

# Effect of cholesterol on the interaction between amphiphilic peptides and liposomes

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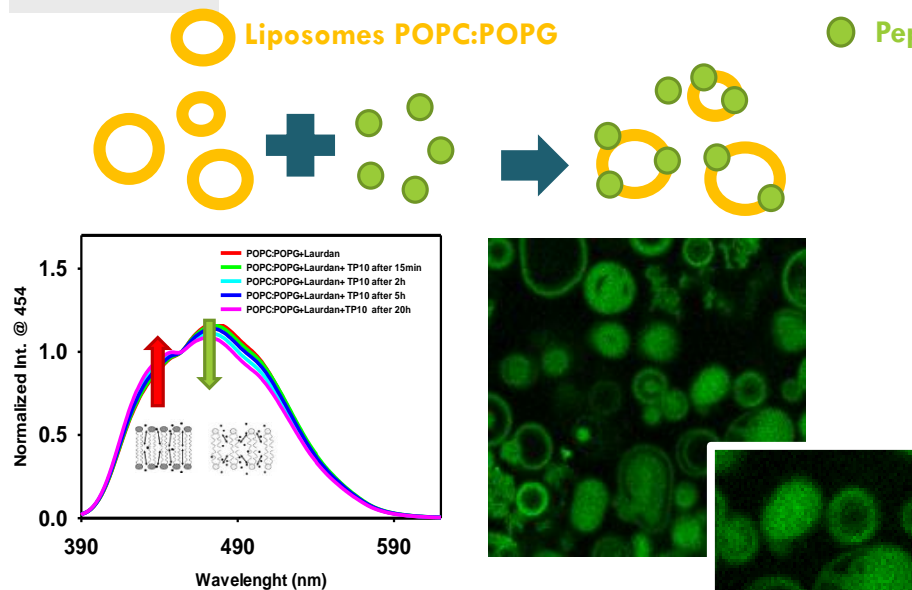
## PURPOSE

We investigate the effects of cholesterol presence in membrane composition on their interaction with the amphiphilic antimicrobial peptide Trasportant 10 (TP10).

## METHODS

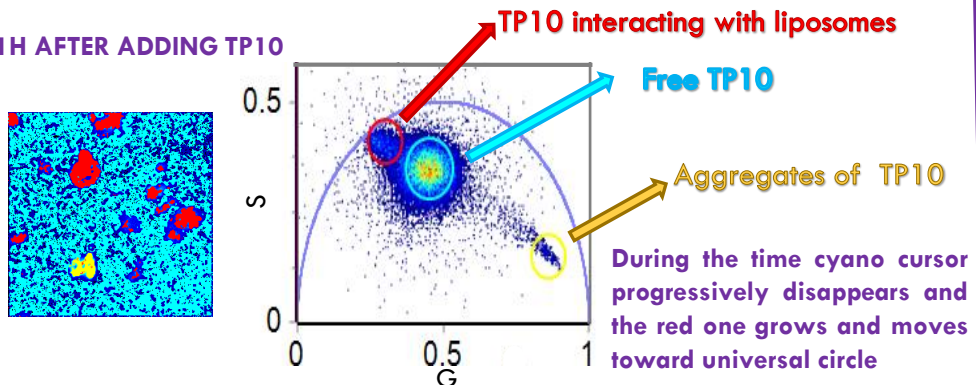
POPC:POPG (2:1) liposomes containing or not cholesterol (POPC:POPG:Chol 2:1:2) were synthesized and the modifications occurring in the membrane morphology and fluidity were analysed by means of fluorescence spectroscopy and fluorescence confocal microscopy measurements also exploiting the advantages of phasor plot analysis of Fluorescence Lifetime Imaging (FLIM) measurements which allowed measuring peptide fate after addition in the sample.

## RESULTS

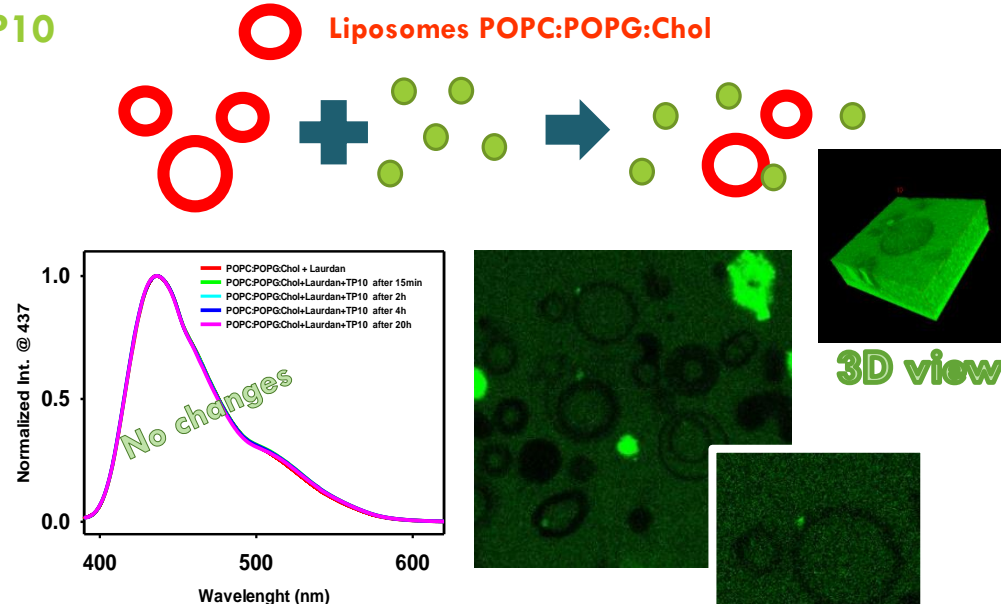


Variations of Laurdan spectrum occurs after adding TP10. Spectral modifications reveal stiffening (dehydration) of vesicles due to TP10 accumulation on the membrane

### 1H AFTER ADDING TP10

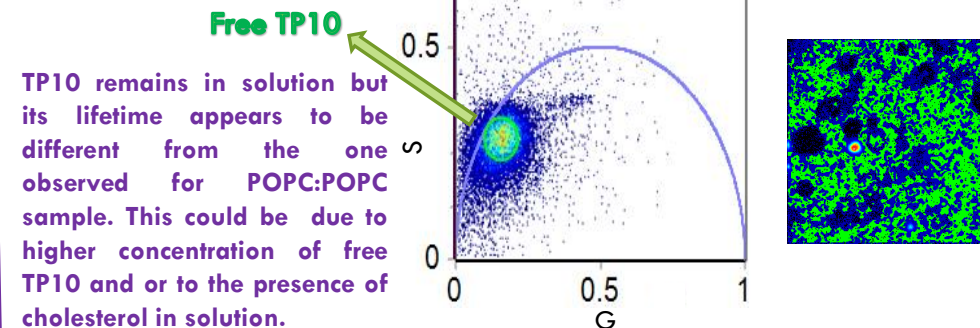


## Liposomes POPC:POPG:Chol



No changes in Laurdan spectra are observed. TP10 remains outside vesicles.

### 1H AFTER ADDING TP10



## CONCLUSIONS

TP-10 interacts with POPC:POPG liposomes quickly being inserted in the membrane increasing its rigidity, this effect is inhibited by the presence of cholesterol in membrane composition