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**COLOR-OPPONENT SITES: INDIVIDUAL VARIABILITY AND CHANGES WITH RETINAL ECCENTRICITY**

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**Purpose.** Measurements of unique hues and L to M cone ratios were used to evaluate variations in the color-opponent sites with eccentricity and among individuals due to differences in: 1) spectral sensitivities of the cone photopigments; 2) the relative numbers of L, M, and S cones; and 3) neural mechanisms. **Methods.** Foveal unique yellow and L to M cone ratio were measured for 10 color normal individuals. For two observers, L to M cone ratio and unique yellow, blue, and green were measured at the fovea and at eccentric locations (nasal 2, 7, 28 deg and temporal 2, 7, 17, 28 deg). S cone numerosity at each location was estimated on the basis of anatomical results (Curcio et al., 1991).

**Results.** Measurements are consistent with a constant L to M cone ratio with eccentricity. For the red-green system, each individual's unique yellow and unique blue are constant with eccentricity. For the yellow-blue system, each individual's unique green, dependent on quantum catches in L, M, and S cones, is constant with eccentricity, except in the central ( $\pm 2$  deg) region where S cone density rapidly changes. **Conclusions.** Individual variability in unique yellow (20 nm) is too large to be due to differences in cone spectral sensitivity alone. In our sample of 10 observers, individual differences in cone ratios are sufficient to account for individual differences in unique yellow if, in addition, differences of no more than 3-4 nm in  $\lambda_{max}$  of the L or M cone pigments are assumed. Cone ratios and unique hues are invariant with eccentricity for the red-green system but not for the yellow-blue.

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