



Evolution and Senses: Opsins, Bitter Taste, and Olfaction (Paperback)

By Yoshinori Shichida, Takahiro Yamashita, Hiroo Imai

Springer Verlag, Japan, Japan, 2013. Paperback. Book Condition: New. 2013 ed.. 226 x 152 mm. Language: English . Brand New Book. In this book, we focus on the sensing and the evolution of animals. Using the five senses (visual, auditory and olfactory perception, and taste and touch), we can receive environmental stimuli and respond to them. Changes of these sensitivities might cause changes of habitat, activity timing, diet, etc. and vice versa. Recent advances in genome and molecular analysis enable us to investigate certain changes of the receptors or mechanisms involved in sensing and give us clues to understand the evolution of animals related to them. Among these studies, here we will learn about three topics. The first work focuses on the molecular evolution of opsins. In addition to the well-known function of opsins as visual receptors, opsins can be related with non-visual photoreception such as photoentrainment of circadian rhythm, photoperiodism and background adaptation. Molecular phylogenetic studies revealed that all opsin genes are evolved from one ancient opsin gene. The evaluation of the functions of each extant opsin protein based on the molecular features enables us to predict the molecular evolution and diversification of opsins during the evolution of animals....



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