appropriate antibiotic mixtures should further reduce the chances of selecting resistant mutants. A scheme such as the one used in this study seems to be effective and practical to assess the efficacy of a given treatment for the decontamination of infected cell lines[5].

Zusammenfassung. PPLO-verunreinigte Zellkulturen wurden mit Novobiocin® PPLO-eliminierend behandelt. Nach dem Empfindlichkeitstest folgte die Bestimmung der Toxizität dieses Antibiotikums für Gewebekulturzellen. Anschliessend wurden maximale, für Zellen nichttoxische Konzentrationen verwendet. Die entwickelte Methode ermöglicht, den Wirkungsgrad dieser antibiotischen Behandlung zu bestimmen.

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[5] This work has been supported by grants from the National Cancer Institute, U.S. Public Health Service (CA 05206-04), and from the United Funds of Clayton and Alexandria Bay, New York.

ATP Determination with the Tricarb Scintillation Counter[1]

The most sensitive method for the determination of ATP is the measuring of light output in the presence of luciferin-luciferase[2]. The light emitted can be measured by fluorometer or by quantum counter. We wish to report on the adaptation of a liquid scintillation counter for this purpose. Essentially, this is an extremely sensitive quantum counter method. A Tricarb Automatic Liquid Scintillation counter Model 314EX (Packard) was set for tritium counting at 5 sec counting time. Luciferin-luciferase (0.2 ml) were prepared[2], put into glass counting vials and distilled water added in sufficient quantity to bring the total volume to 2 ml after the addition of ATP solution. Exactly 5 sec after the addition of ATP solution, mixing and putting the vials into the proper compartments of the counter, the Tricarb is switched to 'repeat counting'. Counting begins 20 sec after zero time with 15 sec intermission for print-out. Measuring is concluded after 6 cycles (approximately 2 min) by switching to 'stop'. The result is extrapolated to zero time on graph paper, but since the decay is usually no more than a few % per counting cycle, the first count is accurate enough for most work. Under the above conditions 10^{-10} mol ATP gives 10^3–10^4 counts depending on the enzyme preparation. The background of 2 to 3 counts is negligible. The counts are a direct function of approximately the square of ATP concentration. Thus, a calibration curve has to be prepared for each series on log-log graph paper, usually within the limits of 10^{-11}–10^{-9} mol ATP. By switching the counter from 'coincidence' to 'single channel' the sensitivity can be increased about 300 times. In this case the counts are linearly related to the concentration, but the background is high. However, there is generally no need for such extreme sensitivity.

For extraction of ATP from biological tissues, the hot water method[3] was found to be suitable.

Zusammenfassung. Die Arbeit beschreibt eine neue Technik zur Bestimmung geringster Mengen von ATP (10–11 Mol und weniger) mit der Luciferin-Luciferase-Methode. Die dabei erzeugten Impulse werden mit einem Scintillationszähler gemessen.

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Department of Applied Pharmacology, School of Pharmacy, Hebrew University, Jerusalem (Israel), June 26, 1964.

[1] Aided by a generous donation from Mrs. D. TEPERMAN, Canada, in memory of her late husband, JOSEPH TEPERMAN.

[2] B. L. STREHLER and J. R. TOTTER, Arch. Biochem. Biophys. *40*, 28 (1952).

[3] B. L. STREHLER, in *Methods of Enzymatic Analysis* (Ed. H. V. BERGMEYER, Academic Press, New York 1963), p. 559.

Volume Analysis of Liquid Droplets by a Rapid Photographic Method

In the course of work on a spraying process against agricultural crop pests, difficulties were encountered in measuring diameters of individual drops[1]. This led to an attempt to overcome the discomfort involved in the usual microscopic evaluation by photographing the drops. To begin with, a number of drops from the original spray were sampled on transparent glass slides. The slide, covered with drops, was inserted into a photographic enlarging machine in the place ordinarily occupied by the negative film. Regular illumination of the drops yielded only poor information about the periphery of the spread drops. Changes were therefore introduced into the usual

[1] B. MAKSYMIUK, J. econ. Entomol. *57*, 16 (1964).