

# Measuring lipid membrane properties using a mechanosensitive fluorescence probe

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To measure the chemical-mechanic states of lipid membranes, one needs various tools, many of which being incompatible with cell biology protocols. Applying lessons from nature, we developed a mechanosensitive fluorescent probe, the twisted dithienothiophene. This push-pull probe, changes planarization state in function of its environment, and we have taken full advantage of this mechano-probe potential and we calibrated based on membrane tension, fluidity and different lipid composition by measuring the push-pull fluorescence lifetime. Likewise, we are able to use this fluorescent probe on life cells, for visualize differences between organelles, membrane tension and membrane composition.