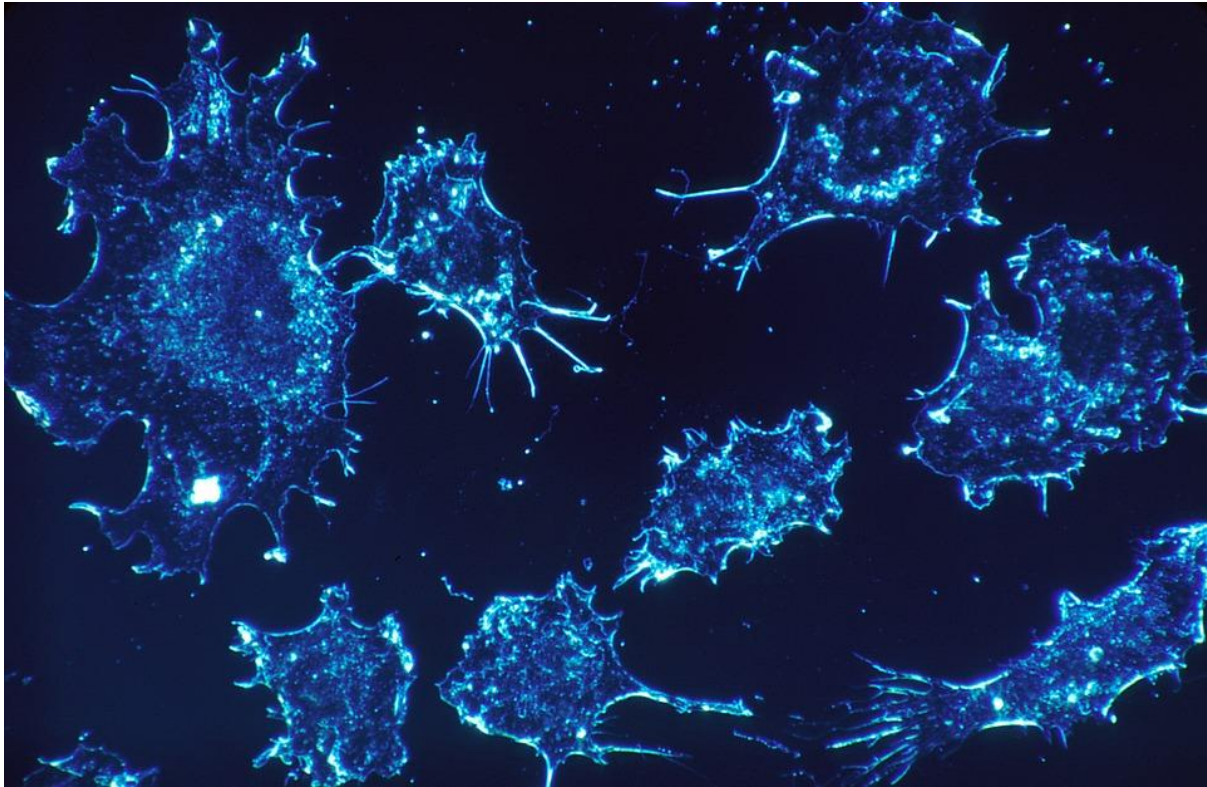


## DBT prog helps develop metabolic activity marker for Cancer diagnosis



New Delhi, Aug 07: Cancer is one of the leading causes of deaths around the world. In its early stages, it is considered to be a localized disease. Cancer spreads to other parts of the body by a process known as metastasis and it is due to metastasis that the majority of deaths occur in cancer. In cancer metastases, Circulating Tumor Cells (CTCs) play a significant role.

Recent findings in the field of cancer biology have reinforced the school of thought that the molecular analysis of CTCs and specifically associated molecular markers could help in offering personalized treatment for the disease.

Working on this approach, scientists from Indian Institutes of Science Education and Research (IISER) - Bhopal have, in a project supported under the Department of Biotechnology's Nanobiotechnology Program, designed a probe for instantaneous and efficient detection of serum albumin, one of the important transport proteins in the presence of other biologically relevant proteins.

Detailed spectroscopic studies revealed that the probe is binding to site-II of BSA. This was further supported by competitive binding and molecular docking studies. This probe can be employed for the detection of abnormal serum albumin levels in the patient's body fluids and as a metabolic activity marker for diagnostics applications.

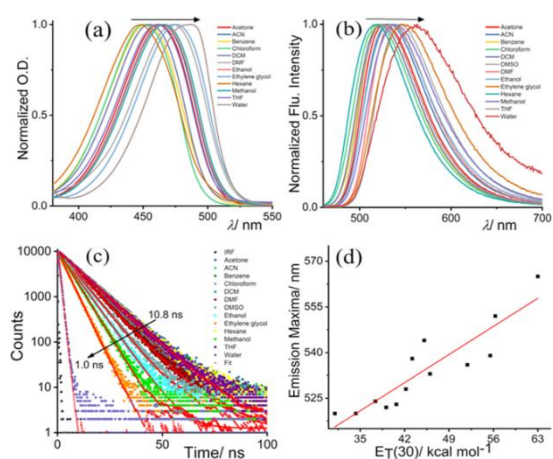


Fig: Solvent-dependent photophysical properties of NBD-Bu: (a) normalized UV-Vis. spectra with the varying solvent polarity, (b) normalized fluorescence spectra, (c) time-resolved fluorescence decay profile and (d) emission maxima vary linearly ( $R^2 = 0.82$ ) with solvent polarity parameter. Arrows indicate the direction of low to high solvent polarity

Ref. Publication:- Dutta, T., Pal, K., Koner, A. L., Cellular metabolic activity marker via selective turn-ON detection of transporter protein using nitrobenzoxadiazole-based fluorescent reporter. Scientific Reports 2020, 10, 4166. (Impact factor: 4.53)

Contact details:

PI: Dr. Apurba L. Koner, IISER, Bhopal (akoner@iiserb.ac.in)

DBT Program Officer: Dr. A. Vamsi Krishna, Scientist-E (vk.addanki@nic.in)

Link: DBT Nano-biotechnology Program