Investigation of the interaction between P6-2-VIR and lipid bilayers by fluorescence techniques

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The beneficial effect of co-infection with the GB virus C (GBV-C) in HIV-infected patients has been described (1), although its mechanism of action is yet to be determined. The physical principles governing interactions between peptides and lipids and peptide-peptide in lipid environments are important in the design of peptides with therapeutic properties, such as enveloped virus entry inhibiting peptides. P6-2-VIR576 (VIR-LCDCPNGPWVWVPAVCQAVG) showed high potency in HIV replication trials performed on TZM-bl cells (2) thus, it was selected to ulterior studies. Here we investigate the importance of lipid phase in the interaction of P6-2-VIR576 with anionic lipid membrane systems composed by DMPC/DMPS (3:2) and DPPC/DPPS (3:2) by fluorescence spectrometry. The interaction was assessed by binding and quenching experiments. Binding experiments showed that the peptide interacts with DMPC/DMPS (3:2). Concerning acrylamide quenching assays figure 1 shows the quenching profiles in the presence and absence of 0.24 mM of DMPC/DMPS (3:2) at 25 °C and 37 °C and DPPC/DPPS (3:2) at 25 °C. A characteristic negative deviation to the linear Stern-Volmer relationship was observed at 25 °C unlike to results obtained at 37 °C. By Lehrer equation, the fraction of peptide that is accessible to the quencher in solution was calculated.

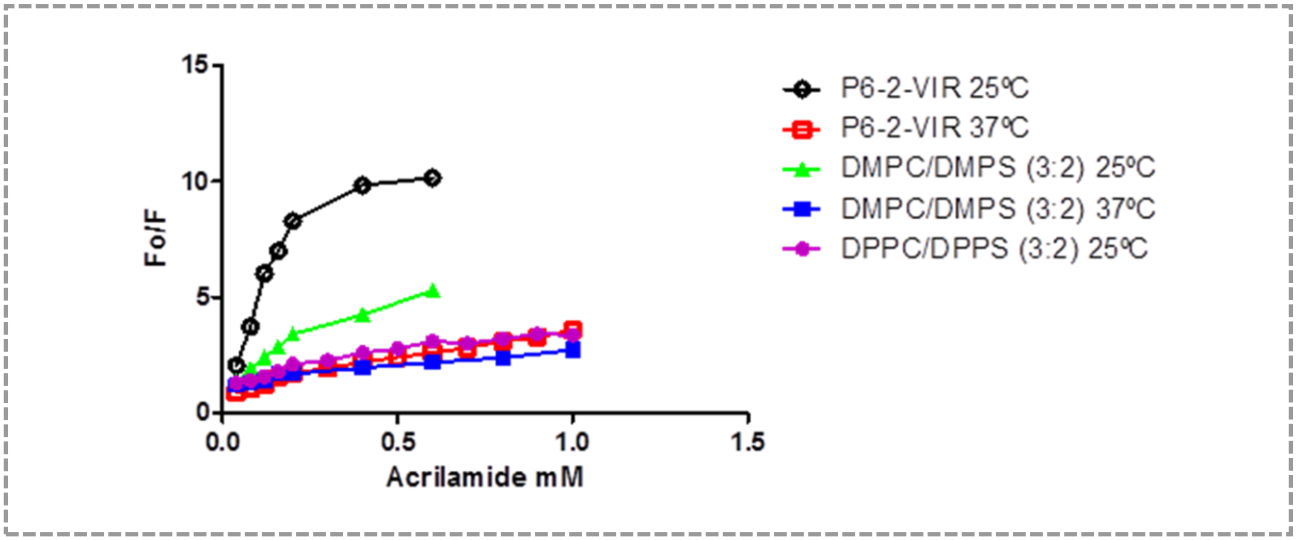

Figure 1 Stern-Volmer plots of fluorescence quenching of P6-2-VIR576 (1.023 μM) in the absence and presence of 0.24 mM lipid vesicles.

Acknowledgements This work was supported by Grants CTQ2012-37589-C02-01/02 from the *Ministerio de Economía y Competitividad* and 2014 SGR 216 from the *Generalitat de Catalunya*

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