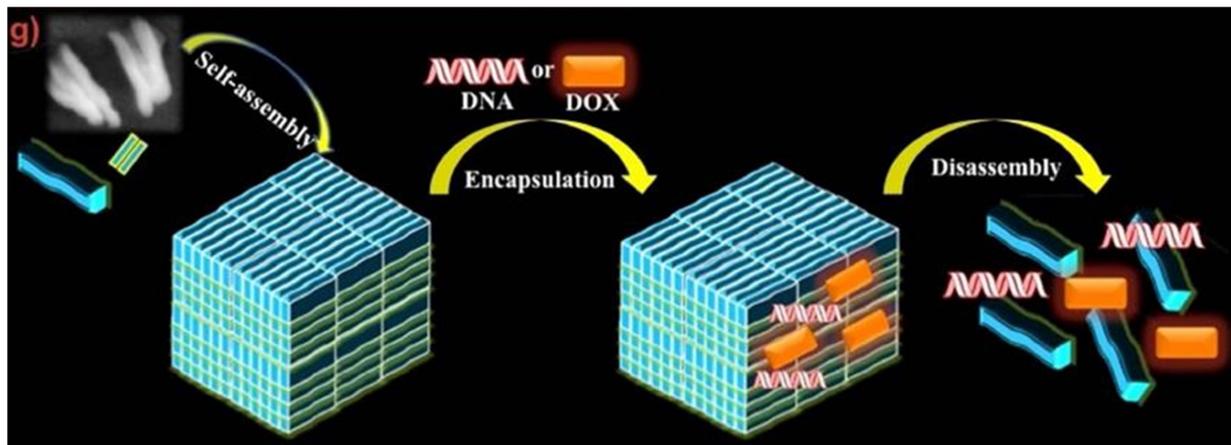


Kolkata scientists find 'molecular marriage' can help target cancer cells

By Dr Swati Subodh

New Delhi, April 5 (India Science Wire): Scientists in Kolkata have developed a new drug delivery mechanism to achieve targeted delivery of cancer drugs using an approach known as 'molecular marriage'.



They have developed a novel copolymer to deliver a cancer drug directly to cancerous cells. Polymers comprising of dual components, one water loving and other water repelling, are known to self assemble into blocks depending on properties of the solution in which they are maintained and factors like temperature. Such components which come together to chemically bond or polymerize have been used for drug delivery in the past.

Researchers at the Indian Institute of Science Education and Research (IISER), Kolkata, have developed a novel approach to synthesize a copolymer with improved structural stability. This copolymer has been used to deliver anticancer drug - doxorubicin or DOX. The drug thus delivered binds with DNA much more efficiently.

The increased binding efficiency has been achieved by addition of a chemical component called norbornene. The chemical basically helped in creating a rigid backbone for the copolymer. The design and synthesis of the copolymer was done through 'Molecular Marriage' approach.

The team has shown that the cube structure formed by these rod shaped copolymers had a high capacity to encapsulate drug molecules. They have also demonstrated that the copolymer was able to deliver the encapsulated drug at a specified site based on local triggers and till then it remained stable.

The research findings have been published journal *Scientific Reports*. The team included, Shivshanker R Mane, Ashlin Sathyan and Raja Shunmugan. "To the best of our knowledge, this is the first report for making a helical copolymer based on simple molecular marriage concept," the paper says. Sathyan is a recipient of INSPIRE-SHE fellowship, while Shunmugan got Ramanujan Fellowship – both instituted by the Department of Science and Technology (DST). (India Science Wire)