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M. L. Pall

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Abstract

Cycloheximide as inhibitor of protein synthesis

Pall, M. L. The use of cycloheximide as an inhibitor of protein synthesis in Neurospora.

The antibiotic cycloheximide (Actidione) has been reported to be an inhibitor of protein synthesis in some fungi, higher animals, and higher plants. It is shown here to be an effective inhibitor of protein synthesis in Neurospora crassa.

Wild-type strain 69-1113a was grown for 2 doys at 25°C in 20 ml of Vogel's Medium N + 2% sucrose. Cycloheximide was added and the flasks were gently shaken on a reciprocal shaker for one hour. They were then given a 12-minute pulse of 0.5 μc C^{14} L-lysine. The mycelial pads were fractionated according to the procedure of Roberts, et al. (1955 Carnegie Inst. Washington Publ. 607: 207).

Concentration of cycloheximide (μg/ml Vogel's medium)	Percent of counts token up incorporated into protein	Percent inhibition of protein synthesis
0	63.3 %	
1	4.44 %	93 0 %
10	1.11 %	98.2 %

Cycloheximide has also been used to study the inducible enzyme tyrosinase. When tyrosinase is induced by the addition of ethionine there is a lag period before synthesis starts, followed by a period of mpid synthesis. When cycloheximide (20 μg/ml) is added during the log period, no activity develops. When it is added during the synthetic period, the activity remains at the level reached at the time of addition of the cycloheximide. These results are consistent with the idea that the tyrosinase is de novo protein synthesis and the cycloheximide inhibits any further synthesis of the enzyme. - - - Division of Biology, California Institute of Tachmlogy, Pasadena, California. 91109.