

Complex Change ([https://www.gephebase.org/search-criteria?/and+Aberration Type=~Complex Change~#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Aberration+Type=~Complex+Change~#gephebase-summary-title))

Aberration Type

Absence/presence of a supergene constituted by a cluster of 6 genes

Molecular Details of the Mutation

Linkage Mapping ([https://www.gephebase.org/search-criteria?/and+Experimental Evidence=~Linkage Mapping~#gephebase-summary-title](https://www.gephebase.org/search-criteria?/and+Experimental+Evidence=~Linkage+Mapping~#gephebase-summary-title))

Experimental Evidence

Genetic architecture and evolution of the *S* locus supergene in *Primula vulgaris*. (2016) (<https://pubmed.ncbi.nlm.nih.gov/27909301>)

Main Reference

Li J; Cocker JM; Wright J; Webster MA; McMullan M; Dyer S; Swarbreck D; Caccamo M; Oosterhout CV; Gilmartin PM

Authors

Darwin's studies on heterostyly in *Primula* described two floral morphs, pin and thrum, with reciprocal anther and stigma heights that promote insect-mediated cross-pollination. This key innovation evolved independently in several angiosperm families. Subsequent studies on heterostyly in *Primula* contributed to the foundation of modern genetic theory and the neo-Darwinian synthesis. The established genetic model for *Primula* heterostyly involves a diallelic *S* locus comprising several genes, with rare recombination events that result in self-fertile homostyle flowers with anthers and stigma at the same height. Here we reveal the *S* locus supergene as a tightly linked cluster of thrum-specific genes that are absent in pins. We show that thrums are hemizygous not heterozygous for the *S* locus, which suggests that homostyles do not arise by recombination between *S* locus haplotypes as previously proposed. Duplication of a floral homeotic gene 51.7 million years (Myr) ago, followed by its neofunctionalization, created the current *S* locus assemblage which led to floral heteromorphy in *Primula*. Our findings provide new insights into the structure, function and evolution of this archetypal supergene.

Abstract

Additional References

RELATED GEPHE

2 (CYP(T), GLO(T)) ([https://www.gephebase.org/search-criteria?/or+Taxon ID=~175104~/and+Trait=Flower morphology/and+groupHaplotypes=true#gephebase-summary-title](https://www.gephebase.org/search-criteria?/or+Taxon+ID=~175104~/and+Trait=Flower+morphology/and+groupHaplotypes=true#gephebase-summary-title))

Related Genes

Related Haplotypes

No matches found.

EXTERNAL LINKS

COMMENTS

@SuperGene ; thrum flowers are hemizygous for the supergene *S*