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JNCASR designs CLEAR technology to revolutionise protein imaging for cancer detection

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CLEAR has the potential to revolutionise biomedical research and clinical solutions



A novel imaging platform called the Cleaveable Light-Erased Antibody Reporter (CLEAR), developed by researchers from Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru (JNCASR), an autonomous institute of the Department of Science and Technology (DST), can help see an unprecedented number of proteins within a single biological sample using just one fluorescent marker.

This could open new possibilities for high-resolution, multiplex imaging in cells and tissues, which could prove important for diagnostics and biological research.

Proteins are the primary controllers of biological functions and are key targets of therapeutic activity as well as important indicators for the diagnosis of diseases. A comprehensive proteomic map of the tissue sample shows the identity of each protein and the exact spatial organisation in its original context.

It can help pathologists understand cancer diagnoses or complex neurological disorders. However, measuring a large number of proteins in their original spatial context remains a major challenge.

CLEAR has the potential to revolutionise biomedical research and clinical solutions by enabling detailed mapping of proteins in cells and tissues. This can help in early detection of cancers and neurological diseases, in particular, and aid in understanding the impact on immunity.