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# Analysis of micro and nanoencapsulated porphyrin formulation for PDT treatment in biological system

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In the treatment of melanoma and other skin diseases, the Photodynamic therapy (PDT) is a medical procedure with excellent results, whereas the porphyrins and derivatives have been extensively employed. Some limitations have been imposed, particularly by the long persistence time in the organism, leading to undesirable skin photosensitivity. For this reason, more effective and safe photosensitizers and formulations have been pursued. The polymeric encapsulation represents an interesting choice among the other alternatives, because the capsule shell can be made by several biocompatible polymers and with variable degrees of cross-linking allowing the control of permeability and mechanical resistance. A new cream-like polymeric emulsion containing 3 MMe porphyrin was prepared by the coacervation method. This study is aimed to analyze and compare the effect of a micro nanoencapsulated porphyrin 3MMe in fibroblast lines, murine melanoma lines and melanocytes lines *in vitro* through indicators of cell viability and function and evaluated the effect in murine melanoma model *in vivo*. The results showed that the cytotoxicity was directly proportional to the amount of porphyrin 3 MMe and to time of incubation and irradiation, and significantly more effective treatment for melanoma cell lines. It was not observe cellular cytotoxicity in the presence of porphyrin (3 MMe) and absence of light, proving the photodynamic action of the formulation.In vivo studies showed that animals with melanoma who received the treatment, showed a significant decrease in tumor mass compared to the control groups. Thus, the proposed 3 MMe micro/nanocapsule formulation does provide a promising alternative for application in PDT treatment.

## Biography

Lucia Jamli Abel did her Ph.D. at the São Paulo University and postdoctoral studies from São Paulo University and Albert Einstein Hospital.She is currently Full Professor at the Department of Pathology at Paulista University. Her research is focused in Nanotechonology on the understanding of drug delivery systems and recently she submitted a paper of her research group about nanoencapsulated porphyrin formulation. She has published papers in reputed journals and she is a nanotechnology consultant of the Ministry of Science and Technology (MCTI).

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