



Aspirin to Prevent Cataract

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Why in News

Recently, scientists from the **Institute of Nano Science & Technology (INST)** have developed **nanorods from the Non-Steroidal Anti-Inflammatory Drug (NSAID) Aspirin to prevent cataracts** in an economical and less complicated way.

- **Aspirin** is a popular medication used **to reduce pain, fever, or inflammation** and now it has been found to be an effective non-invasive small molecule-based nanotherapeutics against cataract.
- INST is an **autonomous institute** under the Department of Science and Technology, Government of India.

Key Points

Cataract



- **Cataract:**

- It is a major **form of blindness** that occurs when the **structure of crystallin proteins that make up the lens** in human eyes **deteriorates**.
- Such deterioration causes damaged or disorganised proteins to aggregate and forms a milky blue or brown layer, which ultimately **affects lens transparency**.
- As with **ageing and under various conditions**, the lens protein crystallin aggregates to form opaque structures in the eye lens, which **impairs vision and causes cataract**.
- Thus, **prevention of the formation of these aggregates as well as their destruction** in the early stage of disease progression is a major treatment strategy for cataracts.

- **Usage of Aspirin:**

- The scientists have used the **anti-aggregation ability of self-build aspirin nanorods** as an effective non-invasive small molecule-based nanotherapeutics against cataract.
- It **prevents the protein from aggregation** through biomolecular interactions, which convert it into coils and helices and consequently fail to aggregate.

- **Significance:**

- Aspirin nanorods due to their **nano-size** are expected to enhance the bioavailability, improve drug loading, lower toxicity, etc.
- Hence, **the delivery of the aspirin nanorods as eye drops** is going to serve as an **effective and viable option** to treat cataract non-invasively.
- It is **easy to use and a low-cost alternative nonsurgical treatment** method and will benefit patients in developing countries who cannot access expensive cataract treatments and surgeries.

Source: PIB