

*Title:* **Vesicles and hybrid vesicles through electroformation and microfluidic methods.**

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## **SUMMARY**

Vesicles have been the object of study for years for a better comprehension of cells and multiple applications in many fields. There are two methods for making vesicles (electroformation and microfluidics) that have become popular in recent years for its advantages compared to other existing methods. This Final Degree Project focuses on an exhaustive review of both methods and the important considerations that experimental studies have shown for further investigations. In addition, phase behavior in vesicles with lipid mixtures is reviewed as well for its importance in the comprehension of the cell membrane architecture and further protocell synthesis purposes. Finally, the hybrid lipid/polymer vesicle systems are reviewed too for being an important new path on vesicle fabrication, considered part of the future of the vesicle science.

**Keywords:** Vesicle, GUVs, Electroformation, Microfluidics, Hybrid lipid/polymer vesicles.