Supporting Information for Soft Matter:

Helical Alignment Inversion of Microtubules in Accordance with a Structural Change in Their Lattice

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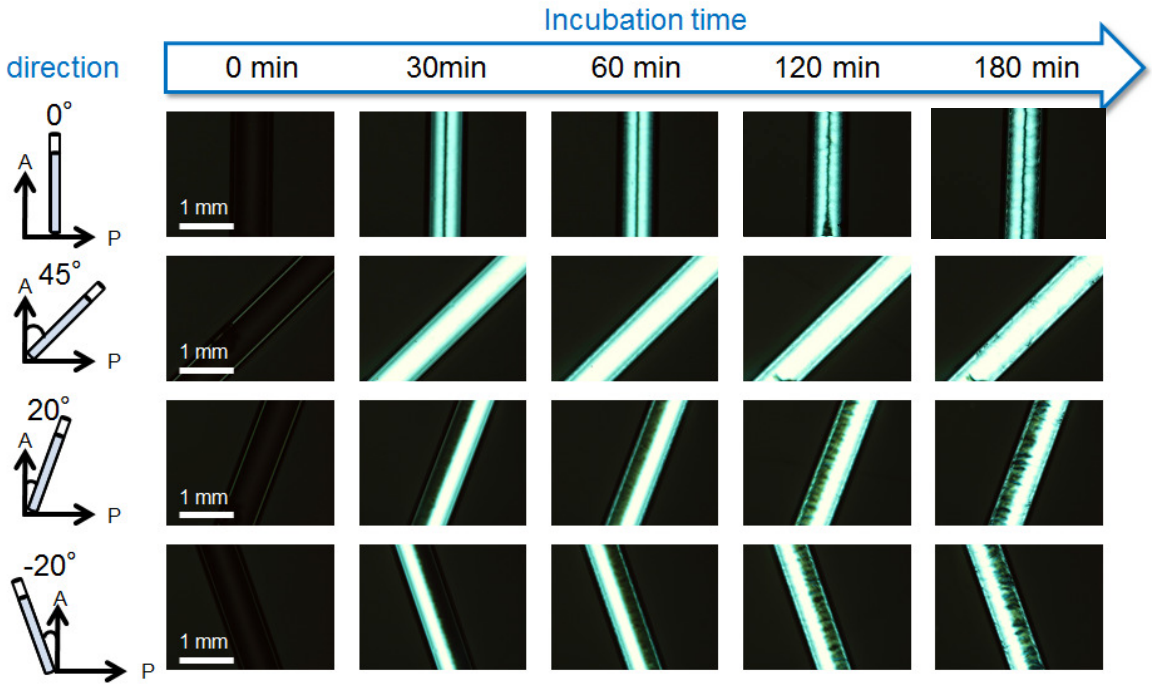

Figure S1. Time-lapse POM images of the MT alignments in the cylindrical capillary cell without DMSO and paclitaxel. POM images were obtained under crossed nicols while changing the angle between the cell and the analyzer ("analyzer angle"). When the analyzer angle was +45° or –45°, a very symmetric white area developed during the incubation period. Asymmetrical development only in the right or left leaf was observed when the analyzer angle was changed to +20° or –20° in all samples. These results indicated that in addition to the giant helical alignment of MTs, chiral polarity of the left-handed helix of MTs influences the appearance of white-dark areas in the polarized optical micrographs.

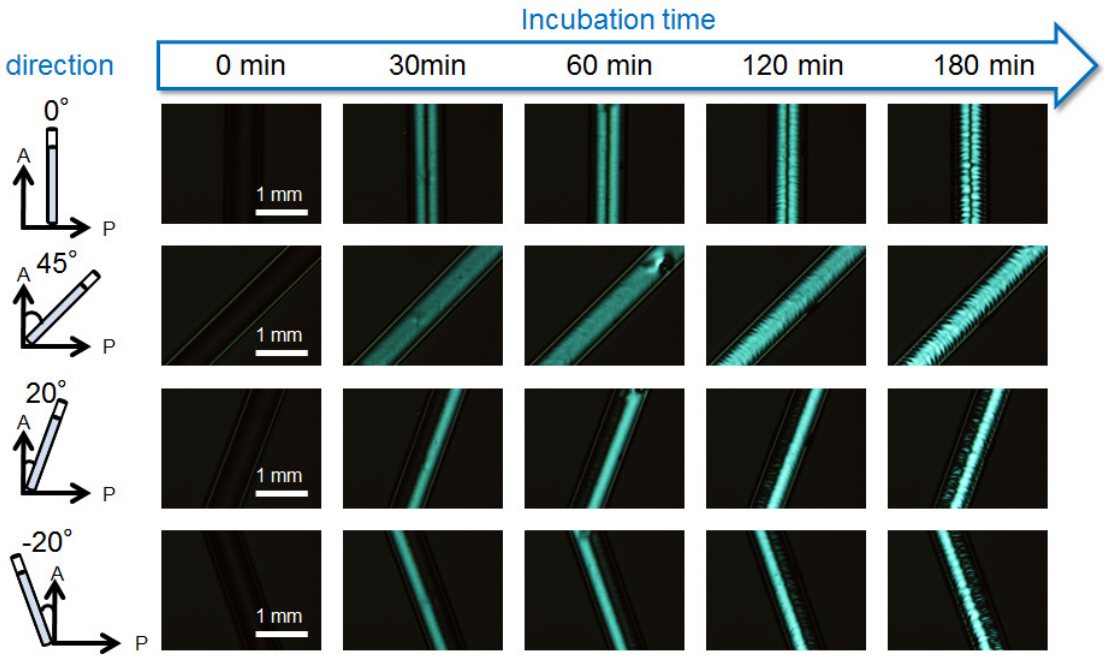

Figure S2. Time-lapse POM images of the MT alignments in the cylindrical capillary cell with DMSO. POM images were obtained under crossed nicols while changing the angle between the cell and the analyzer ("analyzer angle"). When the analyzer angle was +45° or –45°, a very symmetric white area developed during the incubation period. Asymmetrical development only in the right or left leaf was observed when the analyzer angle was changed to +20° or –20° in all samples. These results indicated that in addition to the giant helical alignment of MTs, chiral polarity of the left-handed helix of MTs influences the appearance of white-dark areas in the polarized optical micrographs.

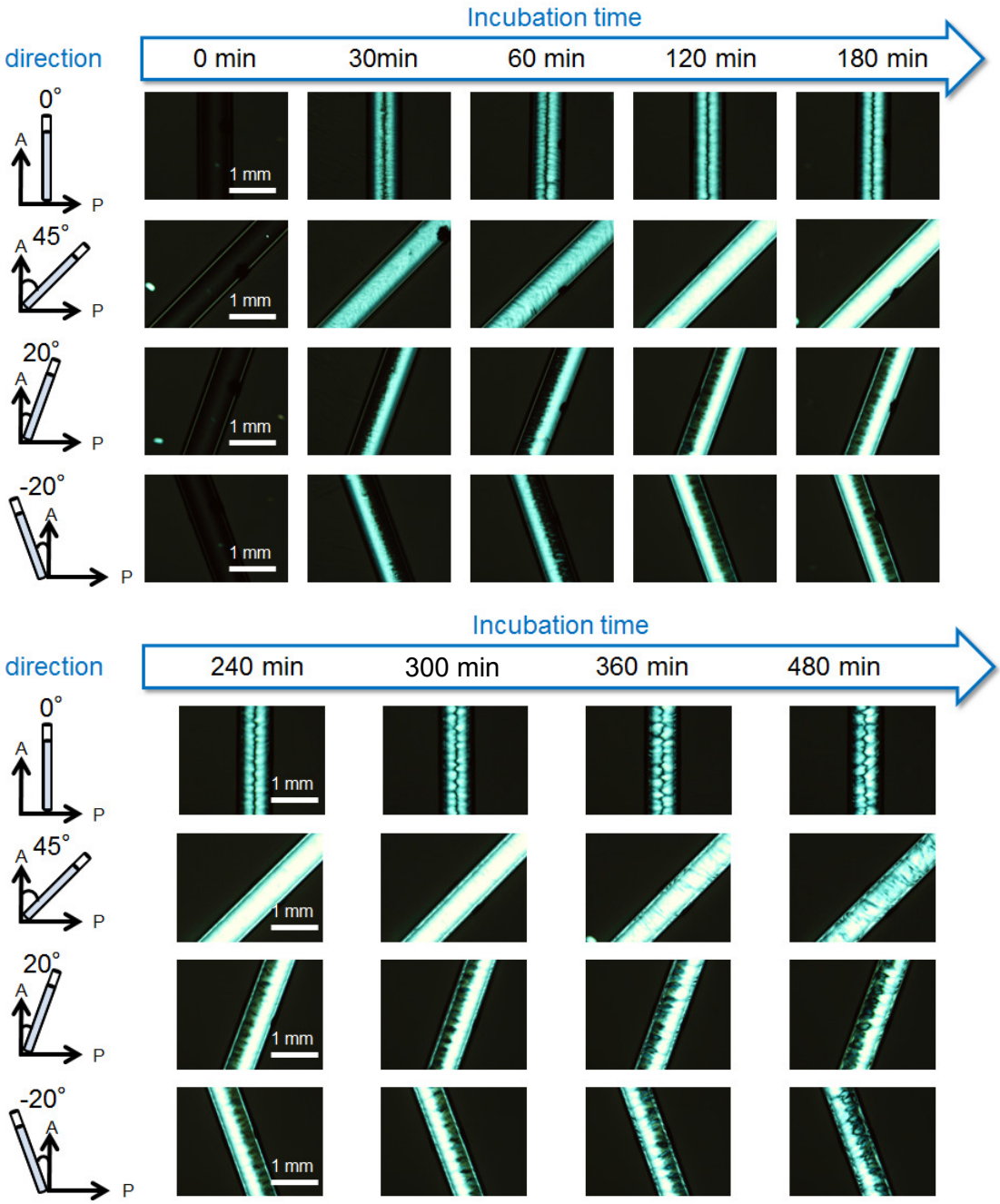

Figure S3. Time-lapse POM images of the MT alignments in the cylindrical capillary cell with paclitaxel. POM images were obtained under crossed nicols while changing the angle between the cell and the analyzer ("analyzer angle"). When the analyzer angle was +45° or –45°, a very symmetric white area developed during the incubation period. Asymmetrical development only in the right or left leaf was observed when the analyzer angle was changed to +20° or –20° in all samples. These results indicated that in addition to the giant helical alignment of MTs, chiral polarity of the left-handed helix of MTs influences the appearance of white-dark areas in the polarized optical micrographs.

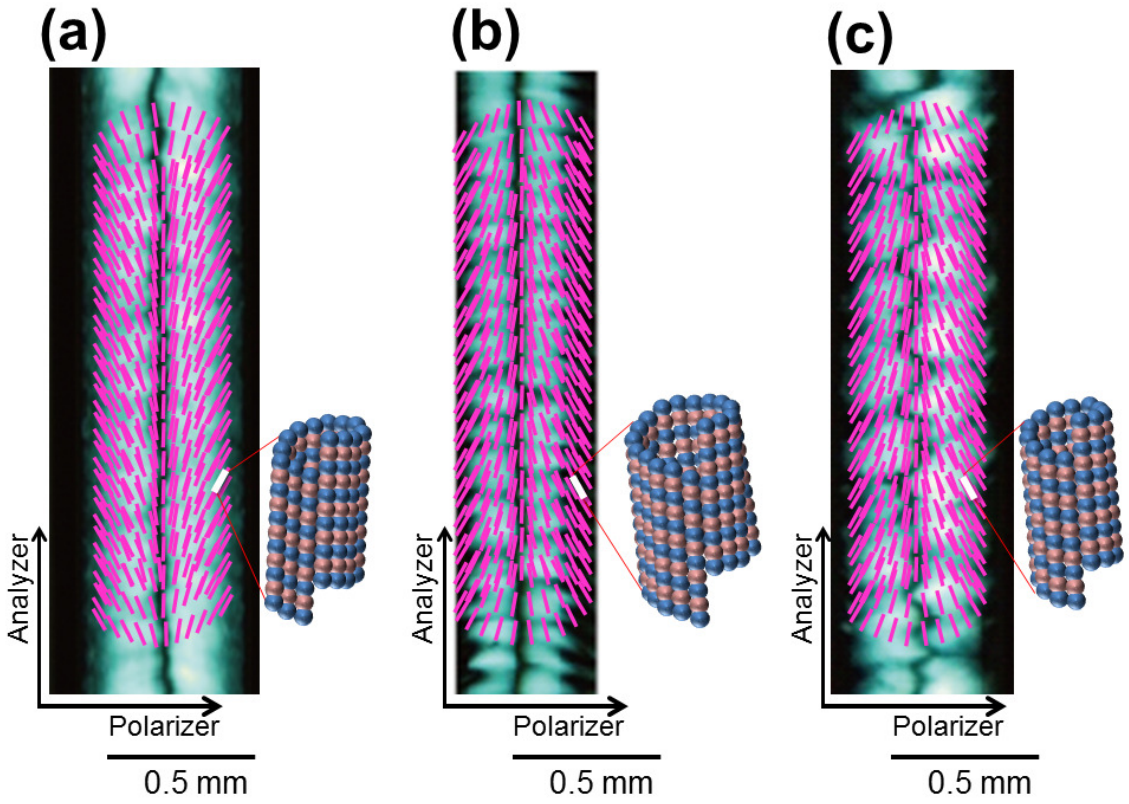

Figure S4. POM images of the MT alignments which are superimposed the prospective illustration of the MTs in the long capillary cell over a temperature gradient in the absence of DMSO and paclitaxel (a; after 180 min of incubation), in the presence of 3.0 w/v% DMSO (b; after 180 min of incubation), and in the presence of 1.0 μM paclitaxel (c; after 480 min of incubation). The POM images are part of Figure 2. The prospective illustration of the MTs and the detailed structure of MTs in the alignment described on the right side of each illustration are part of Figure 4.