CORRECTION

THE BIOSYNTHESIS OF PHOSPHORYLATED TYROSINE HYDROXYLASE BY ORGAN CULTURES OF RAT ADRENAL MEDULLA AND SUPERIOR CERVICAL GANGLIA: A CORRECTION

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In a recent paper (1) we presented experiments showing that radioactive inorganic phosphate is incorporated into tyrosine hydroxylase in organ cultures of certain rat tissues. Our calculations, based upon the information provided by New England Nuclear about their ^{32}P potassium monophosphate, led us to conclude that between 10 and 15% of the enzyme molecules were phosphorylated under our conditions. A reconsideration of these calculations, based upon revised specific activities now furnished by New England Nuclear, indicates substantially higher levels of phosphorylation. Indeed, it appears that almost one mole of phosphate is incorporated per mole of enzyme. For the sake of correction we reprint the Table from our earlier paper, now containing the correct figures.

This correction seems appropriate on two counts. First, for simple scientific accuracy. Second, it seems to change the conceptual basis of the work. If the level of phosphorylation is, in fact, 10-15% it would seem logical to consider phosphorylation a regulatory event, with tyrosine hydroxylase existing in two forms, phosphorylated and nonphosphorylated. It would then make sense to do experiments, as we have done, with exogenous cAMP, reserpine, etc., to look for some alteration in the steady state population of phosphorylated and nonphosphorylated molecules. These experiments, incidentally, have not revealed such an alteration. On the other hand, if each enzyme molecule contains one molecule of phosphate, as it

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TABLE I

Incorporation of ^{3}H-L-leucine and ^{32}P-potassium monophosphate into tyrosine hydroxylase of superior cervical ganglia of 5-day old rats with and without pretreatment of the animals with nerve growth factor.

Treatment	^{3}H-Leucine incorporation into tyrosine hydroxylase	^{32}P-Phosphate incorporation into tyrosine hydroxylase	Phosphorylation*	^{32}P-Phosphate incorporation into acid-insoluble material
	pmol/SCG	pmol/SCG	%	pmol/SCG
Control	3.05	0.266	87	5417
Nerve growth factor-treated	6.15	0.492	79	5735

*based on the assumption that leucine comprises 10% of the tyrosine hydroxylase molecule

now seems, such experiments are less attractive, and it is possible to think of the phosphate as a constitutive part of the enzyme and not a participant in any meaningfu regulatory phenomena. We are inclined to this latter view, based on our recent calculations and experience. That is, we now consider phosphate a normal part of the enzyme and not one whose addition and removal plays a regulatory role in the action of tyrosine hydroxylase.

1. Letendre, C. H., P. C. MacDonnell, and G. Guroff, Biochem. Biophys. Res. Comm. 74, 891 (1977).