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The Growth Response of *Tetrahymena geleii* W to Folic Acid and to the *Streptococcus lactis* R Factor

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It has been shown (*3*) that *Tetrahymena geleii* W requires folic acid for growth.[1] The growth response was found to be linear to additions of a folic acid concentrate (potency: 5,000) up to 0.02 γ/ml. of medium. When calculated on the basis of 40,000 potency a concentration of 0.002 γ/ml. of medium gave half maximum growth.

Recently we have tested three crystalline preparations for their growth-promoting activity on *T. geleii* W: (1) Lederle Folic Acid;[2] (2) Parke Davis Vitamin Bc;[3] and *Streptococcus lactis* R (SLR) Factor.[4] The ciliates were tested in the supplemented amino acid medium which had been used for the work on the folic acid concentrate (*3*). The quantitative results are expressed as the number of organisms per milliliter in the third serial transplant after 72 hours of incubation at 25° C.

The Lederle crystals and the Parke Davis crystals (Bc) have almost identical growth-promoting activity, as can be seen from Fig. 1. Linear growth responses occur between concentrations of 0.075 and 1.0 millimicrograms/ml. of medium. Concentrations lower than 0.075 millimicrograms/ml. are nearly inactive. The growth-promoting activity of SLR factor for *T. geleii* W is extremely low, however. Approximately half maximum growth was obtained with a concentration of 360 millimicrograms/ml. of medium (the highest concentration used was 540 millimicrograms/ml., and this amount proved toxic), and concentrations lower than 150 millimicrograms/ml. were entirely inactive.

These results show that *T. geleii* W, a microorganism of animal nature as judged by its amino acid requirements (*4, 5*), is similar to *Lactobacillus casei* in its response to the "folic acids" and to SLR factor. They are significant in the light of the findings of Hutchings, *et al.* (*1*) that the antianemia activity for chicks of the various folic acids corresponds to *L. casei* rather than *Str. lactis* R activity. Table 1 summarizes the activity of the various factors for *T. geleii* W as compared with *L. casei* and *Str. lactis* R. When the activity of the folic acid concentrate which was previously used (*3*) (Texas preparation) is calculated on the basis of 137,000 potency[5] there is close

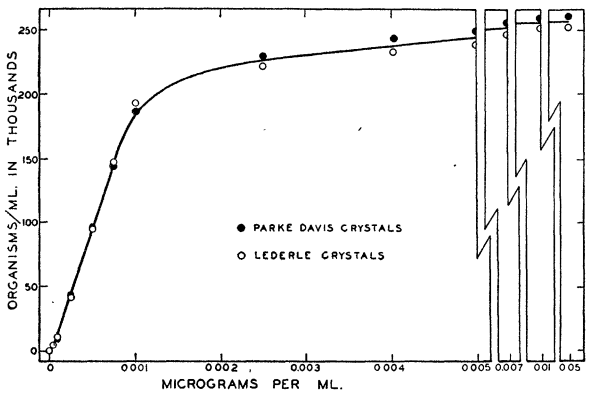

FIG. 1

TABLE 1

Material	Organism	Amount for half maximum activity	Investigator
		γ/ml.	
Texas preparation	*L. casei*	0.000072	Snell (*8*)
	Str. lactis R	0.000055	Mitchell and Snell (*6*)
	T. geleii W	0.00058	Kidder (*3*)
Lederle crystals	*L. casei*	0.000055	Stokstad (*9*)
	Str. lactis R	0.00025	Stokstad (*9*)
	T. geleii W	0.00065	Kidder and Fuller
Parke Davis crystals (vitamin Bc)	*L. casei*	0.00005	Pfiffner, *et al.* (*7*)
	Str. lactis R	0.00025	Hutchings, *et al.* (*1*)
	T. geleii W	0.00065	Kidder and Fuller
Merck crystals (SLR factor)	*L. casei*	Not active	Keresztesy, *et al.* (*2*)
	Str. lactis	0.000034	Keresztesy, *et al.* (*2*)
	T. geleii W	0.36	Kidder and Fuller

[1] The folic acid used was a concentrate having a potency of 5,000 and was obtained from R. J. Williams.
[2] Furnished through the courtesy of S. M. Hardy and Lederle Laboratories (control No. 7–5582).
[3] Furnished through the courtesy of O. D. Bird and Parke Davis and Company (control No. 90905).
[4] Furnished through the courtesy of J. C. Woodruff and Merck and Company (control No. 5R1336).
[5] Folic acid concentrate. The calculations are based on potency 137,000 (see H. K. Mitchell, E. E. Snell, and R. J. Williams, *J. Amer. chem. Soc.*, 1944, **66**, 267).

agreement between it and the activities reported here. In all three cases of high activity, half maximum growth of *T. geleii* W was obtained with approximately 10 times the concentrations necessary for *L. casei*. These figures should be useful in comparing the folic acid requirements of other animals when methods can be devised for precise testing.

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News and Notes

Support for S. 1850

Senator Magnuson has assured *Science* that he is ready to try again in the next session of Congress, to secure the passage of a bill providing for a National Science Foundation. He regretted the failure of the Kilgore-Magnuson Bill, S. 1850, in the House Committee which killed it, although it had been passed by the Senate.

Senator Magnuson said that he could speak for the continued cooperation of his colleague, Senator Kilgore, who was at the time, 2 August, absent from Washington in the interest of his renomination, which was subsequently achieved in the West Virginia primary.

Senator Magnuson's original bill was based on the Bush Report and it differed in several important details from Senator Kilgore's Bill, but the differences were adjusted in a series of conferences as previously related in *Science*.

About People

Ruth R. Puffer, director of statistical service, Tennessee Department of Public Health, has been appointed visiting professor in the School of Public Health, University of Chile, for the term, June–August 1946. In addition to her duties in connection with the University, she is a consultant on statistical and tuberculosis work for Chile. Dr. Puffer's visit is being sponsored by the Rockefeller Foundation, which has been instrumental in the establishment of the School of Public Health and a training program for public health specialists for Chile.

Eugene Fischer, professor of physical anthropology, University of Berlin, and director of the Kaiser Wilhelm-Institut für Physische Anthropologie, Menschliche Erblehre und Eugenik, is completing an extensive work, *Comparative human morphology.* Dr. Fischer was pensioned in 1942 and has lived in Sontra Bebra, Province of Hessen-Nassau, since 1944, when he was bombed out in Freiburg.—*Bruno Oetteking* (Museum of the American Indian, Heye Foundation, New York City).

James F. Kerwin and *James W. Wilson* have been added to the staff of the Division of Organic Chemistry at Smith, Kline and French Laboratories, Philadelphia.

Kenneth C. Blanchard, special investigator, Survey of Antimalarial Drugs, spoke on "Chemotherapy of Malaria" before a meeting of the Virginia Chapter of Sigma Xi on 13 May. Eight members and nine associates were initiated on the same occasion.

F. Woodbridge Constant, associate professor of physics at Duke University, will become head of the Department of Physics at Trinity College this fall, succeeding Henry A. Perkins, who has taught at the College for the past 42 years.

M. M. Leighton, chief of the Illinois State Geological Survey, addressed the staffs and graduate students of the Departments of Geology at Harvard University on 22 April, at Columbia University on 25 April, and at Yale University on 26 April. His subject was: "The Operation of a Modern State Geological Survey."

David Shakow has been appointed chief psychologist in the Psychiatric Division, Illinois Neuropsychiatric Institute, and professor in the Department of Psychiatry, University of Illinois College of Medicine. Dr. Shakow has been chief psychologist at the State Hospital, Worcester, Massachusetts, for 18 years. He will assume his new duties on 1 September.

George E. Cottral has returned to the U. S. Regional Poultry Research Laboratory, East Lansing, Michigan, as pathologist after serving in the Veterinary Corps, U. S. Army, for four years. As liaison veterinarian he accompanied a unit of the Chinese 38th Division to the Burma front. Later he went over the Hump to China to become liaison veterinarian for the Chinese 71st Army on the Salween front.