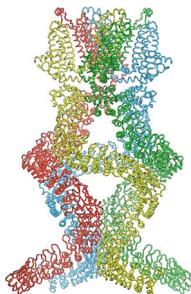


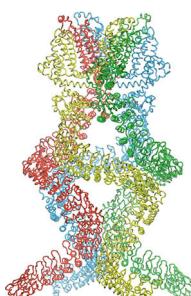
Supplemental material

Argudo et al., <https://doi.org/10.1083/jgp.201812266>

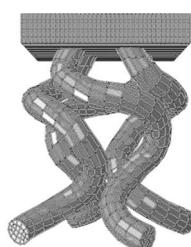
The supplemental text describes a model for ankyrin chains as idealized helical rods and includes Figs. S1–S7.



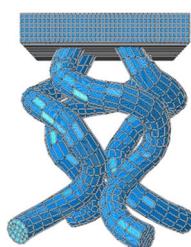
Video 1. **First normal mode of the full NOMPC channel.** The video shows the motion of the lowest order normal mode of the full NOMPC channel. The four subunits of the homotetramer are represented in tube format and colored yellow, green, cyan, and red.



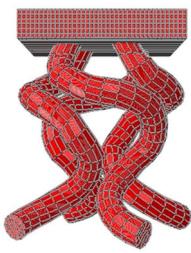
Video 2. **First normal mode of the full NOMPC channel with the N-terminal residues clamped.** The video shows the motion of lowest order normal mode of NOMPC with the N-terminal residues clamped to mimic rigid attachment to a microtubule. The NOMPC subunits are represented as in Video 1.



Video 3. **Compression of the helical bundle predicted from our finite element model of NOMPC assuming no-contact conditions.** The four ankyrin chains composing the helical bundle are represented as gray cylinders based on the NOMPC channel, and each helix terminates in the rigid TRP region mimicking contact with the channel domain. As a force is applied to the bottom of the four chains at the N termini, the bundle is compressed in the z direction and the TRP region undergoes rigid body rotations in the x-y plane. The initial starting structure is shown in ghost view for reference. All calculations were performed with Abaqus.



Video 4. **Compression of the helical bundle predicted from our finite element model of NOMPC assuming frictionless contact conditions.** The four ankyrin chains composing the helical bundle are represented as blue cylinders based on the NOMPC channel, and each helix terminates in the rigid TRP region mimicking contact with the channel domain. As a force is applied to the bottom of the four chains at the N termini, the bundle is compressed in the z direction and the TRP region undergoes rigid body rotations in the x-y plane. The initial starting structure is shown in ghost view for reference. All calculations were performed with Abaqus.



Video 5. **Compression of the helical bundle predicted from our finite element model of NOMPC assuming rough contact conditions.** The four ankyrin chains composing the helical bundle are represented as red cylinders based on the NOMPC channel, and each helix terminates in the rigid TRP region mimicking contact with the channel domain. As a force is applied to the bottom of the four chains at the N termini, the bundle is compressed in the z direction and the TRP region undergoes rigid body rotations in the x-y plane. The initial starting structure is shown in ghost view for reference. All calculations were performed with Abaqus.