Library
Indian Institute of Science Education and Research
Mohali

DSpace@IISERMohali (/jspui/)
/ **Publications of IISER Mohali (/jspui/handle/123456789/4)**
/ **Research Articles (/jspui/handle/123456789/9)**

Please use this identifier to cite or link to this item: `http://hdl.handle.net/123456789/4464`

Title:	Single-droplet surface-enhanced Raman scattering decodes the molecular determinants of liquid-liquid phase separation.
Authors:	Avni, Anamika (/jspui/browse?type=author&value=Avni%2C+Anamika) Joshi, Ashish (/jspui/browse?type=author&value=Joshi%2C+Ashish) Mukhopadhyay, Samrat (/jspui/browse?type=author&value=Mukhopadhyay%2C+Samrat) Pattanashetty, Swastik G. (/jspui/browse?type=author&value=Pattanashetty%2C+Swastik+G.) Walimbe, Anuja (/jspui/browse?type=author&value=Walimbe%2C+Anuja)
Keywords:	Raman scattering liquid-liquid phase separation Single-droplet surface-enhanced
Issue Date:	2022
Publisher:	Springer Nature
Citation:	Nature Communications, 13(1), 4378.
Abstract:	Biomolecular condensates formed via liquid-liquid phase separation (LLPS) are involved in a myriad of critical cellular functions and debilitating neurodegenerative diseases. Elucidating the role of intrinsic disorder and conformational heterogeneity of intrinsically disordered proteins/regions (IDPs/IDRs) in these phase-separated membrane-less organelles is crucial to understanding the mechanism of formation and regulation of biomolecular condensates. Here we introduce a unique single-droplet surface-enhanced Raman scattering (SERS) methodology that utilizes surface-engineered, plasmonic, metal nanoparticles to unveil the inner workings of mesoscopic liquid droplets of Fused in Sarcoma (FUS) in the absence and presence of RNA. These highly sensitive measurements offer unprecedented sensitivity to capture the crucial interactions, conformational heterogeneity, and structural distributions within the condensed phase in a droplet-by-droplet manner. Such an ultra-sensitive single-droplet vibrational methodology can serve as a potent tool to decipher the key molecular drivers of biological phase transitions of a wide range of biomolecular condensates involved in physiology and disease.
Description:	Only IISERM authors are available in the record
URI:	https://doi.org/10.1038/s41467-022-32143-0 (https://doi.org/10.1038/s41467-022-32143-0) http://hdl.handle.net/123456789/4464 (http://hdl.handle.net/123456789/4464)
Appears in Collections:	Research Articles (/jspui/handle/123456789/9)

Files in This Item:

File	Description	Size	Format	
Need To Add…Full Text_PDF..pdf (/jspui/bitstream/123456789/4464/1/Need%20To%20Add%e2%80%a6Full%20Text_PDF..pdf)		15.36 kB	Adobe PDF	View/Open (/jspu

Show full item record (/jspui/handle/123456789/4464?mode=full)

(/jspui/handle/123456789/4464/statistics)

Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.