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

IISER Bhopal invents protein engineering tech to improve cancer diagnostics

07 June 2021 | News

The platform will help cancer patients with precise imaging-guided tumour surgeries and directed cancer chemotherapeutics in the coming years



Indian Institute of Science Education and Research (IISER) Bhopal Researchers have invented a new technology that can deliver active molecules to specific sections of proteins.

Scientists from IISER Bhopal have been conducting studies on the ‘engineering’ of protein molecules for the past few years. The serial technological breakthrough has gained a detailed insight into the chemical features of these molecular machines. With this understanding, they have designed the first-ever modular platform for the precision engineering of proteins.

The research team from the Departments of Chemistry and Biological Sciences at IISER Bhopal includes Dr Vishal Rai, Dr Ram Kumar Mishra, Dr Sanjeev Shukla, Dr Srinivasa Rao Adusumalli, Dr Dattatraya Gautam Rawale and Dr Neetu Kalra, among others who have worked on this novel research.

Dr Vishal Rai, Associate Professor and Swarnajayanti Fellow, Department of Chemistry, IISER Bhopal, said,“Our team believes that successful platforms for precision engineering of proteins depend on the core understanding of molecular and social behaviour of proteins in the chemical reactions.”

The research team has developed a technology that they call the “LDM platform.” It is empowered by reagents made of three key components. A representative example involves FK that rapidly and reversibly attaches to an amino acid called lysine and FH that reacts slowly, but specifically to another amino acid – histidine.

*“A key advantage of our LDM platform is that it does not modify the structure or functions of the native protein,”*explained Dr Rai.

The platform will help cancer patients with precise imaging-guided tumour surgeries and directed cancer chemotherapeutics in the coming years. In other words, the technology would empower us to get rid of the tumours without harming the patient's healthy cells.

Image caption- From Left to Right- Dr Dattatraya G Rawale, Dr Sanjeev Shukla, Dr Srinivasa Rao Adusumalli, Dr Ram K Mishra, Dr Vishal Rai, Dr Neetu Kalra, Dr Usha Singh