

Membrane current of retinal rods of *Caudiverbera caudiverbera* (Amphibia : Leptodactylidae): Dark noise, spectral and absolute light sensitivity

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VISUAL NEUROSCIENCE

Volumen: 18

Número: 4

Páginas: 663-673

DOI: 10.1017/S0952523801184166

Fecha de publicación: JUL-AUG 2001

Tipo de documento: Article

[Ver impacto de la revista](#)

Abstract

We investigated the photocurrents from isolated rods of the South American anuran, *Caudiverbera caudiverbera*. Rod outer segments were on average 66.4 ± 11.2 μm (mean \pm S.D., $n = 104$) in length and 6.6 ± 0.9 μm (mean \pm S.D.) in diameter; 40 ± 22 photoisomerizations (mean \pm S.D., range 10-99, $n = 16$) were required for eliciting a half-saturating photocurrent response. The time-to-peak was 911 ± 217 ms (mean \pm S.D., $n = 14$, 20degreesC) in the linear range of the response and the integration time of the current response was 1744 ± 451 ms (mean \pm S.D., $n = 14$). The time-to-peak appears to be slower and the integration time shorter in *Caudiverbera* than in *Ambystoma tigrinum*, *Rana pipiens* or *Xenopus laevis* rods under similar experimental conditions. The a-band of rod spectral sensitivity has a $\lambda(\text{max})$ at 520 ± 2.1 nm (mean \pm S.D., range 516-525 nm, $n = 24$) and the bandwidth fits a porphyropsin visual pigment. The single-event response amplitude ranges from 0.31-0.51 pA, depending on the calculation method. The intrinsic dark current (variance at dark minus variance under bright light) was 0.045 ± 0.040 pA(2) (mean \pm S.D., $n = 24$). Our results support the presence of a dark-noise component below 1 Hz, with kinetics similar to the single-photon evoked response and a rate of 0.006 events s^{-1} ($n = 9$)

Palabras clave

Palabras clave de autor: [anura](#); [Caudiverbera caudiverbera](#); [visual transduction](#); [spectral sensitivity](#); [rod photoreceptor](#); [dark noise](#)

KeyWords Plus: [OUTER SEGMENTS](#); [VISUAL](#)

[TRANSDUCTION](#); [CONES](#); [PHOTORECEPTORS](#); [PHOTOCURRENTS](#); [KINETICS](#); [PHOTOTRANSDUCTION](#); [ULTRAVIOLET](#); [VERTEBRATE](#); [ADAPTATION](#)

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Editorial

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Información de la revista

- **Impact Factor:** [Journal Citation Reports](#)

Categorías / Clasificación

Áreas de investigación:Neurosciences & Neurology; Ophthalmology

Categorías de Web of Science:Neurosciences; Ophthalmology

Información del documento

Idioma:English

Número de acceso: WOS:000173202800016

ID de PubMed: 11829312

ISSN: 0952-5238