

A recommendation for naming proteins in *Neurospora*

Jay C. Dunlap¹, Matthew Sachs² and Jennifer Loros¹, - ¹ Department of Biochemistry, Dartmouth Medical School, Hanover, N. H. 03755-3844 ² Department of Chemistry, Biochemistry and Molecular Biology, Oregon Graduate Institute of Science and Technology, 20000 NW Walker Road, P.O. Box 91000, Portland, OR 97291-1000

The issue of gene product names is important in as much as it promotes consistency within the literature and promotes accessibility of the *Neurospora* literature to readers more familiar with other organisms. With the publication of the Trends in Genetics Genetic Nomenclature Guide (editor Alison Stewart, March, 1995) we became aware that the problem of reaching a consensus on naming proteins in *Neurospora* should be resolved. While there is no universally established convention for naming of protein products in *Neurospora*, the consensus developing among many of the larger laboratories is toward the use of all capital letters, not italicized, corresponding to the gene name. So, for instance, phosphorous regulatory proteins are PREG and PGOV (Kang and Metzberg, Genetics **133**:193-202, 1993), cross pathway control is effected by CPC1 (Paluh and Yanofsky, Proc. Nat. Acad. Sci. USA **85**:3728-3732, 1988), the central clock protein is FRQ (Aronson *et al.* **85**:3728-3732, 1988), the central clock protein is FRQ (Aronson *et al.*, Science **263**:1578 - 1584; Crosthwaite *et al.*, Cell **81**:1003-1012, 1995), and proteins involved in nitrogen and sulfur metabolism are variously NIT2, CYS14, etc., in the publications of G. Marzluf. Conversely, there is much less precedent for adopting the current *Saccharomyces cerevisiae* nomenclature for protein products which includes the letter p after the non-italicized gene name written with the first letter only in upper case.

In addition to conforming to the usage already adopted by several *Neurospora* laboratories, this usage conforms to that of nearly all other eukaryotes currently under study that have adopted conventions for naming gene products. This includes organisms such as *Drosophila*, Maize and mice in which major contributions in genetics were being made as long ago as for *Neurospora*, and also a long list of more recent additions including but not limited to *Arabidopsis* and *Caenorhabditis elegans*. In general the recommendation is the following:

"The protein products of genes are represented by the same characters as are used to designate the loci encoding them, but are written in all roman (no italics) upper case letters."

This makes no mention of the use of hyphens which are used in *Neurospora* whenever a non-allelic series of genes having similar phenotypes are being described (e.g., *arg-1* through *arg-13*). The simplest convention would be to include the hyphens in the protein name; however, in the literature examples cited above and in other cases which include the great preponderance of *Neurospora* gene product citations in the literature so far, the hyphens have by-and-large been omitted. It is hard to get excited either way, although for the sake of consistency we would recommend leaving the hyphens in the name as it distinguishes between products of separate loci versus products of separate alleles, which in some cases may show altered function. For example, the protein FRQ7 encoded by the *frq7* allele is different, by both amino acid sequence and function, from the wild-type protein FRQ.

If we wish to be a model system for most organisms including prominent vertebrate, invertebrate and plant systems we should consider adopting a system of nomenclature similar to those systems. In summary:

(1) nomenclature for polypeptides in most other eukaryotic organisms conforms to the "all caps rule" paraphrased above; and (2) the precedent in the existing *Neurospora* literature corresponds to the application of this rule. Therefore, we would strongly suggest retaining the "all caps rule".

Last modified 7/25/96 KMC