

The interaction between Eu(III) tris- β -diketonato coordination complexes (EC), displaying antitumor activity, and lipid vesicles composed of zwitterionic lipid phosphatidylcholine has been studied using fluorescence spectroscopy techniques. To characterize EC-membrane binding, several fluorescent probes, including pyrene, Prodan and 1,6-diphenyl-1,3,5-hexatriene, have been employed. It has been found that EC display effective partitioning into lipid phase, giving rise to structural modifications of both polar and nonpolar lipid bilayer regions, viz. enhancement of membrane hydration and increase in tightness of lipid chain packing. The fact that EC accumulating in lipid bilayer are incapable of inducing significant disruption of membrane structural integrity creates strong prerequisites for development of liposomal nanocarriers of these potential antitumor drugs. Such a possibility is also corroborated by the observation that EC membrane incorporation does not prevent lipid bilayer partitioning of long-wavelength squaraine dyes which represent promising candidates for visualization of liposome biodistribution.