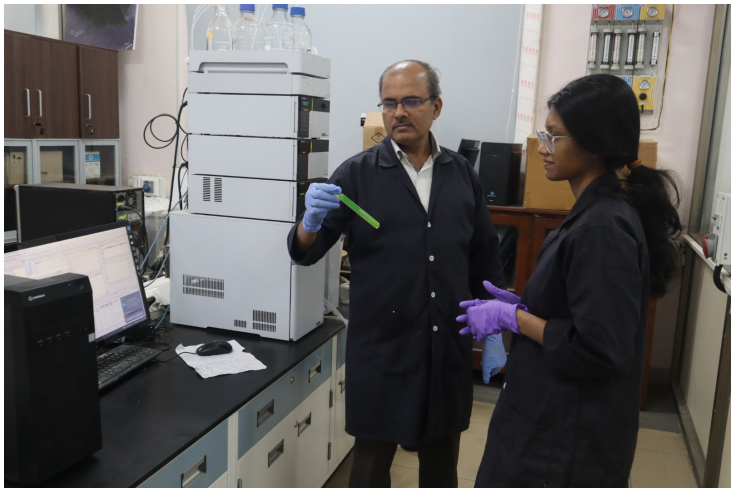
BioSpectrum
the business of Bi
24 years of leveraging the business of Bio
www.biospectrumindia.co

IISc designs antigen to boost production of antibodies against cancer cells

23 April 2024 | News

The compound can be taken forward for vaccine development and clinical trials



Researchers at the Indian Institute of Science (IISc) in Bengaluru have designed a synthetic compound (antigen) that can latch on to a protein in blood and hitchhike a ride to the lymph node, where it can boost the production of antibodies against cancer cells.

The approach gives a new direction to develop vaccine candidates for a variety of cancers, the researchers say.

Inside the human body, cancer cells can weaken or shut down the production of antibodies that target and eliminate them. Developing a cancer vaccine, therefore, involves modifying or creating a mimic of an antigen found on the surface of cancer cells to turn up or turn on this antibody production. In recent years, scientists have turned to carbohydrates found on cancer cell surfaces to develop these antigens.

Scientists have earlier tried ferrying such antigens into the body using an artificial protein or virus particle as the carrier. But these carriers can be bulky, lead to side-effects, and sometimes reduce antibody production against cancer cells. The IISc team, instead, decided to exploit the carrying ability of a natural protein called serum albumin, the most abundant protein in blood plasma.

To design the compound, researchers zeroed in on a truncated carbohydrate called Tn found on the surface of a variety of cancer cells, and synthesised it in the lab. Then, they combined it with a long-chain, oil-loving chemical – unlike carbohydrates which are water-loving – to form bubble-like micelles. They found that the combination is able to bind strongly to human serum albumin. The team is hopeful that the compound can be taken forward for vaccine development and clinical trials.