

# Study finds new links between number of duplicated genes and adaptation

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Liken it to a case of where two genes are better than one. Scientists have found a class of genes, called small-scale duplication genes, or SSDs, that are important for adapting to novel environments and surviving environmental changes.

Published in the advanced online edition of *Molecular Biology and Evolution*, authors Takashi Makino, Masakado Kawata, et al., were the first to examine more than 30 fully sequenced vertebrate genomes to look at SSDs as genetic signposts that correlated with habitat variability. SSDs have been generated continually during evolution, and are not the result of an ancient gene duplication, where mammals experienced a whole [genome duplication](#) twice in the very early history of [vertebrate evolution](#), hundreds of Mya. Sometimes the [duplicate genes](#) are lost, but in other instances, new functions occur and are thought to be a major driver of evolution through adaptive innovation.

The research team found, in general, the higher the number of SSD genes found within a species, the better they were able to adapt to a habitat. By contrast, they speculate that species that lose SSD genes might not be able to generate enough variation to adapt. These findings suggest a new way for scientists to use SSD's as an index to project species survival, and whether a given species may be more susceptible to becoming endangered or better able to fend off [environmental changes](#).

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