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CENTER FOR ADVANCED STUDY IN THE BEHAVIORAL SCIENCES

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January 27, 1965

Dr. Joshua Lederberg
Professor of Genetics
Medical Center M302
Stanford University
Stanford, California

Dear Dr. Lederberg:

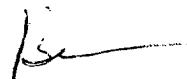
Thanks very much for putting me in touch with Boris Rottman and his work.

In differentiating the response we get from the granular cell layer of the dentate fascia of the hippocampus in our various genotypes, we began with a method in the literature that ostensibly measured ATPase (Naidoo, D. and Pratt, O. E., Journal of Neurology, Neurosurgery, and Psychiatry, Vol. 14, 1951). We have modified the published technique in a few respects: Naidoo and Pratt embedded their sections in paraffin, whereas we sectioned on a freezing microtome. Instead of using an $(\text{NH}_4)_2\text{S}$ solution to obtain sulphide deposition, we have substituted K_2S solutions.

We have also substituted cytidine triphosphate, guanosine triphosphate and uridine triphosphate on a mole for a mole basis for ATP in the incubation solution. All four of these discriminate our strains. The depth of staining we obtain is in the order of CTP, GTP, ATP, and UTP. We should perhaps be talking about nucleoside triphosphatase activity instead of ATPase. There is no significant difference in the ease with which we can discriminate the seizure-prone from the seizure-resistant genotypes with any of these four compounds. From the visual appearance of the slide I showed on the screen, I thought that it might have been from the GTP series, and if I had not checked before answering your question that would have been my guess. As you will recall, it turned out to have been incubated with ATP.

One of my students is checking out the Mendelian hypothesis that I put forward, and my major interest in this particular anomaly is to pick it up from there and to see how far we can go in the direction of a gene-action approach in our further analysis of the basis for the differences in the granular cell layer of the genotypes in question.

Sincerely,



Benson E. Ginsburg

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BEG/ib