

Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: Interaction of CENH3 (purple) and spindle microtubules (green) attachment sites along entire metaphase chromosomes of *C. japonica*. Rendering of 3D-SIM image stacks was performed using Imaris 9.7.

File Name: Supplementary Movie 2

Description: A single mitotic metaphase chromosome of *C. japonica* labeled with telomere (in green) and Chio 1 (in purple) probes. The telomere signals are at the chromosome ends, and the Chio1 clusters closely associated to each other, form a line-like holocentromere from telomere to telomere. At the end of the movie, the surface rendering shows a smooth surface of the metaphase chromosome. Unlike the holocentric plants *L. elegans* and *R. pubera* (Wanner et al. 2015), a chromosome groove was not detected in *C. japonica*. Rendering of 3D-SIM image stacks was performed using Imaris 9.7

File Name: Supplementary Movie 3

Description: Model of centromeric dynamics during the process of chromosome condensation in *C. japonica*. Centromere units cluster at interphase and form into a line-like holocentromere at prometaphase through chromosome condensation.