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Plant transcription: it's different

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In the 15 December *Science*, Riechmann *et al.* compare transcriptional regulators from plants (*Arabidopsis thaliana*), animals (the worm *Caenorhabditis elegans* and the fly *Drosophila melanogaster*) and fungi (*Saccharomyces cerevisiae*). They conclude that new motifs, shuffled motifs, and old motifs put to new uses make plant transcriptional regulation very different from that found in other eukaryotes (*Science* 2000, **290**:2105-2110). *Arabidopsis* has, by their estimation, 1,533 transcriptional regulators, accounting for approximately 5.9% of its total number of genes. This is 1.3 times the percentage seen in flies and 1.7 times that in either worms or yeast. Over 25% of the worm and fly proteins have been characterized genetically, compared to approximately 5% for *Arabidopsis*. Some families of factors are present in all but plants, reflecting the hypothesis that animals and fungi are more closely related to each other than to plants. There are some plant-specific families, and some juxtapositions of transcriptional regulatory domains are unique to plants. But more of the diversity arises because plants, animals, and fungi have amplified different families of regulators, and put the same regulators to different uses.

References

1. *Science*, [<http://www.sciencemag.org/>]