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VARIATION AND EVOLUTION OF PRIMATE COLOR VISION REVEALED BY CROSS-DISCIPLINARY STUDIES

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Primates are unique among eutherian mammals in having trichromatic color vision reclaimed from a dichromatic ancestor. However, there is considerable variation in the expression of trichromacy in the order. Prosimians and New World monkeys possess highly variable color vision, while in Old World monkeys, trichromacy is routinely present and highly conserved. Humans are a notable exception to the catarrhine pattern, as their expression of trichromacy is also highly variable. In this symposium, we undertake a cross-disciplinary approach by inviting the contributions of researchers from the fields of genetics, psychology, psychophysics, sensory ecology and field primatology. We will cover diverse topics, including population genetics and balancing selection, selective pressures acting on the spectral tuning of cone cells, methods for assessing primate coloration by considering visual systems, behavioral studies on fruit and insect foraging as well as overviews of the variation in primate color vision and the adaptive relevance of trichromatic versus dichromatic and monochromatic vision. We anticipate that this symposium will facilitate communication among color vision scientists and encourage debate and discussion about the future directions of research in this field.

Keywords: trichromatic color vision, population genetics, sensory ecology, field primatology