The Effect of Selected Anions on Dipalmitoylphosphatidylcholine Phase Transitions

Adriana Przyczyna[a,*], Bożenna Różycka-Roszk[b] and Marek Langner[c,d]

[a] Department of Physics and Biophysics, Agricultural Academy, ul. Norwida 25, 50–375 Wrocław, Poland. Fax: 48 71 320 51 72. E-mail: mucha@ozi.ar.wroc.pl
[b] Department of Physics and Biophysics, Agricultural Academy, ul. Norwida 25, 50–375 Wrocław, Poland
[c] Institute of Physics, Wrocław University of Technology, Wyb. Wyspiańskiego 27, 50–370 Wrocław, Poland
[d] Academic Center for the Biotechnology of Lipid Aggregates, ul. Przybyszewskiego 63/67, 51–148, Wrocław, Poland

* Author for corresponding and reprint requests

Z. Naturforsch. **57 c,** 712–716 (2002); received March 7/May 6, 2002

Phase Transition, Lipid Bilayer, Calorimetry

The effect of three anions, Cl^-, Br^- and I^-, on the phase transitions of dipalmitoylphosphatidylcholine (DPPC) was measured. Main phase transition was modestly affected by these anions in the salt concentration range 0.2 M. For Cl^- and Br^- the temperature of main phase transition was lower (by about 0.5 °C), its half-width modestly larger and enthalpy practically unchanged, all three parameters were altered to a much larger degree. Main phase transition temperature was 1.5 °C lower and the peak half-width significantly smaller. These changes were not accompanied by any alteration in main phase transition enthalpy. Iodide shifted the pretransition temperature toward lower values and increased its half-width to such an extent that at concentrations above 100 mM it was practically undetectable. Besides cations, the presence of anions also has a distinct effect on lipid bilayer interface properties.