

Light-dependent channels from excised patches of Limulus ventral photoreceptors are opened by cGMP

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The identity of the second messenger that directly activates the light-dependent conductance in invertebrate photoreceptors remains unclear; the available evidence provides some support for cGMP and Ca^{2+} . To resolve this issue we have applied these second messengers to membrane patches excised from the light-sensitive lobe of Limulus ventral photoreceptors. Our results show that these patches contain channels that can be opened by cGMP, but not by Ca^{2+} . These cGMP-activated channels closely resemble the channels activated by light in cell-attached patches. This evidence suggests that cGMP is the messenger that opens the light-dependent channel in invertebrate photoreceptors.