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Heterozygote advantage as a natural consequence of adaptation in diploids.

Sellis D et al.

Proceedings of the National Academy of Sciences of the United States of America. 2011 Dec 20; 108(51):20666-20671

<https://doi.org/10.1073/pnas.1114573108>

PMID: [22143780](#)

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Very Good ★ ★

23 Mar 2012



Stephen Wright

 [Stephen Wright](#)

This intriguing theoretical study revives the possible importance of heterozygote advantage for evolutionary dynamics. Once thought to be hugely important for maintaining genetic variation, heterozygote advantage, where the heterozygous genotype has highest fitness, has generally been considered over the last several decades as a rare oddity. This study integrates Fisher's geometric model of adaptation with a diploid model of selection to show that transient heterozygote advantage may in fact be very common in natural populations, and might explain some of the signals of partial selective sweeps in human populations. If this model is general, it may highlight a very different dynamic of adaptive evolution in outbred diploids than experienced by haploid and selfing organisms. An open question remains whether models that allow for selection on multiple loci (i.e. polygenic adaptation) would show some of the same properties, or whether polygenic selection erodes the observed advantage for heterozygous genotypes.

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Sellis D et al. 2016 07

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