NOTES

Identification of Mycobacterium phlei ATCC 356 as a Strain of Mycobacterium smegmatis

RICHARD W. HENDREN
James Bryant Conant Laboratories, Harvard University, Cambridge, Massachusetts 02138

Mycobacterium phlei ATCC 356 has been shown to be a strain of Mycobacterium smegmatis.

A strain of bacteria listed as Mycobacterium phlei ATCC 356 (hereafter referred to as strain 356) was obtained from the American Type Culture Collection, Rockville, Md., and has been used in these laboratories for several years in the study of fatty acid biosynthesis (4 and references therein). It was assumed that this strain was representative of the species M. phlei.

Since it was known that 6-methylsalicylic acid (6-MSA) is synthesized via the polyketide pathway and excreted into the growth medium by M. phlei ATCC 354 and M. phlei ATCC 10142 (3), the study of 6-MSA biosynthesis in strain 356 was undertaken. It was subsequently found that crude extracts of this organism failed to synthesize 6-MSA from acetyl-coenzyme A and malonyl-coenzyme A in the presence of reduced nicotinamide adenine dinucleotide phosphate. In contrast, crude extracts of both M. phlei ATCC 354 and M. phlei ATCC 10142 were found to exhibit 6-MSA synthetase activity under the same conditions.

Mycobactin P, which is made exclusively by strains of M. phlei, is known to contain 6-MSA (7). It might be expected that mycobacterial species which do not produce a mycobactin containing 6-MSA would not synthesize 6-MSA. Indeed, Mycobacterium smegmatis is known to produce mycobactin S, which contains salicylic acid instead of 6-MSA (7), and extracts of M. smegmatis S show salicylic acid synthetic capacity, whereas extracts of M. phlei are completely inactive in this respect (4, 6). The absence of 6-MSA synthetic ability in a mycobacterial strain presumed to be M. phlei seemed curious.

To resolve this issue the mycobactins were isolated from strain 356 and M. phlei ATCC 354 by the methods described in ref. 3 and identified by ultraviolet absorption spectros-
TABLE 1. Comparative tests of strain 356 and M. phlei ATCC 354

<table>
<thead>
<tr>
<th>Strain</th>
<th>Growth on glycerol agar 30°C</th>
<th>Growth on glycerol agar 52°C</th>
<th>Acid production from inositol</th>
<th>Acid production from sorbitol</th>
<th>Utilization of oxalate</th>
<th>Utilization of mucate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strain 356</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>M. phlei ATCC 354</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>−</td>
</tr>
</tbody>
</table>

These tests were performed as described in reference 1.

These results support the hypothesis that strain 356 is a strain of M. smegmatis. The identification of strain 356 as M. smegmatis has since been confirmed by a more complete series of tests in another laboratory (R. E. Gordon, personal communication). It appears that the original classification (2) of strain 356 as a strain of M. phlei rather than M. smegmatis was due to the accidental mislabeling of a culture.

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REPRINT REQUESTS

Address reprint requests to: Richard W. Hendren,

INT. J. SYST. BACTERIOL.

Department of Chemistry, Harvard University, 12 Oxford St., Cambridge, Mass. 02138.

LITERATURE CITED