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Synthesis and Characterization of Amphiphilic Fluorescent Molecules for Liposome Formulation and Imaging

Josef Hamacek, Chiraz Benabdesselam, Federico Perche

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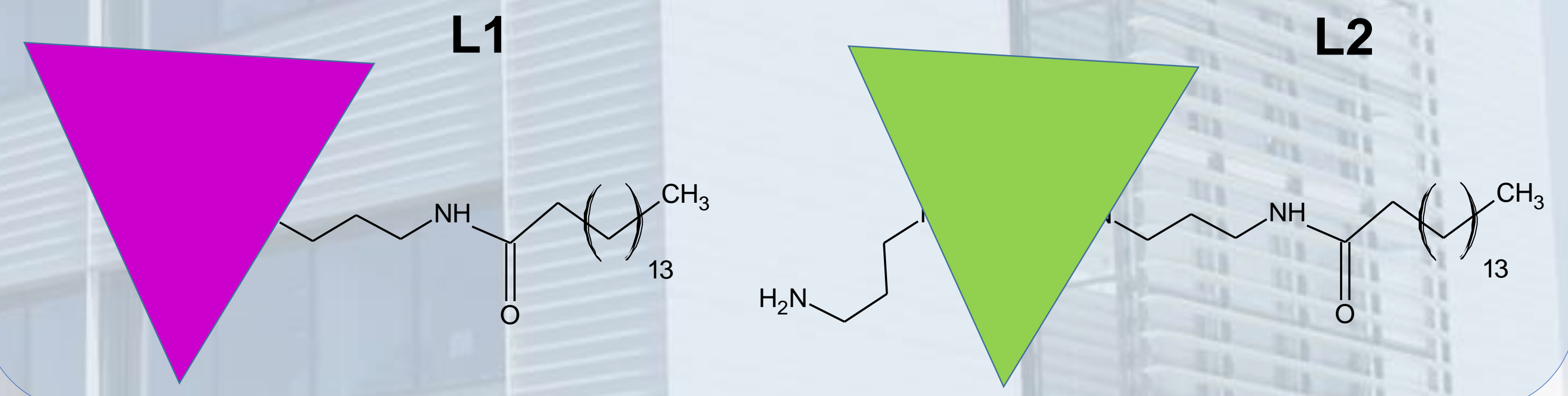
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Synthesis and Characterization of Amphiphilic Fluorescent Molecules for Liposome Formulation and Imaging

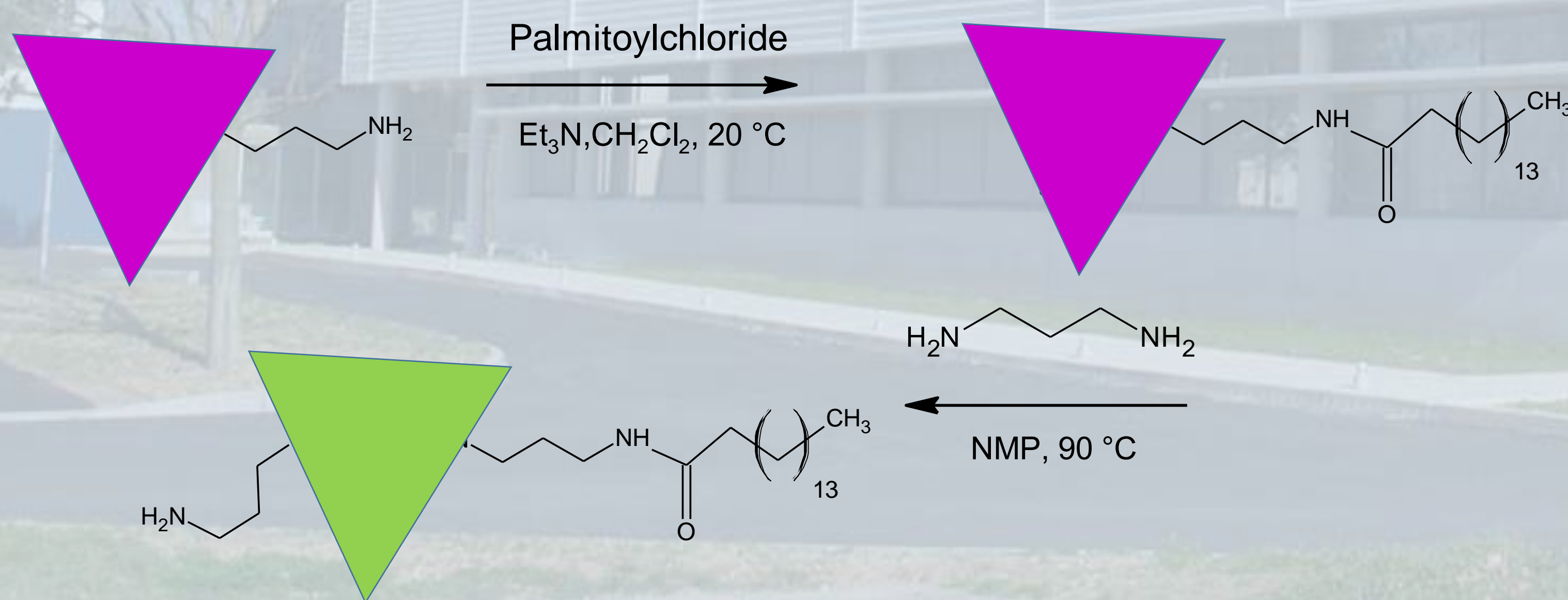
Context

During last years, lipids and their derivatives are the subject of increasing interest, not only due to their investigations in biological systems, but also due to their use in different formulations and therapeutic and/or imaging strategies. Here we are interested in the incorporation of new polytopic fluorescent molecules in cells/membranes.

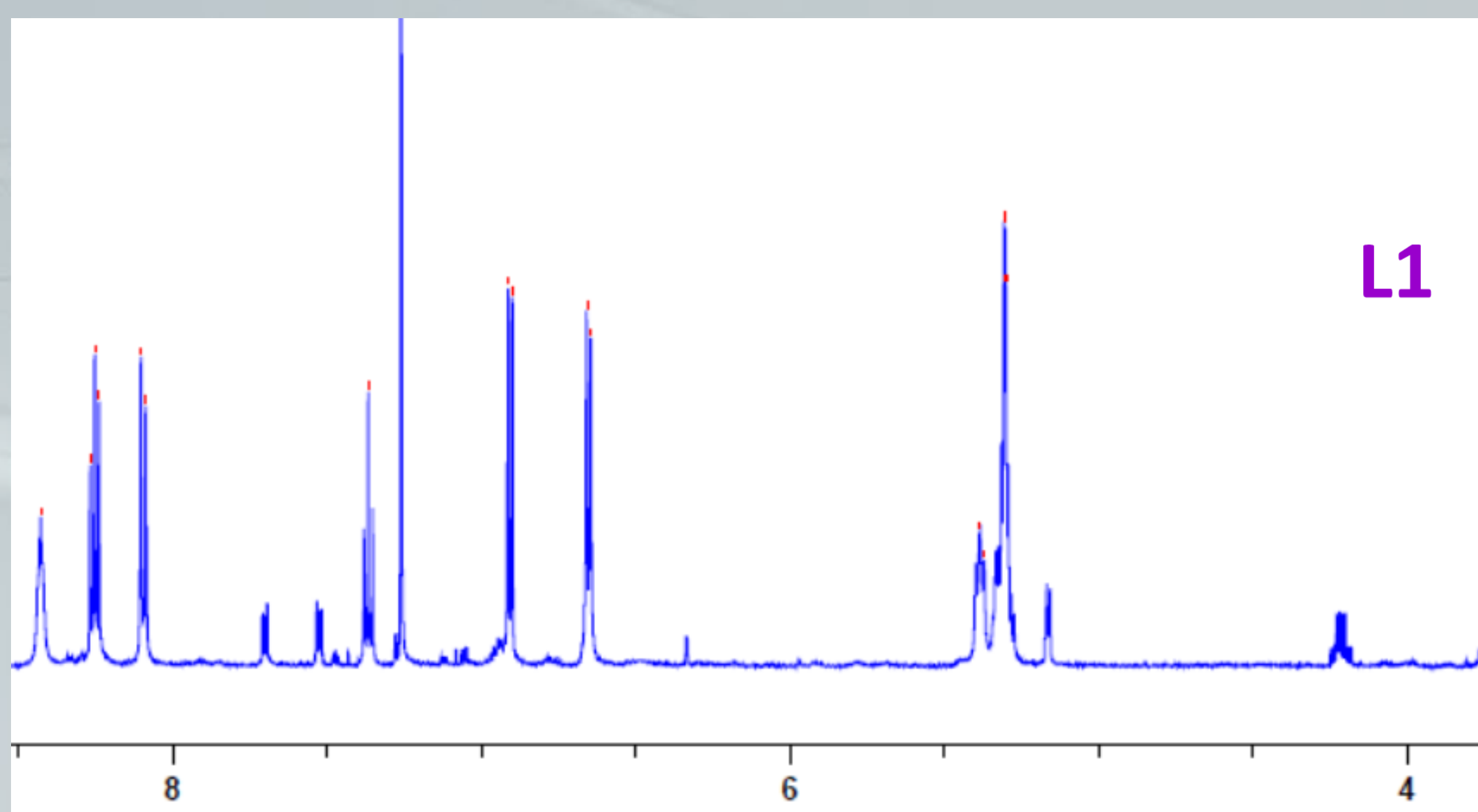
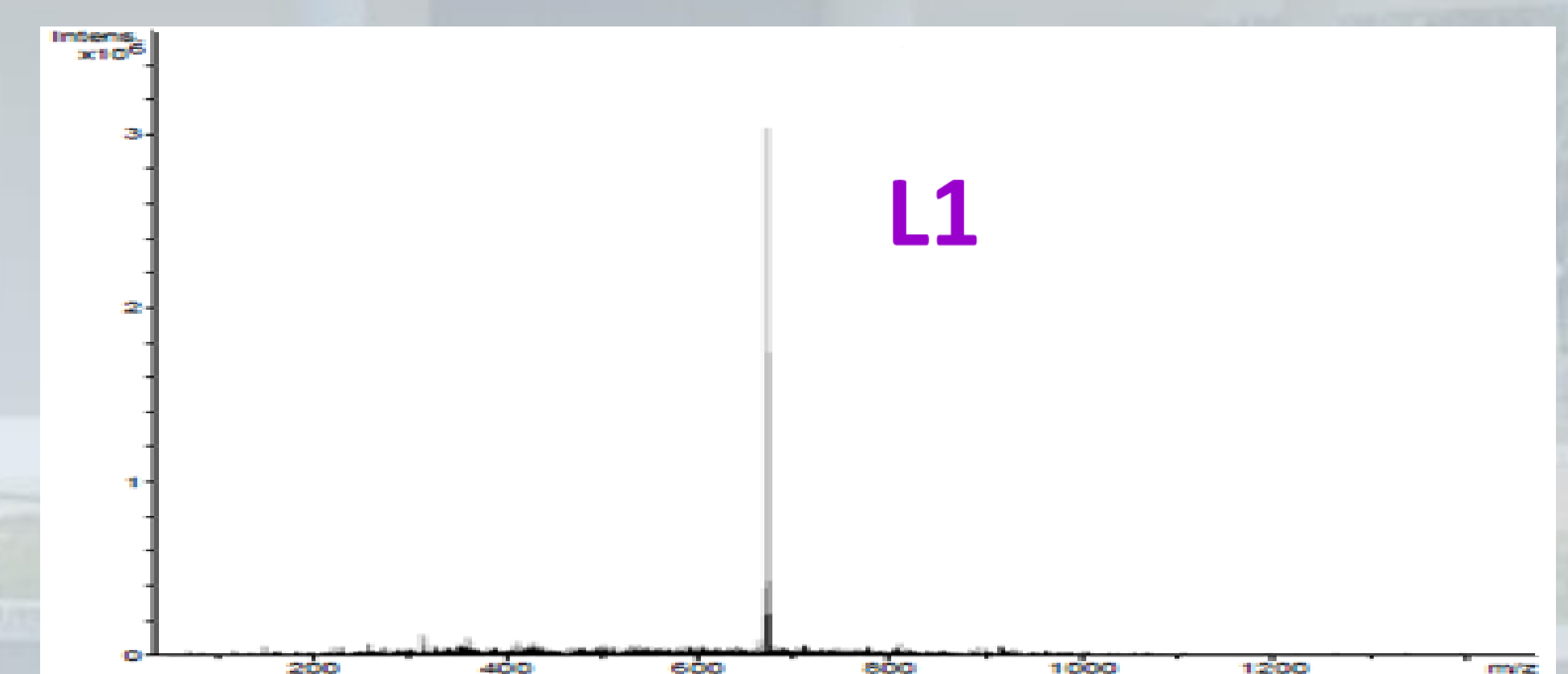
Amphiphilic Fluorophores L1 and L2



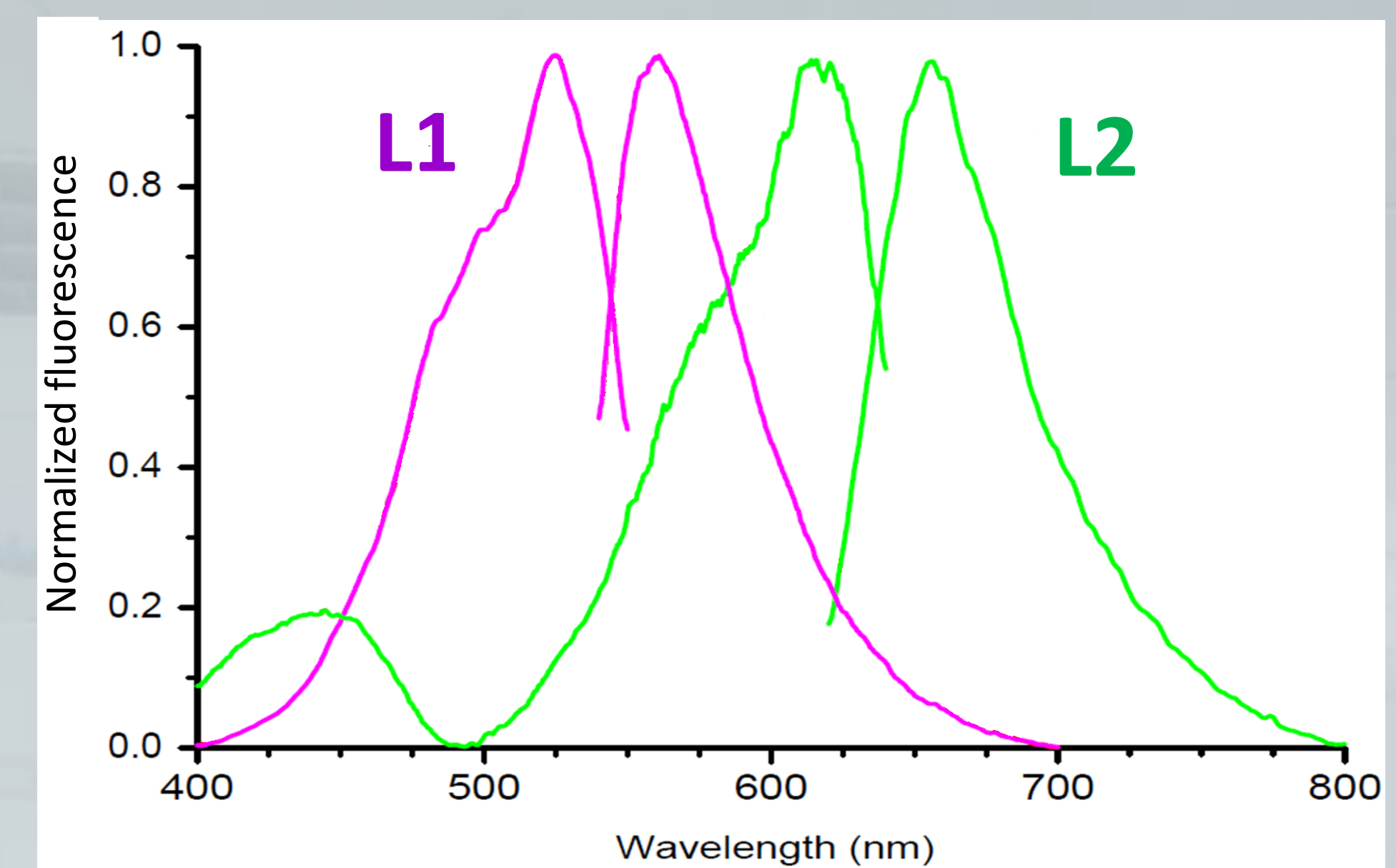
Synthesis and Characterization of L1 and L2



ES Mass Spectrometry Characterization

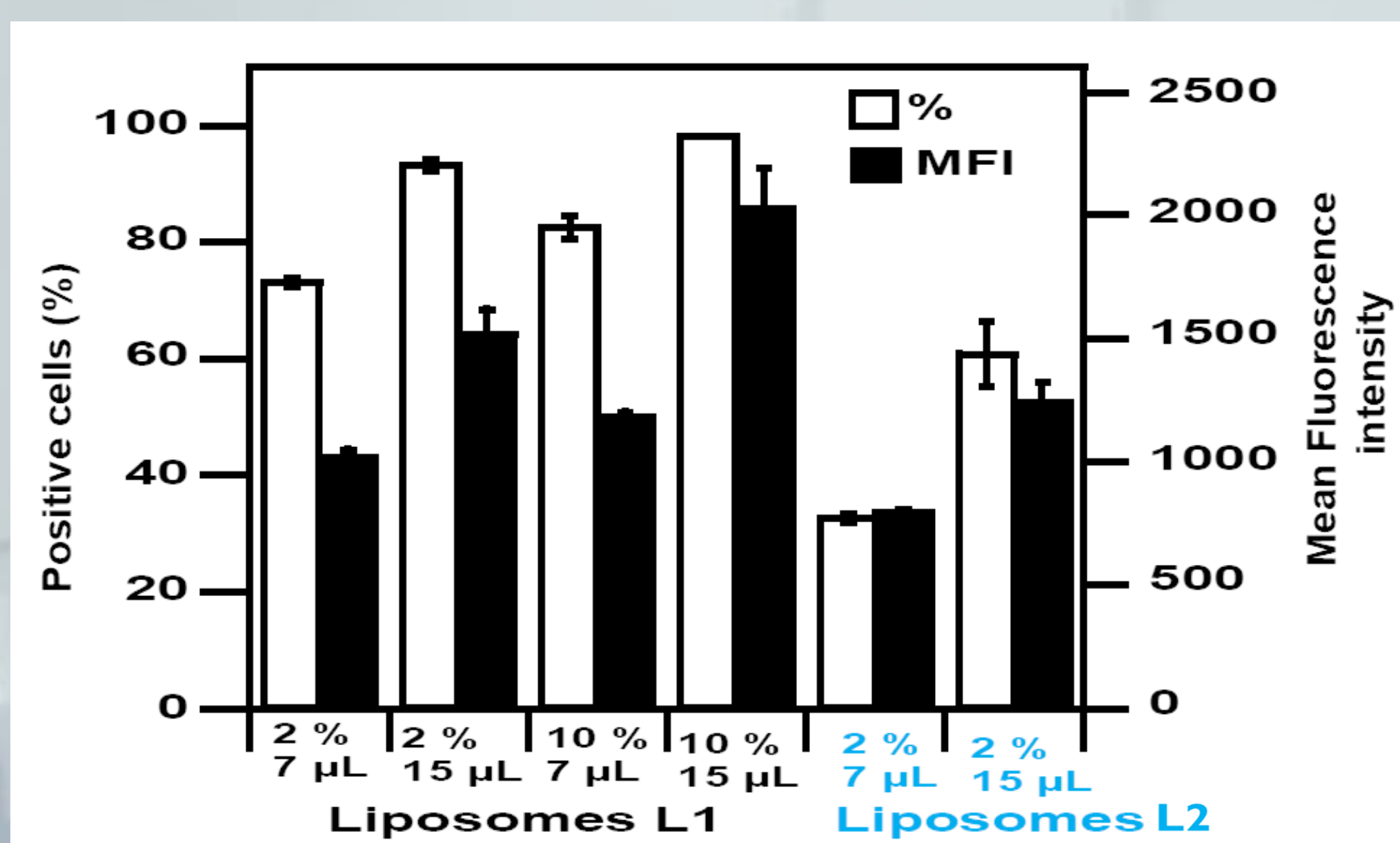


Part of the ^1H NMR spectrum of L1: characteristic aromatic signals



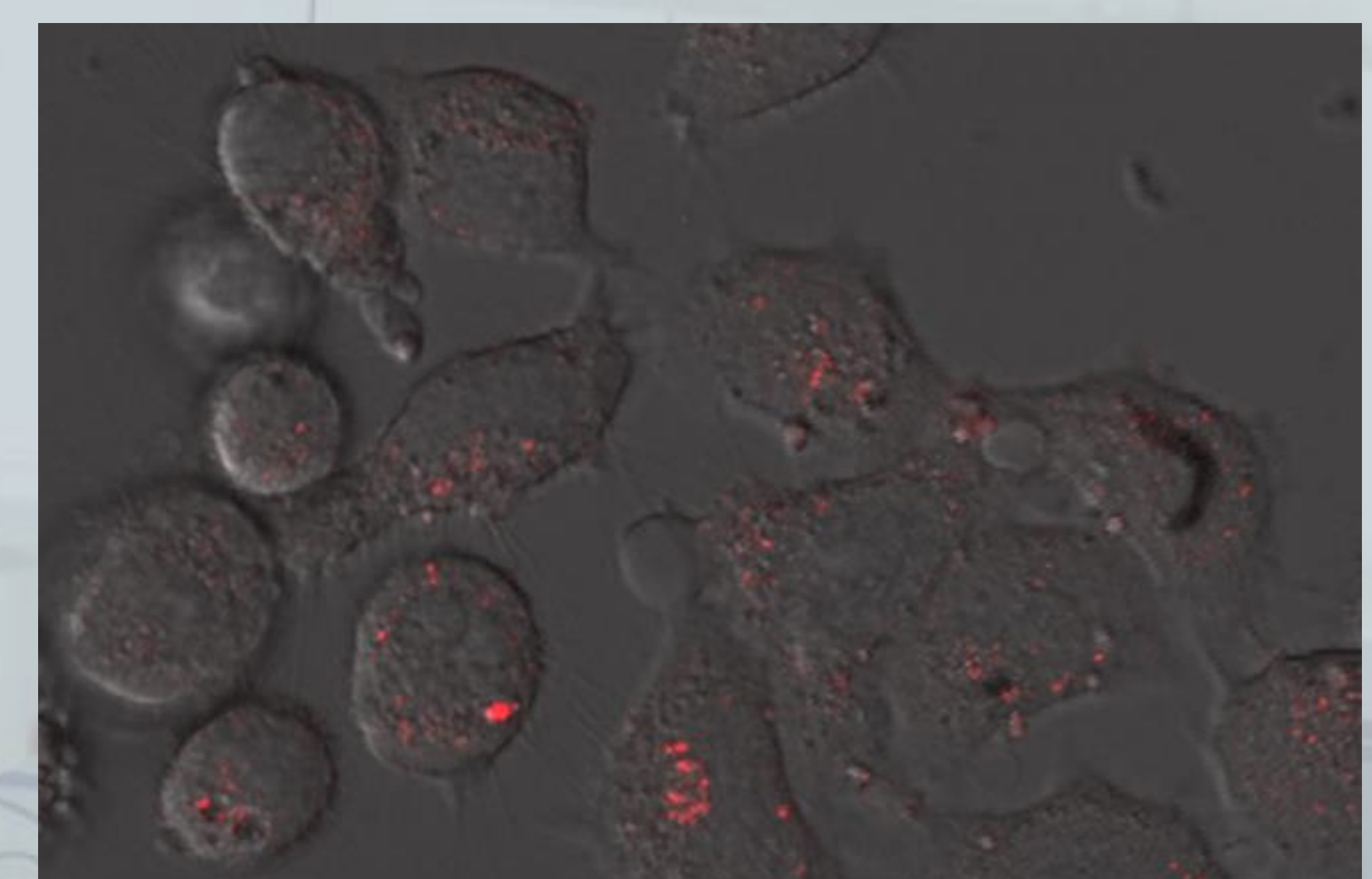
Normalized excitation and emission spectra of L1 and L2

Uptake of Liposomes



- Analysis of transfected cells with Flow cytometry

Fluorescence Imaging



- Uptake of liposomes by cells followed by confocal microscopy

Conclusions

- Water-stable intermediates and amphiphiles L1 and L2
- Multitopic fluorescent platforms/anchors
- Successful formation of liposomes and their uptake by cells

Perspectives

- Tests of cytotoxicity and stability in cellular media
- Synthesis of more complex lipides
- Optimization for drug delivery strategies

Acknowledgement

Financial support from the CNRS, the Cancéropôle Grand Ouest and La Ligue contre le cancer is gratefully acknowledged. We thank the Mass spectrometry platform at the CBM for recording mass spectra.