Supplementary Figure S1. Calculating center-to-center cone spacing (c).

The packing of cone photoreceptor inner segments and Müller cells at the external limiting membrane is a triangular array with hexagonal elements (example from a human retina flatmount, inset. Scale bar, 10μm. [Adapted with permission13]). Light tan circles are inner segments in cross-section, and red dots are centers. The darker tan is the Müller cells that surround each cone, and edges of hexagons (which do not represent anatomical structures) are shown as lines. At light microscopy resolution in Figure 6, we assume that the width of the bounding hexagon is the same as the diameter of the cone inner segment, which can be measured in a flatmount retina. The area of each hexagon can be determined from 12 right triangles that make it up. Two of these triangles are shown. Each triangle has a height (h) and base (b).

\[ h = \frac{1}{2} c \]  
\[ b = \frac{1}{2} \times c \times \frac{1}{\sqrt{3}} \]

Area of one triangle = \[ \frac{1}{2} \times (b \times h) = \frac{1}{2} \times \frac{1}{c \times 2\sqrt{3}} \times \frac{1}{2} c \]

Area of 12 triangles = 1 hexagon = \[ \sqrt{3} \times c^2 \]

Rearranging this formula, \[ c = \sqrt{\frac{2 \times \text{Hexagon area}}{\sqrt{3}}} \], where hexagon area is the cross-sectional area of a cone inner segment (cone area).
Supplementary Figure S2. Outer retinal tubulation network in spectral domain optical coherence tomography for TCS1-10. (A) En face SD-OCT scan showing complex connected ORT network. Green lines are levels of SD-OCT scans 1-4 spaced 275 µm apart, for 25 scans (TCS1), 154 µm apart, for 14 scans (TCS2), 220 µm apart, for 20 scans (TCS3), 66 µm apart, for 6 scans (TCS4), 275 µm apart, for 25 scans (TCS5), 418 µm apart, for 38 scans (TCS6), 418 µm apart, for 38 scans (TCS7), 60 µm apart for 6 scans (TCS8), 121 µm apart, for 11 scans (TCS9), and 253 µm apart, for 23 scans (TCS10) apart. Red lines in SD-OCT scans are at the levels of en face reconstruction (Heidelberg Spectralis). Blue boxes are higher magnification ORT cross-sections demonstrating ORT hyperreflective band intensity measurements at 0° (red), 90° (yellow), 180° (green), 270° (cyan) around ORT cross-section. Each line of the cross in the centroid of ORT cross-sections is 20 µm long (blue boxes). (B) Average raw (linear) SD-OCT Intensity (ranging from 0-1) by ORT type and angle sampled at 5 µm steps from the inner aspect of ORT band, representing 0 distance. Error bars, 95% confidence interval.
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