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A WICB 50th Favorite publication

Study by Prof Maria Garcia-Parajo highlighted in MBoC for crucial and impactful work on superresolution imaging for deciphering nano-scale organization

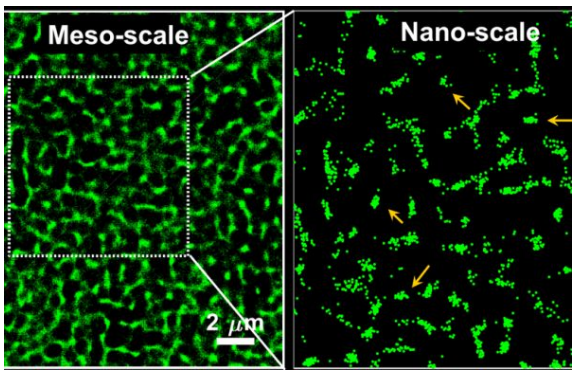
November 26, 2021

To celebrate the 50th anniversary of the American Society for Cell Biology's Women in Cell Biology Committee (WICB), members of WICB, along with the Molecular Biology of the Cell (MBoC) journal's Editorial Board, invited a diverse group of scientists to highlight MBoC papers by women that have had a scientific or personal impact on the authors of the highlight.

Scientists Anikita Jha at the National Heart, Lung and Blood Institute, NIH in Bethesda, MD (USA) highlighted the paper entitled **¡¿½Dynamic actin-mediated nano-scale clustering f CD44 regulates its meso-scale organization at the plasma membraneż½** by an internation l team of scientists led by ICREA Prof at ICFO Prof Maria Garcia-Parajo, in the November 1st edition of the journal MBoC.

Heterogeneity in the distribution of membrane proteins and lipids is becoming an increasingly appreciated paradigm in the context of the organization of molecules at the plasma membrane. This regulated, nonrandom distribution of membrane proteins, such as signaling receptors, is implicated in their molecular function and signaling output. While spatial organization and diffusion studies of membrane proteins are usually conducted separately, in this work researchers combined observations of organization and diffusion by using high spatiotemporal resolution imaging of membrane receptors on living cells. Using this novel approach they revealed a hierarchical organization of the plasma membrane at meso- and nano-scales. They found that large transmembrane proteins and adhesion receptors such as CD44 are present in a meso-scale meshwork, with regions where receptors could be confined at the nanoscale. The boundary of this meshwork is enriched with CD44 nanoclusters and are dependent on the underlying acto-myosin cortex.

i¿½This elegant work enhances our understanding of the well-known picket-fence model a d also opens avenues to decipher the dynamics of signaling receptors.i¿½, explains Jha. i¿ ?This work is also particularly inspiring to me because of two wonderful female authors, P. S l, an ECR whose inquisitiveness and thoroughness in data acquisition I have personally ad ired, and M. F. Garcia-Parajo, whose long-time work on superresolution imaging has been c ucial and impactful for deciphering nano-scale organizationi¿½. Congratulations Maria or this recognition of your excellent work.



Meso-scale vs nano-scale