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EFFECTS OF CHOLESTEROL ON THE LIPID BILAYER STRUCTURE BY SAXS AND STM

The effect of cholesterol on the phospholipid bilayer structure and polymorphism of liposomes have been investigated by method of the small angle X-ray diffraction (SAXS) and by the technique of scanning tunneling microscope (STM). The experiments proved that the STM images of the two-dimensional point array of the phospholipid molecules formed on graphite and that the STM images of the two-dimensional corrugated array of the liposomes of phospholipid and cholesterol formed on graphite. By using small angle X-ray diffraction we demonstrate the presence of lamellar phase in the DPPC liposomes. The cholesterol induces spontaneous formation of a complex lamellar phase in the DPPC-cholesterol liposomes and promotes formation of lamellar and cubic phase in the DPPE-cholesterol liposomes. The presence of cholesterol allowed the system to organize in cubic and hexagonal phase in DPPC-DPPE-cholesterol liposomes.

¹Ø¼ü´Ê

μ"Ì'¼(Cholesterol); Ö¬ÖÊÌå(Liposomes); Ğ¡½ÇXÉäÏβÉ¢Éä(Small angle X-ray diffraction); É'ĀèËίμÄÏÔ΢¾μ(Scanned tunneling microscope)