Linezolid has good activity against a wide range of corynebacteria, including antibiotic-resistant strains and clinical isolates (Fernandez-Roblas *et al.,* 2009; Nhan *et al.,* 2012; Cacopardo *et al.,* 2013), *Corynebacterium diphtheriae* (nontoxigenic isolates tested) (Zasada *et al.,* 2010), and other coryneforms such as *Arthrobacter* spp., *Brevibacterium* spp., *Dermabacter hominis, Microbacterium* spp., and *Turicella otitidis*; it is also active against *Rhodococcus equi* (Jones *et al.,* 1996; Bowersock *et al.,* 2000; Goldstein *et al.,* 2003a, 2003b; Funke and Nietznik, 2005; Jones *et al.,* 2007c).

Bacillus anthracis is susceptible to linezolid. An early study found an MIC of 2 mg/l for two strains, the Sterne strain and the vaccine strain ST-1 (Athamna *et al.,* 2004). More recently, Ortatatli *et al.* (2012) tested 55 *B. anthracis* isolates by agar dilution and found all had an MIC ≤ 1 mg/l. A Turkish study tested 251 isolates (93 of human origin, 155 animal) and found all were susceptible to linezolid (Durmaz *et al.,* 2012). *In vivo,* linezolid has effectively cured rabbits with *B. anthracis* bacteremia (Weiss *et al.,* 2015).

Linezolid activity has been tested against lactic acid bacteria, including *Weissella confusa* (Lee *et al.,* 2011), *Lactobacillus* spp., *Pediococcus* spp., and *Lactococcus* spp. obtained from humans, but also from cultures that are intended for nutritional or probiotic use (Klare *et al.,* 2007). *Pediococcus* spp. (MIC range 0.5–1 mg/l; MIC_{90} 1–2 mg/l), many *Lactobacillus* spp. (MIC range 0.5–2 mg/l; MIC_{90} 1–2 mg/l), and *Lactococcus lactis* (MIC range 0.5–1 mg/l [eight isolates only]) all have relatively low MICs. *Lactobacillus acidophilus* (MIC range 0.5–4 mg/l; MIC_{90} 4 mg/l) had slightly higher MICs than other *Lactobacillus* spp. (Klare *et al.,* 2007). In a study by Goldstein *et al.* (2005), *Lactobacillus* spp. were found to have higher MICs (MIC_{90} 8 mg/l; MIC range 1–8 mg/l). Linezolid has variable activity against *Leuconostoc* spp. (MIC range 1–8 mg/l) (Rolston *et al.,* 2013).

Linezolid provides consistent antimicrobial activity against all *Nocardia* spp. tested. A study of *N. brasiliensis* isolates found that all were susceptible to linezolid (MIC_{90} 2 mg/l) (Vera-Cabrera *et al.,* 2001). Brown-Elliott *et al.* (2003) tested 140 clinical isolates of *Nocardia* spp. and found the MIC_{90} to range from 1–4 mg/l (MIC range ≤ 0.25–8 mg/l). Cercenado *et al.* (2007) determined the MIC_{90} to be 1 mg/l for 51 *Nocardia* isolates, with the highest MIC being 2 mg/l. This study included strains resistant to many antimicrobials such as *N. farcinica*. Larruskain *et al.* (2011) tested 186 isolates from 14 species with very similar results (MIC_{90} range 1-4 mg/l, MIC range ≤ 0.5–4 mg/l). As molecular methods rapidly expand *Nocardia* taxonomy and identify new species, these findings of consistently low linezolid MIC levels remain true. In the largest study to date, 1299 *Nocardia* isolates from over 35 species underwent antimicrobial susceptibility testing; all were susceptible to linezolid (Schlaberg *et al.,* 2014). Another recent study of 149 isolates from 27 species found the same result (McTaggart *et al.,* 2015). Although the majority of studies over time have described low MICs for all tested isolates (Maraki *et al.,* 2009; Al Tawfiq *et al.,* 2013; Ishihara *et al.,* 2014; Taj-Aldeen *et al.,* 2014; Wang *et al.,* 2014), two studies assessing isolates from Taiwan found *N. brasiliensis* to have an MIC_{90} of 8 mg/l (range 0.5–16 mg/l), higher than that reported for this species elsewhere (Huang *et al.,* 2007; Lai *et al.,* 2009); Lai *et al.* (2011) subsequently reported on two resistant isolates (see later under 2b. Emerging resistance and cross-resistance).

MYCOBACTERIA

Linezolid has activity against *Mycobacterium tuberculosis*, including clinical isolates, as well as some rapidly growing and slow-growing nontuberculous mycobacteria.

The earliest *in vitro* study of linezolid (named U-100766 at time of study publication) activity against *M. tuberculosis* found an MIC_{90} of 0.5 mg/l for five isolates susceptible to first-line agents, and MIC_{90} of 2 mg/l (range 0.5–2 mg/l) for five multidrug-resistant (MDR) isolates (1 mg/l concentration not tested) (Zurenko *et al.,* 1996). A subsequent study of 117 isolates established an MIC_{90} of 1 mg/l (range ≤ 0.125–1 mg/l) and found no significant differences related to susceptibility to first-line drugs (Alcala *et al.,* 2003). Later studies reported similar results for susceptible isolates (Huang *et al.,* 2008; Schön *et al.,* 2011). In the absence of established breakpoints, Schön *et al.* (2011) suggested a wild-type epidemiological cut-off (ECOFF) of 0.5 mg/l and concurred with Sharma *et al.* (2011) on a critical concentration of 1 mg/l.

Against rapidly growing nontuberculous mycobacteria, linezolid demonstrates moderate activity. In a study by Wallace *et al.* (2001), broth microdilution was used to test the following rapidly growing mycobacteria: *M. fortuitum* group (MIC_{90} 16 mg/l, range 1–32 mg/l), *M. fortuitum* third biovariant complex (MIC_{90} 8 mg/l; range 2–8 mg/l), *M. abscessus* (MIC_{90} 64 mg/l; range 0.5–128 mg/l), *M. chelonae* (MIC_{90} 16 mg/l; range 1–64 mg/l), and *M. mucogenicum* (MIC_{90} 4 mg/l; range 0.5–8 mg/l) (Wallace *et al.,* 2001). In this study, linezolid was most active against isolates of *M. mucogenicum* and the *M. fortuitum* group (Wallace *et al.,* 2001). Based on the *in vitro* data and information on linezolid serum levels, the authors proposed the following breakpoint criteria for rapidly growing mycobacteria: susceptible ≤ 8 mg/l, moderately susceptible 16 mg/l, resistant ≥ 32 mg/l. Subsequently, Yang *et al.* (2003), using the same interpretive criteria, found moderate rates of resistance to linezolid in rapidly growing mycobacteria (*M. fortuitum* group: intermediate 7%, resistant 25%; *M. abscessus*: intermediate 26%, resistant, 42%; *M. chelonae*: intermediate 13%, resistant 5%). Studies of susceptibilities of the subspecies making up the *M. abscessus* complex vary somewhat in their findings. Reported MIC_{90} for *M. abscessus* subsp. *abscessus* ranges from 8–32 mg/l, subsp. *bolletii* 8–16 mg/l, and subsp. *massiliense* 8 mg/l (Yoshida *et al.,* 2013; Nie *et al.,* 2014; Singh *et al.* 2014). A single isolate of *M. alvei* showed an MIC of 0.25 mg/l (Lee *et al.,* 2011). The use of linezolid to treat rapidly growing mycobacterial infections depends on the MIC and the species of the clinical isolate.

Linezolid has good activity against a range of slowly growing nontuberculous mycobacteria, including *M. marinum*