

News & Comments

Results of Diagnostic Techniques for *Corynebacterium* Species Identification in Experimental Mice

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The most popular laboratory animals for biomedical research and comparison studies are experimental mice. Microbial infection, however, can change the mouse phenotypic and skew the outcomes of interpretation. To acquire repeatable and trustworthy results from animal tests, it is crucial to guarantee that animals are pathogen-free through routine and recurrent screening of animal colonies for specific infections. These microbiological monitoring procedures are crucial to the running of facilities that house experimental animals because they not only ensure high-quality experimental outcomes but also the wellbeing of all animals and the protection of researchers against zoonotic disease. In this study, scientists compare the precision and drawbacks of various methods to describe the population of *Corynebacterium* spp. isolated from laboratory mice in Korea.

Ninety-three *Corynebacterium* spp.-infected mice were acquired from five research centers, four businesses, eleven universities, and two hospitals in Korea. Exsanguination was used to sacrifice animals when they were deeply sedated with isoflurane. The skin and mucous membranes of both people and animals frequently contain *Corynebacterium* species, which are also present in a variety of dangerous compounds. The number of *Corynebacterium* species has grown quickly. There are now 133 *Corynebacterium* species with validated names, 33 of which have been discovered since 2016. Previous biochemical studies on well-known human diseases *C. diphtheria*, *C. ulcerans*, and *C. pseudotuberculosis* were 88.8% identical to identification outcomes obtained using *rpoB* gene sequencing.

Although a thorough examination is required to establish this, *Corynebacterium* spp. isolated from most mice grow slowly, which is consistent with this being a factor to low accuracy. Because *C. lowii* was not taxonomically differentiated from *C. mastitidis* until recently, it has not yet been added to the producer's database, which is a major contributing factor to the reduced overall accuracy of MALDI-TOF MS [30]. This led to some strains being mistakenly classified as *C. mastitidis*. The results of the identification of *Corynebacterium* isolated from mice using MALDI-TOF MS were 97.7% (127/130) consistent with those obtained using molecular biology techniques, excluding the results for 35 strains of *C. lowii*.

An important aspect of running facilities for laboratory animals is microbiological testing of the animals. *Corynebacterium* isolated from experimental mice can be identified using a variety of techniques, as



this study has shown. This emphasizes the significance of choosing an appropriate Corynebacterium identification approach to acquire reliable identification findings. MALDI-TOF MS is a distinct testing technique for quick identification, but due to its limitations, it should be used in conjunction with one or more other techniques to enable more precise identification of Corynebacterium.

Source: [Veterinary Sciences](#)

KEYWORDS

Corynebacterium; laboratory mice; MALDI-TOF MS

