Pharmacological Evaluation of Two Liposomal Doxorubicin Formulations

Luis A. MEDINA 1,3*, Lizbeth MARTÍNEZ-ACEVEDO 1,3, Carlos JUÁREZ-OSORNIO 1,3, Patricia GARCÍA-LÓPEZ 2, Jazmin M. PÉREZ-ROJAS 2, Rafael JURADO 2 & Héctor VÁZQUEZ-BECERRA 1,3

1 Instituto de Física, Universidad Nacional Autónoma de México, México, D.F. 04510, México.
2 Instituto Nacional de Cancerología, Subdirección de Investigación Básica, México D.F. 14080, México.
3 Unidad de Investigación Biomédica en Cáncer INCan-UNAM, Instituto Nacional de Cancerología, México D.F. 14080, México.

SUMMARY. Two liposomal formulations of doxorubicin (Caelyx® and Doxopeg®) were evaluated for phospholipid content, doxorubicin concentration, liposomal size, zeta potential, osmolarity, phospholipid peroxidation, in vitro release of the drug, pharmacokinetic profile, and cytotoxicity in cancer cell cultures. Phospholipid concentration was not statistically different between formulations. Doxorubicin concentration was in the range of 2.0 mg/mL. Size and zeta potential were in the order of 80 nm and -37 mV, respectively. Osmolarity and peroxidation in both formulations was similar and the in vitro drug release assay indicated minimal release (2 %) of the doxorubicin content after 48 h. Pharmacokinetics parameters in both formulations were very similar and no statistical difference was observed between them; the effect on the growth inhibition in cell lines was also not different. Caelyx® and Doxopeg® are similar in terms of its composition, physical parameters, stability, pharmacokinetics and growth inhibition in cancer cell lines.

KEY WORDS: Doxorubicin, Doxopeg®, Caelyx®, Liposomes.

* Author to whom correspondence should be addressed. E-mail: medina@fisica.unam.mx