Conservation of the Specific Epithet *fortuitum* in the Name of the Organism Known as *Mycobacterium fortuitum* da Costa Cruz Request for an Opinion

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Stanford and Gunthorpe have documented well the illegitimacy of *Mycobacterium fortuitum* da Costa Cruz 1938 as a later synonym of *Mycobacterium ranae* Bergey et al. 1923. Nevertheless, in the interest of stability of nomenclature, conservation of the specific epithet *fortuitum* over *ranae* is desired.

Stanford has written (*Forum Mycobacteriorum*, 1970) that by 1938, when da Costa Cruz (2) described *Mycobacterium fortuitum*, *Mycobacterium ranae* was a well established species. Stanford points out that the work of Mudd (12), Furth (3), Furth and Aronson (4), Aronson (1), and Griffith (9) established the distinctiveness of *M. ranae* from *M. chelonae*, *M. smegmatis*, *M. phlei*, *M. marinum*, *M. thamnophaeos*, *M. tuberculosis*, *M. bovis*, and *M. avium* on the basis of agglutination, complement fixation tests, and surface-interface reactions. The original work of Küster (10), the description by Bergey et al. (*Bergey's Manual*, 1923), and the studies of Long (11), Griffith (9), and Gordon (5) established that strains of *M. ranae* differ from *M. smegmatis* and *M. phlei* in their inability to grow at high temperatures. At the time of the original publication of the description of *M. fortuitum* in 1938, the only published evidence suggesting that *M. ranae* might differ from *M. fortuitum* was Küster's (10) statement that his frog tubercle bacillus would not grow at 37.5 C. This agrees with Stanford's experience that some strains isolated from situations at room temperature or lower and reported to be unable at first to grow at 37 C soon acquire this property after repeated subculture. Thus, had da Costa Cruz compared bacteriologically his strain from an abscess with Küster's strain of *M. ranae*, known at that time to have the properties da Costa Cruz was finding in his strain, the epithet *fortuitum* might never have been published.

The classic investigations of Ruth Gordon and colleagues (5-8) established the distinctive

nature of the species *M. phlei*, *M. smegmatis*, and *M. fortuitum*, simultaneously clearing our literature of many names found to be synonyms. In 1953, Gordon and Smith reported their studies of four strains labeled *M. ranae*. One of these was originally from Raybrook Sanitorium, one from the Trudeau Laboratory, and two from the Hygiene Laboratory (later known as NIH). All were found to be identical to *M. smegmatis*. Since Küster reported that his *M. ranae* did not grow at 37 C, these four strains were regarded as being misnamed. Gordon and Mihm (6) reported another strain, NCTC 2891, to correspond to Küster's description (10) while, in total, nine other strains from laboratories in the United States were apparently mislabeled. Stanford concludes that (i) *M. ranae* NCTC 2891 is the same species as *M. fortuitum* NCTC 10395 and ATCC 6841; (ii) NCTC 2891 is truly representative of the species originally described by Bergey et al. after Küster (10) as *M. ranae*; and (iii) *M. ranae* is an earlier valid synonym of *M. fortuitum*.

Although the legitimacy of *M. ranae* is generally not questioned, most mycobacteriologists prefer conservation of the later specific epithet *fortuitum*. After presentation of the points of view of Stanford (supporting *M. ranae*) and of others, as Ruth Gordon, in favor of *M. fortuitum*, in the privately circulated mycobacterial taxonomy newsletter, *Forum Mycobacteriorum*, letters were received from about 40 mycobacteriologists. Twenty-eight expressed definite preference for conservation of *M. fortuitum*, the name which has been

consistently used for many years; only nine preferred *M. ranae*. Included in these replies were those from members of the ICSB Subcommittee on the Taxonomy of *Mycobacterium*, four of whom were in favor of *M. ranae* and nine in favor of *M. fortuitum*. Desire for rejection of *M. ranae* is based on two related factors. The first is that for many years certain cultures distributed by the ATCC and now world-wide in distribution have borne the name *M. ranae* when in reality they have been *M. smegmatis*. Hence, whenever an author mentions *M. ranae*, one may not know whether he means *M. smegmatis* or *M. fortuitum*. This has been and will continue to be a great source of confusion, especially if the name *M. ranae* is allowed to displace *M. fortuitum*. One of the aims of taxonomy is elimination of confusion relating to names. Only one taxon is referred to by the name *M. fortuitum*; *M. ranae* may refer to at least two taxa.

The second factor relates to confusion which would result from replacement of a nearly universally used species name, *M. fortuitum*, by an unfamiliar name, *M. ranae*. This is most keenly felt in public health and medical circles. Great difficulty is experienced in microbiologist-clinician relationships whenever a new species name is introduced for a pathogen. To change the name *M. fortuitum*, which is well established in medical literature for a bacterium which is potentially pathogenic in man, will create chaos, particularly because of implications of the name *ranae* ("of frogs"). That this is entirely irrelevant nomenclaturally does not at all lessen the confusion. Accordingly, request to the Judicial Commission is made for an

opinion conserving the specific epithet *fortuitum* and rejecting *ranae* for the name of the organism currently known as *Mycobacterium fortuitum* da Costa Cruz.

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