

英文題目: Light-Responsive Cryptochromes from a Simple Multicellular Animal, the Coral *Acropora millepora*

中文題目: 來自簡單的多細胞動物—多孔軸孔珊瑚 *Acropora millepora* 的光感應

隱花色素

作者: O. Levy et al.

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報告人: 林子傑 五年一貫 碩一

指導教授: 識名信也 老師

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Abstract

Hundreds of species of reef-building corals spawn synchronously over a few nights each year, and moonlight regulates this spawning event. However, the molecular elements underpinning the detection of moonlight remain unknown. Here we report the presence of an ancient family of blue-light-sensing photoreceptors, cryptochromes, in the reef-building coral *Acropora millepora*. In addition to being cryptochrome genes from one of the earliest-diverging eumetazoan phyla, *cry1* and *cry2* were expressed preferentially in light. Consistent with potential roles in the synchronization of fundamentally important behaviors such as mass spawning, *cry2* expression increased on full moon nights versus new moon nights. Our results demonstrate phylogenetically broad roles of these ancient circadian clock-related molecules in the animal kingdom.

中文摘要

數以百計的造礁珊瑚在月光的調控下，會在每年的某幾個夜晚進行大規模的產卵

活動，但目前珊瑚受月光調控的分子機制還是未知的。本研究發現一種存在於多

孔軸孔珊瑚 *Acropora millepora* 的藍光受體—隱花色素

cryptochromes(CRY)，它除了是最早出現在真後生動物門的隱花色素基因，也

在此珊瑚中發現的兩種隱花色素 *cry1* 和 *cry2* 皆在光照下具有很高的表現量。由

於在滿月夜晚的 *cry2* 的表現量較新月夜晚來的更多，可能與珊瑚集體大規模產

國立臺灣海洋大學
海洋環境與生態研究所 專題討論

卵有關。本研究的結果證明與調控生理時鐘相關的分子在動物界的演化中扮演了一個重要的角色。

參考資料

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