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A modest proposal regarding gene symbols

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Abstract

Proposal regarding gene symbols

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Numerous gene symbols designating nutritional requirements and other traits are the same in Neurospora as in Escherichia coli, Salmonella typhimurium or Bacillus subtilis. This is true for acr, arg, cys, leu, lys, mtr, nic, nit,, pan, pdx, pyr, rec, rib, ser, suc, thi, thr, tyr, val. There ore other classes of genes concerned with nutritional requirements or resistance, whore symbols differ in Neurospora and the bacteria, although the traits are the same (Table 1). We suggest that Neurorporo workers make the minor changer necessary in order for the symbols in Table 1 to correspond. Such a change would require minimal effort and adjustment on our part, and would perhaps aid comprehensibility and communication between workers using various organisms. It would also follow the lead of the yeast geneticists, who have recently adopted many of the E. coli symbols (1969 Microbial Gene+. Bull. 31, suppl.), and it would use, in most cases, the three-letter amino acid abbreviations familiar to biochemists and officially adopted in biochemical nomenclature. In Neurorpora, such a change has already been anticipated by some workers for a few loci (e.g., his, pro).

Table 1. Symbols that now differ for corresponding classes of mutant genes in Neurorporo and in bacteria and for which it is Proposed to adopt the bacterial symbol.

Neurospora symbol	Bacterial symbol	Phenotype*
ac	ace	acetate
act	cyh	cycloheximide (actidione)
arom	aro	aromatic amino acids
asp	asn	asparagine
aspt	asp	aspartate
glm	gln	glutamine
hist	his	histidine
hs	hom	homoserine
inos	inl	inositol
iv	ilv	isoleucine and valine
meth	met	methionine
phen	phe	phenylalanine
prol	pro	proline
tryp	trp	tryptophane

* All are nutritional requirements except act/cyh resistance.

The symbols for asparagine and aspartate present the only problem of ambiguity, because asp now signifier asparagine in Neurorporo but aspartate in the bacteria. However, asp is the 3-letter symbol for aspartate under rules for biochemical nomenclature, and it is established in bacterial genetics. The sooner the change is made in Neurorpora, the better.

A few symbols are different for similar classes of genes in Neurospora and in the bacteria; for example, uvs = uvr and su = sup. Here, there seer to be good reasons to retain the present Neurospora symbols. It is preferred to name a locus for the mutant trait (UV-sensitivity) rather than the wild +ype; su follows long-standing Drosophila usage for suppressors.

In a few instances, identical symbols are now used where the meaning is different in Neurorporo and bacteria. Examples are mel (melon morphology in Neurospora vs. melibiore utilization in bacteria), mod (permeability modification vs. phage modification), tol (tolerance to heterokaryon-incompatibility alleles vs. tolerance to colicins), tre (trehalose electrophoretic mobility vs. trehalose utilization). These differences seem unlikely to confuse, and no change seems necessary. Also, there seems no reason to substitute the bacterial system of distinguishing loci by means of letter suffixes (A, B, C, etc.) for the present Neurospora usage (-1, -2, -3, etc.). The original justification of the bacterial system - to facilitate computerization of stocks and pedigrees - is hardly an issue with Neurorpora, and use of the suffix A in locus symbols would seem confusing in on organism where A is already used to designate mating type.

In summary, 20 symbols already correspond for identical classes of genes in Neurorpora and bacteria. Fourteen additional symbols con readily be made to correspond, with little or no confusion, and it is proposed that the 3-letter E. coli symbols be adopted for them. Comments and suggestions from Neurospora workers will be taken into consideration before any changer ore implemented by the Fungal Genetics Stock Center.

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