

## Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: Morph between NMMTapo and CTMMTAMP-PNP models with structures aligned on the KLP10A P-loop. KLP10A in blue; KLP10A P-loop in pink; KLP10A SW1 in green; KLP10A SW2-H4 in magenta,  $\alpha$ -tubulin in light gray,  $\beta$ -tubulin in dark gray, AMP-PNP in red.

File Name: Supplementary Movie 2

Description: Morph between NMMTAMP-PNP and CTMMTAMP-PNP models with structures aligned on the KLP10A P-loop. KLP10A in blue; KLP10A P-loop in pink; KLP10A SW1 in green; KLP10A SW2-H4 in magenta,  $\alpha$ -tubulin in light gray,  $\beta$ -tubulin in dark gray, AMP-PNP in red.

File Name: Supplementary Movie 3

Description: Morph between NMMTapo and NMMTAMP-PNP models with structures aligned on the KLP10A P-loop. KLP10A in blue; KLP10A P-loop in pink; KLP10A SW1 in green; KLP10A SW2-H4 in magenta,  $\alpha$ -tubulin in light gray,  $\beta$ -tubulin in dark gray, AMP-PNP in red.

File Name: Supplementary Movie 4

Description: KLP10A-Tubulin conformational changes seen from the protofilament perspective. Morph between NMMTapo, NMMTAMP-PNP and CTMMTAMP-PNP models with structures aligned on the left-most  $\beta$ -tubulin subunit. KLP10A in blue; KLP10A P-loop in pink; KLP10A SW1 in green; KLP10A SW2-H4 in magenta,  $\alpha$ -tubulin in light gray,  $\beta$ -tubulin in dark gray, AMP-PNP in red. KLP10A neck domain not shown.

File Name: Supplementary Movie 5.

Description: KLP10A-Tubulin conformational changes seen from the KLP10A nucleotide binding pocket perspective. Morph between NMMTapo, NMMTAMP-PNP and CTMMTAMP-PNP models with structures aligned on the P-loop of leftmost KLP10A motor domain; KLP10A in blue; KLP10A P-loop in pink; KLP10A SW1 in green; KLP10A SW2-H4 in magenta,  $\alpha$ -tubulin in light gray,  $\beta$ -tubulin in dark gray, AMP-PNP in red. KLP10A neck domain not shown.