

# Identity of Streptomycete Producing Antibiotic PA155A

JOHN B. ROUTIEN

*Microbiological Research Department, Chas. Pfizer & Co., Inc., Groton, Connecticut*

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Recently the occasion arose to look again at the streptomycete that produces the antibiotic called PA155A. It was recognized at once that the culture was not a strain of *Streptomyces albus*, as originally identified in U.S. Patent 3,173,923, but resembled *S. griseus*.

The U.S. Patent was issued on 16 March 1965. The antibiotic, PA155A, was identified as 1-(3'-indolyl)-1-[5''-(2''-methylimino)-4''-keto-oxazolidinyl]ethane. A transfer of the culture had been deposited at the American Type Culture Collection under their accession number 12648.

A culture of ATCC 12648 was obtained and revived. A suspension of theoretically single spores of this culture was prepared and plated out on a medium of yeast extract, 4 g; malt extract, 10 g; dextrose, 4 g; agar, 20 g; coconut milk, 50 ml; and distilled water, 950 ml. Most of the colonies that developed in a few days at 28 C had the olive-buff color of the aerial mycelium and spores usually considered to be typical of *S. griseus*. There also was present a number of colonies which were perfectly white on the surface with a very light tan reverse. After slightly longer incubation, the white colonies, particularly where they were crowded, became olive-buff in color on the surface, but the pale tan color of the reverse remained as originally described. The micromorphology of the two types of the cultures was the same, and both of the types of colonies produced the antibiotic described in the patent.

Efforts were made to obtain strains that would give rise only to the olive-buff colonies and cultures that would yield only the white colonies. Because the two types never bred true, this work was discontinued.

The original culture was then planted on the media that had been used in the description of the organism in the patent as well as on certain

other media described in the paper by T. G. Pridham (*Antimicrobial Agents and Chemotherapy*—1963, p. 104–115, 1964).

Microscopic observation of 14-day-old cultures showed the straight to flexuous chains of spores borne in tufts as described for *S. griseus*, and electron microscopy showed the spore walls to be smooth. This would allow one to designate the culture as *S. griseus* according to the description given by Pridham.

Pridham in his paper arranged various cultures described as *S. griseus* or varieties of this species, as well as other organisms described as new species, into several groups depending upon 12 characteristics that he used. Our strain had smooth spores as shown by the electron microscope, did not produce hydrogen sulfide (as determined by Pridham's method, although when lead acetate strips were in the tube of medium on which the culture was growing, hydrogen sulfide was definitely detected), was nonchromogenic, grew on D-glucose and D-xylose, but not on L-arabinose or L-rhamnose, grew poorly on Czapek's solution-sucrose agar, had olive-buff color on the surface of the colony, was inhibited by streptomycin with an inhibition zone of 15 to 17 mm, and produced an antibiotic that had not been described before. On the basis of these results, the culture could be placed in Pridham's Taxonomic Category III and with the first seven strains of *S. griseus* or varieties listed there. Because of the sensitivity of this culture to streptomycin, and because it produced an antibiotic hitherto unknown, it did not fit any of the particular isolates that Pridham described.

This culture is hereby designated as *Streptomyces griseus* (Krainsky) Waksman and Henrici *sensu* Pridham.