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Optically Induced Rotation of Laser-trapped Chiral Lipid Tubules by Linearly Polarized Light NATTAPORN CHATTHAM, THANATE NA WICHIAN, APICHART PATTANAPORKRATANA, JAMRAS LIMTRAKUL, Kasetsart University, KASETSART UNIVERSITY TEAM — Chiral Phospholipids are found self-assembled into fascinating cylindrical tubules of 500 nm in diameter by helical winding of bilayer stripes under cooling in ethanol and water solution. Theoretical prediction and experimental evidence reported so far confirmed the modulated tilt direction in a helical striped pattern of the tubules. This molecular orientation morphology results in optically birefringent tubules. We investigate them under optical trap of 532 nm linearly polarized optical tweezers. We observed spontaneous rotation of lipid tubules induced by radiation torque. The tubule direction can be controlled by the alignment of polarization direction, and thus the rotation angle can be specified. Other related aspect on optical activity of the lipid tubules is also studied. This work is supported by Kasetsart University Research and Development and National Nanotechnology Center, Thailand.

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