

(iii) In a tyrosine-deficient mutant (M83-9), DL-tryptophan (up to 1000  $\gamma$ /ml) did not show any effect, either alone or in combination with quantities of L-tyrosine which gave 20 or 50% of full growth, and DL-phenylalanine (600  $\gamma$ /ml) caused only very slight increases (5-12%) at 16 and 25% of full growth (produced by 1 and 2  $\gamma$ /ml of L-tyrosine).

Supporting evidence for the validity of the "straight" scheme (B) can be derived from analogous experiments with the inhibited mutants. As an example, the results obtained with *p*-aminophenylalanine (PAPA) as inhibitor<sup>5,6,7</sup> may be quoted.

(iv) The tryptophan-deficient mutant, the PAPA-inhibition of which is competitively reversed by DL-tryptophan, was stimulated to full growth already by small quantities of DL-phenylalanine or L-tyrosine, added at growth levels of 0 and 30% (*i.e.* in presence of 4  $\gamma$ /ml of DL-tryptophan and 200 and 40  $\gamma$ /ml of PAPA). Both phenylalanine and tyrosine exert thus a sparing effect on tryptophan.

(v) The phenylalanine-deficient mutant, which gives 14 and 30% of full growth in presence of 400  $\gamma$ /ml of PAPA and 8 and 14  $\gamma$ /ml of DL-phenylalanine, respectively, is stimulated up to 60 and 90% of full growth by addition of DL-tryptophan. 8  $\gamma$ /ml of L-tyrosine increased the growth from 27 to 100%, when added to 14  $\gamma$ /ml of DL-phenylalanine and 400  $\gamma$ /ml of PAPA, and 2  $\gamma$ /ml of L-tyrosine raised it from 10 to 95% of full growth, when employed in conjunction with 8  $\gamma$ /ml of DL-phenylalanine and 400  $\gamma$ /ml of PAPA. Thus, the inhibitor stimulates the utilization of tryptophan by the mutant and enhances the sparing effect of tyrosine.

(vi) In the PAPA-inhibited tyrosine-deficient mutant, addition of DL-phenylalanine to sub-optimal quantities of L-tyrosine gave better growth than L-tyrosine alone. In presence of 1600  $\gamma$ /ml of PAPA, *e.g.*, the combination of 7  $\gamma$ /ml of L-tyrosine and 2  $\gamma$ /ml of DL-phenylalanine gave 120% of the growth, a level which could be achieved with 10  $\gamma$ /ml of L-tyrosine. The inhibitor, therefore, actually stimulates the cellular faculties of the bacterium.

In conclusion, it therefore seems possible to assume that, in addition to the "branched" scheme described by DAVIS<sup>1</sup>, a "straight" scheme in the synthesis of the aromatic amino acids also exists.

A detailed account of these experiments including a study of other inhibitors and of a triply deficient mutant of *E. coli*, will be published elsewhere.

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## LE RÔLE DU NOYAU CELLULAIRE DANS LES OXYDATIONS ET LES PHOSPHORYLATIONS

par

J. BRACHET

*Laboratoire de Morphologie animale, Faculté des Sciences  
de l'Université libre de Bruxelles (Belgique)*

Nous avons montré récemment<sup>1</sup> que la consommation d'oxygène de fragments énucléés d'amibes se maintient à son taux normal pendant une dizaine de jours; rapprochant ce fait d'observations de MAZIA ET HIRSHFIELD<sup>2</sup> établissant que l'énucléation diminue fortement et rapidement la pénétration du <sup>32</sup>P dans les amibes, nous avons conclu que l'enlèvement du noyau provoquerait une interruption dans le couplage entre les oxydations et les phosphorylations.