

LETTER TO THE EDITOR

Renaming Genes and Duplication of Gene Names in the Literature

Arabidopsis has been used as a model system by many plant biologists. Completion of the genome sequence and the launch of the "2010 Program" will clearly attract even more researchers to study the function of essentially all genes in the Arabidopsis genome. As research expands on Arabidopsis biology, an increasing number of genes will be studied by more than one laboratory and each gene must bear a name. Scientific communication will be facilitated by a common nomenclature.

We have become concerned and confused by publications that duplicate gene nomenclature and rename already published genes. One such publication recently appeared in *The Plant Cell* and caused confusion of the existing nomenclature in previous work from our laboratories. Although the particular case encouraged us to write this letter, we find that similar problems affect other genes and publications and therefore become a general issue of naming genes in the biological literature. Thus, it is timely to implement mechanisms that will help improve the situation. We suggest the following steps to avoid confusing nomenclature caused by renaming and/or duplication of existing nomenclature. First, authors should consult the literature and other resources before naming a putative new gene. For Arabidopsis genes, one can look them up in the Arabidopsis Database (TAIR) and GenBank to see if the gene of interest has already been published under a particular name. The gene entries in the databases are always accompanied by the authors who submitted the genes, and publications are often (if not always) listed as well. Another resource is David Meinke's Web site that lists a number of acro-

nyms that have already been assigned. Moreover, it would be of additional advantage for future database analyses and scientific communication if duplication of abbreviations assigned to entities from other organisms could also be avoided. We suggest that journals could implement mechanisms to avoid proliferation of this nomenclature problem. This could be achieved by including a nomenclature statement in the reviewer return form and by making it mandatory for the authors to state possible conflicts or confusions on their nomenclature in the cover letter. We hope that this author-reviewer-editor filtering system will help avoid the confusion caused by renaming published genes and duplicating already used names.

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Reply

The editorial board of *The Plant Cell* recognizes gene nomenclature as an important issue and fully supports adherence to convention for naming genes. It is the responsibility of each scientist in the community to see that conventions are maintained, but *The Plant Cell* can play an important role. The policy of *The Plant Cell*, as outlined in the new instructions to authors, will be changed to address this issue and to help avoid problems such as those discussed by Luan et al. As of the January 2002 issue, publication in *The Plant Cell* will require authors who are introducing new gene or protein nomenclature to submit a statement that outlines possible conflicts or confusions regarding their nomenclature and confirms that they have consulted the literature and other resources before naming their gene(s). The first published use of a gene name has priority and should be used. Authors must provide a detailed explanation for using a new or different name for a mutant, gene, or protein that has been named previously.

For Arabidopsis mutant genes, authors must follow the guidelines for naming genes outlined by Meinke and

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Koornneef (1997) and register new mutant gene symbols with David Meinke (see <http://www.arabidopsis.org/links/nomenclature.html>). This URL also provides other useful information and links on plant gene and protein classification.

Other resources that are available on plant gene nomenclature include:

<http://mbclserver.rutgers.edu/CPGN/Guide.html> (A Guide to Naming Sequenced Plant Genes),

<http://www.uga.edu/~ispmb/cpgn.html> (The Commission on Plant Gene Nomenclature),

http://www.agron.missouri.edu/maize_nomenclature.html (A Standard for Maize Genetics Nomenclature),

<http://www.shigen.nig.ac.jp/rice/oryzabase/basic/geneName.shtml> (Rules for Gene Symbols in Rice),

<http://wheat.pw.usda.gov/ggpages/wgc/98/> (Catalogue of Gene Symbols for Wheat).

Ralph Quatrano
Editor-in-Chief

REFERENCES

- Meinke, D., and Koornneef, M.** (1997). Community standards for *Arabidopsis* genetics. *Plant J.* **12**, 247–253.

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