

## Description of Additional Supplementary Files

**File name:** Supplementary Movie 1

**Description:** Comparison of NgCKK and HsCKK binding positions on two laterally adjacent tubulin dimers. The pair of neighbouring tubulin dimers in 13-protofilament HsCKK and NgCKK models were superimposed and a morph created between the two, demonstrating structural and positional differences between the HsCKK and NgCKK relative to the MT lattice. The CKK models are coloured according to SSE/loop colour scheme in Fig 1.

**File name:** Supplementary Movie 2

**Description:** NgCKK is minimally displaced from its binding site in 14- compared to 13- protofilament MTs. A transverse view from the MT plus end through 3 protofilaments from the NgCKK-MT 13- morphing to 14- protofilament models (backbone representation) superimposed on the central protofilament. This shows how the adjacent protofilaments adopt a shallower relative angle in 14- protofilament MTs and reveals the minimal displacement of bound NgCKK in response to this change in lateral protofilament curvature. NgCKK is shown in light green,  $\beta$ -tubulin in dark grey,  $\alpha$ -tubulin in light grey.

**File name:** Supplementary Movie 3

**Description:** HsCKK is displaced from its binding site in 14- compared to 13- protofilament MTs, demonstrating its greater sensitivity to microtubule lateral curvature. A transverse view from the MT plus end through 3 protofilaments from the HsCKK-MT 13- morphing to 14- protofilament models (backbone representation) superimposed on the central protofilament. This shows how the adjacent protofilaments adopt a shallower relative angle in 14- protofilament MTs and reveals the displacement of bound HsCKK in response to this change in lateral protofilament curvature. HsCKK is shown in green,  $\beta$ -tubulin in dark grey,  $\alpha$ -tubulin in light grey.