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Authors: Victoria Spencer, Minsung Kim

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Re”CYC”ling Molecular Regulators In The Evolution And Development Of Flower Symmetry

Victoria Spencer & Minsung Kim*

School of Biological Sciences, Faculty of Biology, Medicine and Health, University of Manchester, Manchester, M13 9PT, United Kingdom

*Correspondence: minsung.kim@manchester.ac.uk

Abstract

Flower forms are both highly diverse and multifaceted. As well as varying in colour, size, organ number, and much more, flowers show different types of symmetry. Floral symmetry can be grouped into three main categories: asymmetry, bilateral symmetry and radial symmetry, characterised by zero, one, and multiple planes of symmetry, respectively. This review will first explore floral symmetry from a classical morphological view, then from a modern molecular perspective. The recent molecular work on symmetry in monocots and eudicots will be discussed, followed by an in-depth discussion into the evolution of *CYC* genes, particularly in the capitulum of the sunflower family (Asteraceae). Whilst recent studies on non-model species are helping to bring new light to this field, more species coverage is required to understand how traits such as bilateral symmetry have evolved so many times, and whether the same molecular regulators were recruited for this function.

Key Words

Flower Symmetry; Zygomorphy; Pollination; *CYCLOIDEA*; *MADS* box Genes; Capitulum

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