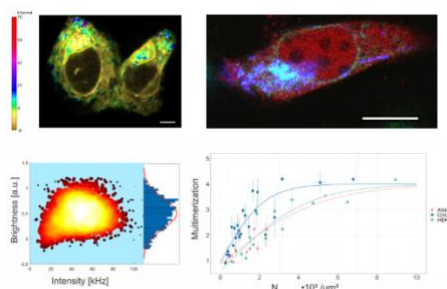


Quantifying protein-protein interactions in living cells

Description



The group of Prof. Dr. Salvo Chiantia, Professor for Physical Biochemistry at the University of Potsdam, focuses on the application of quantitative fluorescence microscopy for the study of inter-molecular interactions. Such approaches (e.g., fluorescence correlation spectroscopy, FCS) belong to the family of fluorescence fluctuation techniques, i.e. minimally invasive

methods that allow the characterization of fluorescently labeled biomolecules directly in living cells or *in vitro*. The analysis provides direct quantification of diffusion dynamics, protein multimerization and complex formation between different molecules.

Research interests and activities

- Influenza A virus assembly: virus production (several human and avian strains) in cell culture, scanning fluorescence correlation (sFCS) and cross-correlation measurements.
- Protein-protein interactions in Hantavirus assembly: comparison between different cell models (e.g. HEK283T, CHO, MDCK, Vero), Number and Brightness (N&B) analysis.
- Protein-mediated cell-cell interactions: quantitative assays for the quantification of protein multimerization and hetero-interactions at cell junctions.
- Lipid phase separation and lipid-lipid interactions in model membranes: supported lipid bilayers, giant unilamellar vesicles, lipid monolayers, plasma membrane vesicles, Raster Image Correlation (RICS) analysis.
- Super-resolution microscopy: currently implementing several Single Molecule Localization Microscopy approaches, such as SRRF, PALM, STORM.

Scientific literature

- Petrich A, Dunsing V, Bobone S, Chiantia S. (2021), Influenza A M2 recruits M1 to the plasma membrane: a fluorescence fluctuation microscopy study, doi.org/10.1101/2021.05.06.442926
- Dunsing V, Petrich A, Chiantia S (2021), Multi-color fluorescence spectroscopy in living cells via spectral detection, doi.org/10.1101/2020.12.18.423407
- Petazzi RA, Aji AK, Tischler ND, Chiantia S. (2020), Detection of Envelope Glycoprotein Assembly from Old-World Hantaviruses in the Golgi Apparatus of Living Cells, J Virol. 2020 Nov 25:JV1.01238-20.

Applications

- Life Science research

Keywords

- Cellular Culture
- Molecular Virology
- Fluorescence Microscopy
- Artificial Membranes
- Lipid-Protein Interactions
- Protein-Protein interactions

Interest in cooperation

- Research collaborations
- Contract research

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