

UV-sensitive non-visual photopigment in mammals.

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Opsins are the light-sensitive molecules important for animal photoreception. Vertebrate visual opsins such as rhodopsin and cone opsins are present in retinal rod and cone cells, respectively, and play an indispensable role for vision. On the other hand, their related molecules, called non-visual opsins, have been found in non-rod non-cone cells in the retina and/or extraretinal tissues such as pineal gland. Biochemical and physiological functions have been elucidated for some of these non-visual opsins such as melanopsin (*e.g.* Panda *et al.*, 2003; Hattar *et al.*, 2003; Koyanagi *et al.*, 2005; Torii *et al.*, 2007). In this study, we found a UV-sensitive opsin in mammals and demonstrated that the UV pigment and its photoproduct are interconvertible by light illumination indicating its bistable nature. We raised a specific antibody against the pigment and found the immunoreactivities in non-rod non-cone cells in the retina as well as in some extraretinal tissues. Possible physiological roles of this opsin will be discussed.