



NBRC Researchers Decipher the Cause of Microcephaly

National Brain Research Centre-led team of researchers has successfully identified the molecular and cellular mechanisms by which Zika virus causes microcephaly.

Key Highlights

- Zika virus causes brain defects in babies. Several cases of microcephaly, a rare birth defect in which the brain fails to grow properly, have been reported in various South American countries.
- The Envelop Protein (E protein) of the virus, which is responsible for the entry of the virus into brain stem cells, was responsible for arresting the proliferation of human foetal neural stem cells as they are unable to kill the stem cells as they are lot more resilient, however, it was able to kill the neurons. This combined effect reduces the pool of foetal brain cells leading to a smaller size of the brain.
- E protein in the Zika virus is very different from the envelop protein of other flaviviruses such as dengue, West Nile virus, yellow fever and Japanese encephalitis. The E protein was found to be more potent in arresting the proliferation of brain stem cells.
- Hence, neutralising the E protein of the virus can help prevent or reduce the harmful effects of the virus in a developing foetus. The E protein can be seen as a likely therapeutic target.

NOTE: Zika Virus

- Zika virus is a mosquito-borne flavivirus that was first identified in Uganda in 1947 in monkeys.
- It was later identified in humans in 1952 in Uganda and the United Republic of Tanzania. Outbreaks of Zika virus disease have been recorded in Africa, the Americas, Asia and the Pacific.
- Zika virus disease is caused by a virus transmitted primarily by Aedes mosquitoes and can be passed from a pregnant woman to her foetus.
- Sexual transmission of Zika virus is also possible.
- There is no vaccine or medicine for Zika. Instead, the focus is on relieving symptoms and includes rest, rehydration and acetaminophen for fever and pain.

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