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Symposium

Stalk-eyed flies (Diopsidae): a model organism for studying the evolution of form and function"

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Stalk-eyed flies (Diopsidae) have eyes that sit at the ends of long lateral extensions of the head capsule. The eyestalks vary in size and degree of sexual dimorphism across taxa, and in some species can exceed the length of the flies' bodies. In many species, males use this trait to assess rivals in contests for females, and females choose mates among males in part based on their eyestalks. Diopsid stalk-eyed flies have become model organisms for the study of the form and function of eye stalks and related morphologies. Several research groups have contributed to the construction of a robust phylogeny that serves to test various evolutionary hypotheses, e.g. regarding the evolution of sexual dimorphism of eyestalks and wing lengths. Other reproduction-related issues are being studied as well, including the coevolution of the internal female reproductive tract with traits such as male genital organs and spermatozoa, and the relationship between male eye span and enhanced fertility. Long eyestalks affect neuronal development in fly heads as well. In some taxa, a sex-linked meiotic drive system causes some males to sire nearly all-female broods, and this *sex ratio* genetic element has influenced the evolution of mate choice, eye span, sperm length, and postcopulatory competitive ability. Recent genomic work has revealed patterns of gene expression related to eyestalk development within and between taxa, and patterns of accelerated evolution of some genes in stalk-eyed flies relative to other model organisms like *Drosophila*. Another topic of interest is the independent evolution of eyestalks in several other Dipteran families. We invite talks on all these aspects.