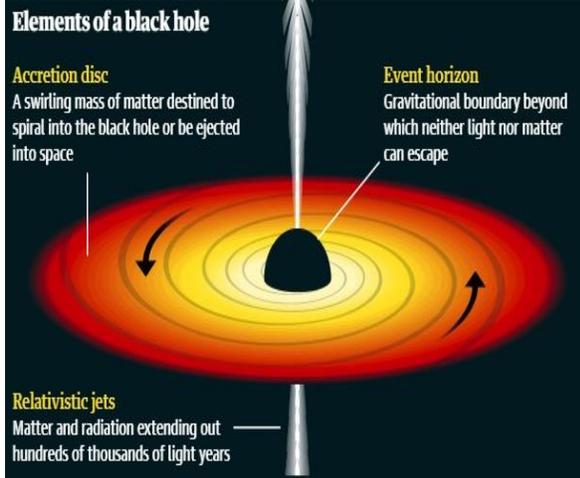
Cytoplasmic lattices

- Cytoplasmic lattices seem to be storage sites for many proteins that are essential for the development of the early embryo.
- They enrich maternally provided proteins to prevent their premature degradation and cellular activity.
- The discovery could explain why people whose eggs lack the fibres entirely are infertile
- Cytoplasmic lattices are important regulators of oocyte maturation.
- An oocyte or ovocyte is a female gametocyte or germ cell involved in reproduction. In other words, it is an immature ovum, or egg cell.
- They store components of the protein synthesis machinery including ribosomes and, among others, they are involved in the regulation of microtubule dynamics in both mouse and human

White Hole VS Black hole



- A white hole is a time-reversed black hole a region of space-time where matter spontaneously appears and explodes outwards, rather than implodes and disappears as with a black hole.
- White holes are essentially the opposite of black holes, in that they spit out light and matter, rather than trapping it.
- So far, white holes they are purely hypothetical objects, but astronomers are contemplating how they could form in reality.



- A black hole forms when a massive star at the end of its life shrinks catastrophically under its own gravity down to an infinitesimally small point, or singularity.
- All that is left behind from the stellar collapse is a grossly warped region of space.
- One possibility is that it explodes into another universe as a white hole
- For matter to pass between universes, the black hole and the white hole must be connected by a wormhole a tunnel through space-time.

