The living dead

All dead organisms are not dead, neither are all living organisms alive; some are living dead. They lie torpid to survive the harsh winters

Arctic Woolly Bear Caterpillar or Gynaephora groenlandica

Home: Greenland and Canada
Weapon: Glycerol made by breaking down mitochondria
Achievement: Longest living caterpillar- lives as long as 14 years
Coping mechanism: It produces an antifreeze called glycerol which controls the crystal formation and freezes the caterpillar for most of the winter. When spring arrives, it thaws itself out and discards the otherwise poisonous glycerol, ready to grow again.

American Alligators or Alligator mississippiensis

Home: North Carolina
Weapon: Icing response
Achievement: These alligators can survive temperatures as low as -21 degrees Fahrenheit
Coping mechanism: They submerge their body but keep their nostrils projected above the water surface, so that when the surface freezes they can still breathe.

Upis Beetle or Upis ceramboides

Home: Alaska
Weapon: Antifreeze made up of sugar and fatty acids called xylomannan
Achievement: Survives even at a temperature of -100 degree Celsius
Coping mechanism: Certain oily compounds help the xylomannan to attach to the outer cell membrane and prevent ice formation in the cell, promoting membrane stability.

Zombie Wood Frog or Lithobates sylvaticus

Home: Alabama
Weapon: Antifreeze made up of glucose and glycogen
Achievement: Survives by freezing 70% of its body
Coping mechanism: Nucleating proteins suck the water from frog's cells which is replaced by the glucose produced by the liver. The resulting antifreeze prevents formation of ice in their cells. Once winters are over, the ice which is already formed between the cells melts and the frog comes back to life.

Arctic Ground Squirrels or Spermophilus parryii

Home: Arctic Tundra
Weapon: Brain freeze, super cooling
Achievement: One of the rarest mammals that can lower their body temperature to about -2.94 degree Celsius
Coping mechanism: They can detach the neural connections in their brain for hibernation, and restore them in 2 hours after waking up from their slumber. But 12-15 hours later, their brain begins to detach the connections again as it returns to sleep.

Text: Gauri Singh, XI C & Kalpita Chakraborty, XI B | Illustration: Almas Khan, IX D; AIS Vas 6

"Did we kill it this contest edition?"
"Is that even a question?"
Sneha Sharma, AIS Vas 6, X A
Page Editor