Letter to the Editor

Request for Clarification of the Difference between M. mageritense sp. nov. and M. smegmatis

We read with interest the recent description of the new rapidly growing mycobacterial species M. mageritense by Domenech et al. (1). There are several areas in which we seek some clarification from the authors.

A major issue is the comparison of the new species with M. smegmatis. We believe that there are some errors in Table 1, in which this species is compared to M. smegmatis. The authors failed to reference a 1988 publication describing 22 clinical strains and 5 reference strains of M. smegmatis, the only large published series of which we are aware that has been published on this species (4). This omission is particularly critical given the close relationship of the new species to M. smegmatis. Based on the 1988 series that includes the ATCC type strain, M. smegmatis isolates are often pigmented (albeit late and not on all media) and citrate negative (90%) and grow on MacConkey agar without crystal violet (100%). All, reference strains and the clinical strains are ethambutol susceptible (5 μg/ml). This contrasts with the characterization of M. smegmatis in the table as nonpigmented, citrate positive, unable to grow on MacConkey agar without crystal violet, and resistant to ethambutol (no concentration listed). This is especially important as the authors include lack of growth on MacConkey agar as the main feature readily differentiating M. smegmatis and M. mageritense (page 540, first column, paragraph 1, lines 5 and 6). The authors tested ethambutol at 1.5 and 2.0 μg/ml but did not provide the medium. We were unable to obtain a copy of the authors’ reference 6 for this procedure. If tested in Lowenstein-Jensen medium, then the concentration 2.0 μg/ml would be considered equivalent to 5 μg/ml in 7H10 agar. It would be of note that BstEII primer-dimers were tested for ethambutol resistance along with control strains of M. smegmatis. It is also important to know if any of the other features mentioned above were tested on both species in their laboratory.

M. smegmatis also typically utilizes numerous carbohydrate substrates other than the three listed (mannitol, inositol, and citrate). These include trehalose, sorbitol, galactose, rhamnose, xylose, and arabinose, a relatively unique pattern among the other pathogenic rapidly growing mycobacteria, which tend to be asaccharolytic. Testing of these sugars would have been most helpful in comparing and contrasting the new species with M. smegmatis. Do the authors have knowledge about their organism and these other carbohydrates?

The PCR-RFLP patterns of the 65-kDa heat shock protein gene sequence for M. smegmatis given in Table 2 are also incorrect. The authors stress on page 540 that the RFLP patterns of this new species are inseparable with BstEII and HaeIII. This use of other restriction enzymes may help resolve this problem. Thus, the laboratory distinction between M. smegmatis and this new species remains unclear despite the DNA-DNA homology studies.

REFERENCES


Authors’ Reply

Dr. Wallace and coworkers sought some clarification concerning several areas in the description of the new rapidly growing mycobacterial species M. mageritense (1). In particular, they are concerned about its differentiation from M. smegmatis. Two main points are stressed in their letter: (i) biochemical characterization and drug resistance and (ii) PCR-RFLP patterns of the 65-kDa heat shock protein (HSP) gene.

Regarding the first point, phenotypic characteristics, they complain about the absence of a 1988 reference (8) and point out some errors in Table 1 (1), which describes phenotypic differentiation of M. mageritense and related species, errors regarding M. smegmatis characteristics mainly. Data in Table 1 (1) corresponding to M. smegmatis were obtained from two taxonomy publications (2, 10). One of them corresponds to last edition (1994) of Bergey’s Manual of Systematic Bacteriology. A recent edition of the determinative bacteriology manual (11) includes the same data for biochemical identification of M. smegmatis.

Table 1, which follows this Reply, is a summary for comparison of the M. smegmatis results described in references 1 and 9. The different result for M. smegmatis growth in MacConkey agar without crystal violet is striking. In our experience, growth in this medium was unclear for two M. smegmatis reference strains. Table 1 also includes several M. mageritense characteristics which allow the differentiation of this new species from M. smegmatis. Some of them, such as utilization of xylose and arabinose, were requested by the authors of the Letter. From a biochemical point of view, a clear and easy test to differentiate the two species is the presence of thermostable catalase;