

Imaging Rod Photoreceptors
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The distribution of rods and cones across the human retina is well established through microscopic observations of excised retina. More recently, adaptive optics has made it possible to image cone photoreceptors in the living eye, but so far the rod photoreceptors have not been successfully imaged *in vivo*. Some retinal diseases such as retinitis pigmentosa initially damage rods, and it would be valuable to be able to track the early stages of this disease, or therapies for it, in the living eye. Rods are difficult to image because they are smaller than even the smallest cones. The broader angular tuning of rods also implies that less light will be reflected back through the pupil. We are exploring methods to image rods that include: 1) imaging at retinal locations (5-10 deg) where the rods are numerous, 2) using an annular pupil that favors light from rods, 3) averaging multiple images of the same retinal location, and 4) examining image power spectra for a frequency component corresponding to the known periodicity of rods.