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Antianaerobic Activity of a Novel Fluoroquinolone, WCK 771, Compared to Those of Nine Other Agents

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Agar dilution MIC methodology was used to compare the activity of WCK 771 with those of ciprofloxacin, levofloxacin, moxifloxacin, gatifloxacin, piperacillin, piperacillin-tazobactam, imipenem, clindamycin, and metronidazole against 350 anaerobes. Overall, the MICs (in micrograms per milliliter) at which 50 and 90%, respectively, of the isolates tested were inhibited were as follows: WCK 771, 0.5 and 2.0; ciprofloxacin, 2.0 and 32.0; levofloxacin, 1.0 and 8.0; gatifloxacin, 0.5 and 4.0; moxifloxacin, 0.5 and 4.0; piperacillin, 2.0 and 64.0; piperacillin-tazobactam, ≤0.125 and 8.0; imipenem, 0.125 and 1.0; clindamycin, 0.125 and 16.0; and metronidazole, 1.0 and >16.0.

Anaerobes are becoming increasingly resistant to β-lactams due to β-lactamase production and other mechanisms. Although β-lactamase production, and concomitant resistance to β-lactams, is the norm among the *Bacteroides fragilis* group, other anaerobic gram-negative bacilli in the genera *Prevotella*, *Porphyromonas*, and *Fusobacterium* have increasingly become β-lactamase positive. β-Lactamase production also has been described for clostridia. Metronidazole resistance in organisms other than non-spore-forming gram-positive bacilli has been described, as has clindamycin resistance in anaerobic gram-negative bacilli (1–3).

Quinolones such as ciprofloxacin, ofloxacin, fleroxacin, pefloxacin, enoxacin, and lomefloxacin are inactive or marginally active against anaerobes. Newer quinolones with increased antianaerobic activity include (i) those with slightly increased activity against aerobic gram-positive and some nonfermentative gram-negative bacteria (sparfloxacin, grepafloxacin, and levofloxacin) and (ii) those with significantly improved antianaerobic activity (garenoxacin, clinafloxacin, and sitafloxacin are the most active, followed by trovafloxacin, moxifloxacin, and gatifloxacin) (5–9, 11, 12, 18, 20). Development and/or marketing of many of the latter quinolones has been discontinued.

During the past few years, several reports on quinolone-resistant anaerobic strains with defined quinolone resistance mechanisms (efflux or type II topoisomerase mutations) have been published (4, 14, 15, 17). Plasmid-mediated complementation of *gyrA* and *gyrB* in quinolone-resistant *B. fragilis* has also been described (16). Additionally Golan and coworkers (10) have recently described the emergence of fluoroquinolone resistance among *Bacteroides* species. Increased use of quinolones against mixed aerobic and anaerobic infections will probably lead to an increased incidence of these strains, but this hypothesis will need validation by future in vitro surveys.

WCK 771 (Fig. 1), an experimental fluoroquinolone, is the hydrate of the arginine salt of *S*-(−)-nadifloxacin and has expanded gram-positive and -negative activity. The present study tested the antianaerobic activity of WCK 771 compared to those of ciprofloxacin, levofloxacin, moxifloxacin, gatifloxacin, piperacillin, piperacillin-tazobactam, imipenem, clindamycin, and metronidazole against 350 anaerobes. All anaerobes were clinical strains isolated during the past 4 years, identified by standard procedures (19), and kept frozen in double-strength skim milk (dehydrated skim milk; Difco Laboratories, Detroit, Mich.) at −70°C until use. Prior to testing, strains were subcultured twice onto enriched brucella agar plates supplemented with hemin and vitamin K_1 (13). WCK 771 susceptibility powder was provided by Wockhardt Research Center, Aurangabad, India. MICs were based upon the weight of the fluoroquinolone moiety. Other drugs were obtained from their manufacturers. β-Lactamase testing was by the nitrocefin disk method (Cefinase; BBL Microbiology Systems, Cockeysville, Md.). Agar dilution susceptibility testing was according to the latest method recommended by the National Committee for Clinical Laboratory Standards (NCCLS) (13), using brucella agar supplemented with hemin, vitamin K_1, and 5% sterile defibrinated sheep blood. Tazobactam was added to piperacillin at a fixed concentration of 4.0 μg/ml. All anaerobe quality control gram-negative and -positive strains recommended by NCCLS were included with each run; in every case, the results (where available) were in range. No studies on efflux or type II topoisomerase mutations were performed with quinolone-resistant strains.

Among the anaerobic gram-negative bacilli tested, 49 of 54 (90.7%) of *B. fragilis* group strains, 56 of 104 (53.8%) of *Pre-*

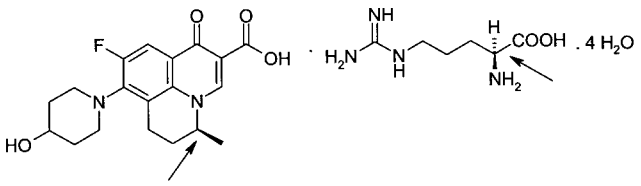

FIG. 1. Chemical structure of WCK 771. Arrows show chiral structure.

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TABLE 1. MICs of agents

Organism (no. of β-lactamase-positive strains/no. tested) and drug	MIC (μg/ml)[a]		
	MIC	50%	90%
Bacteroides fragilis (11/11)			
WCK 771	1–>32	1	16
Ciprofloxacin	2–>32	4	>32
Levofloxacin	1–>32	2	32
Gatifloxacin	0.5–>32	0.5	16
Moxifloxacin	0.5–>32	0.5	8
Piperacillin	2–>128	16	>128
Piperacillin-tazobactam	0.5–4	2	2
Imipenem	0.06–2	0.25	2
Metronidazole	0.25–1	1	1
Clindamycin	0.125–2	2	2
Bacteroides thetaiotaomicron (11/11)			
WCK 771	1–8	1	2
Ciprofloxacin	16–>32	16	>32
Levofloxacin	4–>32	4	8
Gatifloxacin	1–32	2	4
Moxifloxacin	1–16	2	2
Piperacillin	16–64	64	64
Piperacillin-tazobactam	4–16	16	16
Imipenem	0.125–0.5	0.5	0.5
Metronidazole	0.5–1	1	1
Clindamycin	0.125–>32	4	>32
Bacteroides distasonis (6/11)			
WCK 771	1–2	2	2
Ciprofloxacin	4–16	4	8
Levofloxacin	1–4	2	2
Gatifloxacin	0.5–2	1	2
Moxifloxacin	0.25–1	0.5	1
Piperacillin	4–>128	64	>128
Piperacillin-tazobactam	4–16	4	4
Imipenem	0.5–1	1	1
Metronidazole	0.5–1	1	1
Clindamycin	0.03–>32	8	16
Bacteroides vulgatus (10/10)			
WCK 771	0.25–16	0.5	16
Ciprofloxacin	16–>32	16	32
Levofloxacin	1–>32	2	>32
Gatifloxacin	0.5–16	0.5	16
Moxifloxacin	0.25–16	0.5	16
Piperacillin	8–>128	16	>128
Piperacillin-tazobactam	0.25–>32	4	8
Imipenem	0.25–2	1	1
Metronidazole	0.25–2	1	2
Clindamycin	≤0.016–>32	0.03	0.5
Miscellaneous *Bacteroides* (11/11)[b]			
WCK 771	1–8	2	4
Ciprofloxacin	8–>32	8	>32
Levofloxacin	4–>32	4	>32
Gatifloxacin	1–16	2	16
Moxifloxacin	1–16	1	8
Piperacillin	16–>128	128	>128
Piperacillin-tazobactam	1–8	2	8
Imipenem	0.125–1	0.5	0.5
Metronidazole	0.25–2	1	2
Clindamycin	0.5–>32	4	>32
Bacteroides fragilis group (49/54)			
WCK 771	0.25–>32	1	8
Ciprofloxacin	2–>32	16	>32
Levofloxacin	1–>32	4	32
Gatifloxacin	0.5–>32	1	16
Moxifloxacin	0.25–>32	1	8
Piperacillin	2–>128	32	>128
Piperacillin-tazobactam	0.25–>32	4	16
Imipenem	0.06–2	0.5	1
Metronidazole	0.25–2	1	1
Clindamycin	≤0.016–>32	2	>32
Prevotella bivia (26/42)			
WCK 771	0.25–>32	1	1
Ciprofloxacin	8–>32	16	8
Levofloxacin	2–>32	4	8
Gatifloxacin	1–>32	4	4
Moxifloxacin	2–>32	4	4
Piperacillin	1–128	4	32
Piperacillin-tazobactam	≤0.125	≤0.125	≤0.125
Imipenem	0.03–0.25	0.03	0.06
Metronidazole	0.5–8	2	4
Clindamycin	≤0.016–>32	0.03	0.06
Prevotella corporis (4/12)			
WCK 771	0.06–1	0.125	0.25
Ciprofloxacin	0.5–2	1	1
Levofloxacin	0.5–1	1	1
Gatifloxacin	0.25–0.5	0.25	0.5
Moxifloxacin	0.5–1	0.5	1
Piperacillin	≤0.125–32	1	16
Piperacillin-tazobactam	≤0.125	≤0.125	≤0.125
Imipenem	0.016–0.06	0.03	0.06
Metronidazole	≤0.125–1	0.25	0.5
Clindamycin	≤0.016–32	≤0.016	≤0.016
Prevotella intermedia (6/10)			
WCK 771	0.06–1	0.125	0.125
Ciprofloxacin	0.5–8	1	1
Levofloxacin	0.5–8	0.5	1
Gatifloxacin	0.25–2	0.25	0.5
Moxifloxacin	0.25–8	0.5	0.5
Piperacillin	≤0.125–16	2	8
Piperacillin-tazobactam	≤0.125	≤0.125	≤0.125
Imipenem	≤0.008–0.125	0.03	0.03
Metronidazole	0.25–0.5	0.25	0.5
Clindamycin	≤0.016–>32	≤0.016	≤0.016
Prevotella melaninogenica (9/10)			
WCK 771	0.125–8	0.125	8
Ciprofloxacin	1–16	2	8
Levofloxacin	1–32	1	16
Gatifloxacin	0.25–16	1	16
Moxifloxacin	0.5–16	1	16
Piperacillin	0.5–64	4	64
Piperacillin-tazobactam	≤0.125	≤0.125	≤0.125
Imipenem	≤0.008–0.125	0.016	0.125
Metronidazole	0.25–0.5	0.25	0.5
Clindamycin	≤0.016–0.03	≤0.016	≤0.016
Prevotella buccae (2/11)			
WCK 771	0.125–0.5	0.25	0.5
Ciprofloxacin	1–4	2	4
Levofloxacin	0.5–1	1	1
Gatifloxacin	0.25–0.5	0.25	0.5
Moxifloxacin	0.25–0.5	0.5	0.5
Piperacillin	1–8	2	4
Piperacillin-tazobactam	≤0.016	≤0.125	≤0.125
Imipenem	0.03–0.06	0.06	0.06
Metronidazole	0.5–2	1	2
Clindamycin	≤0.016–0.03	≤0.016	≤0.016
Miscellaneous *Prevotella* and *Porphyromonas* (9/19)[c]			
WCK 771	0.03–1	0.125	0.5
Ciprofloxacin	0.5–4	1	2
Levofloxacin	0.125–8	1	1
Gatifloxacin	0.06–2	0.25	0.5
Moxifloxacin	0.125–1	0.5	1
Piperacillin	≤0.125–128	8	128
Piperacillin-tazobactam	≤0.125–8	≤0.125	≤0.125
Imipenem	≤0.008–0.25	0.03	0.125
Metronidazole	≤0.125–4	0.5	4
Clindamycin	≤0.016–>32	≤0.016	0.06

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TABLE 1—*Continued*

Organism (no. of β-lactamase-positive strains/no. tested) and drug	MIC (μg/ml)[a]		
	MIC	50%	90%
Prevotella and *Porphyromonas* (56/104)			
WCK 771	0.03–>32	0.25	1
Ciprofloxacin	0.5–>32	2	32
Levofloxacin	0.125–>32	1	8
Gatifloxacin	0.06–>32	0.5	4
Moxifloxacin	0.125–>32	1	4
Piperacillin	≤0.125–128	4	64
Piperacillin-tazobactam	≤0.125–8	≤0.125	≤0.125
Imipenem	≤0.008–0.25	0.03	0.125
Metronidazole	≤0.125–8	1	4
Clindamycin	≤0.016–>32	≤0.016	0.06
Fusobacterium nucleatum (0/12)			
WCK 771	0.125–0.5	0.25	0.25
Ciprofloxacin	2–4	2	4
Levofloxacin	0.5–2	1	2
Gatifloxacin	0.25–0.5	0.25	0.5
Moxifloxacin	0.125–0.25	0.25	0.25
Piperacillin	≤0.125	≤0.125	≤0.125
Piperacillin-tazobactam	≤0.125	≤0.125	≤0.125
Imipenem	≤0.008–0.06	0.03	0.06
Metronidazole	≤0.125–0.5	≤0.125	0.25
Clindamycin	≤0.016–0.06	0.06	0.06
Fusobacterium necrophorum (0/12)			
WCK 771	0.25–1	1	1
Ciprofloxacin	1–4	2	2
Levofloxacin	1–4	2	2
Gatifloxacin	0.25–1	0.5	1
Moxifloxacin	0.25–2	1	2
Piperacillin	≤0.125–2	≤0.125	≤0.125
Piperacillin-tazobactam	≤0.125–1	≤0.125	≤0.125
Imipenem	≤0.008–1	0.016	0.06
Metronidazole	≤0.125–0.25	≤0.125	0.25
Clindamycin	≤0.016–0.125	0.06	0.06
Fusobacterium mortiferum (2/11)			
WCK 771	0.125–0.5	0.125	0.25
Ciprofloxacin	0.5–4	2	2
Levofloxacin	1–2	1	2
Gatifloxacin	0.25–1	0.5	0.5
Moxifloxacin	0.5–1	0.5	1
Piperacillin	0.25–>128	0.5	>128
Piperacillin-tazobactam	≤0.125–1	0.25	1
Imipenem	0.25–1	0.25	1
Metronidazole	0.25–0.5	0.25	0.5
Clindamycin	0.06–0.5	0.125	0.125
Fusobacterium varium (0/12)			
WCK 771	4–>32	8	16
Ciprofloxacin	4–>32	8	16
Levofloxacin	4–>32	4	8
Gatifloxacin	2–>32	4	4
Moxifloxacin	2–>32	4	8
Piperacillin	4–32	8	32
Piperacillin-tazobactam	2–16	8	8
Imipenem	0.5–2	1	2
Metronidazole	≤0.125–1	≤0.125	0.5
Clindamycin	2–>32	32	>32
Fusobacteria (2/47)			
WCK 771	0.125–>32	0.5	8
Ciprofloxacin	0.5–>32	2	8
Levofloxacin	0.5–>32	2	4
Gatifloxacin	0.25–>32	0.5	4
Moxifloxacin	0.125–>32	1	4
Piperacillin	≤0.125–>128	0.25	16
Piperacillin-tazobactam	≤0.125–16	≤0.125	8
Imipenem	≤0.008–2	0.25	1
Metronidazole	≤0.125–1	≤0.125	0.25
Clindamycin	≤0.016–>32	0.06	32
Peptostreptococci (0/27)[d]			
WCK 771	0.03–4	0.5	1
Ciprofloxacin	0.25–16	1	4
Levofloxacin	0.25–16	2	4
Gatifloxacin	0.125–8	0.5	1
Moxifloxacin	0.125–4	0.25	0.5
Piperacillin	≤0.125–2	≤0.125	0.25
Piperacillin-tazobactam	≤0.125–2	≤0.125	0.25
Imipenem	0.016–0.5	0.06	0.125
Metronidazole	≤0.125–4	0.5	2
Clindamycin	≤0.016–8	0.125	1
Propionibacteria (0/20)			
WCK 771	0.125–1	0.125	0.125
Ciprofloxacin	0.5–1	1	1
Levofloxacin	0.25–0.5	0.5	0.5
Gatifloxacin	0.25	0.25	0.25
Moxifloxacin	0.25–0.5	0.25	0.25
Piperacillin	0.5–2	1	2
Piperacillin-tazobactam	≤0.125–2	0.25	1
Imipenem	0.016–0.06	0.03	0.06
Metronidazole	>16	>16	>16
Clindamycin	0.03–0.25	0.06	0.125
Lactobacillus (0/12)			
WCK 771	1–32	2	16
Ciprofloxacin	1–>32	2	>32
Levofloxacin	1–>32	2	>32
Gatifloxacin	0.25–16	0.5	8
Moxifloxacin	0.25–8	0.5	8
Piperacillin	1–2	2	2
Piperacillin-tazobactam	1–2	2	2
Imipenem	0.25–4	1	2
Metronidazole	16–>16	>16	>16
Clindamycin	0.125–4	0.5	4
Eubacterium lentum (0/11)			
WCK 771	0.25–0.5	0.5	0.5
Ciprofloxacin	0.5–1	0.5	1
Levofloxacin	0.5	0.5	0.5
Gatifloxacin	0.25	0.25	0.25
Moxifloxacin	0.125–0.25	0.25	0.25
Piperacillin	16–32	16	16
Piperacillin-tazobactam	16	16	16
Imipenem	0.5	0.5	0.5
Metronidazole	0.25–1	0.5	1
Clindamycin	0.125–>32	0.125	0.25
Other gram-positive non-spore-forming bacilli (0/15)[e]			
WCK 771	0.25–2	1	2
Ciprofloxacin	0.5–32	4	16
Levofloxacin	1–8	4	4
Gatifloxacin	0.25–2	1	2
Moxifloxacin	0.25–2	2	2
Piperacillin	≤0.125–4	0.5	2
Piperacillin-tazobactam	≤0.125–2	0.5	2
Imipenem	0.016–0.5	0.125	0.25
Metronidazole	0.5–>16	>16	>16
Clindamycin	≤0.016–>32	0.03	>32
Clostridium perfringens (0/25)			
WCK 771	0.03–0.25	0.06	0.25
Ciprofloxacin	0.25–1	0.5	1
Levofloxacin	0.25–2	0.5	1
Gatifloxacin	0.25–1	0.5	0.5
Moxifloxacin	0.25–1	0.5	0.5
Piperacillin	≤0.125–1	0.5	1
Piperacillin-tazobactam	≤0.125–1	0.25	0.5
Imipenem	0.06–0.5	0.125	0.25
Metronidazole	0.5–2	1	1
Clindamycin	0.03–2	0.5	2

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TABLE 1—*Continued*

Organism (no. of β-lactamase-positive strains/no. tested) and drug	MIC (μg/ml)[a]		
	MIC	50%	90%
Clostridium difficile (0/12)			
WCK 771	0.5–4	0.5	1
Ciprofloxacin	8–>32	16	16
Levofloxacin	4–>32	4	8
Gatifloxacin	1–16	2	2
Moxifloxacin	1–8	1	2
Piperacillin	8–16	8	16
Piperacillin-tazobactam	8–32	8	16
Imipenem	4–8	8	8
Metronidazole	≤0.125–0.5	0.25	0.25
Clindamycin	4–>32	8	>32
Miscellaneous clostridia (0/23)[f]			
WCK 771	0.03–1	0.125	1
Ciprofloxacin	0.25–8	2	8
Levofloxacin	0.25–8	1	8
Gatifloxacin	0.25–4	0.5	4
Moxifloxacin	0.25–4	0.5	2
Piperacillin	≤0.125–64	1	16
Piperacillin-tazobactam	≤0.125–32	0.25	8
Imipenem	0.03–1	0.25	0.5
Metronidazole	≤0.125–4	1	4
Clindamycin	0.03–>32	2	16
All strains (107/350)			
WCK 771	0.03–>32	0.5	2
Ciprofloxacin	0.25–>32	2	32
Levofloxacin	0.125–>32	1	8
Gatifloxacin	0.06–>32	0.5	4
Moxifloxacin	0.125–>32	0.5	4
Piperacillin	≤0.125–>128	2	64
Piperacillin-tazobactam	≤0.125–>32	≤0.125	8
Imipenem	≤0.008–8	0.125	1
Metronidazole	≤0.125–>16	1	>16
Clindamycin	≤0.016–>32	0.125	16

[a] 50% and 90%, MICs at which 50 and 90% of isolates are inhibited, respectively.
[b] *Bacteroides ovatus*, 7; *Bacteroides uniformis*, 4.
[c] *Prevotella disiens*, 9; *Prevotella oris*, 3; *Prevotella loeschii*, 2; *Prevotella oralis* group, 1; *Prevotella denticola*, 1; *Porphyromonas asaccharolytica*, 2; *Porphyromonas gingivalis*, 1.
[d] *Peptostreptococcus asaccharolyticus*, 2; *Peptostreptococcus magnus*, 6; *Peptostreptococcus micros*, 6; *Peptostreptococcus anaerobius*, 5; *Peptostreptococcus tetradius*, 6; *Peptostreptococcus prevotii*, 2.
[e] *Actinomyces* sp., 6; *Bifidobacterium* sp., 9.
[f] *Clostridium tertium*, 6; *Clostridium bifermentans*, 3; *Clostridium cadaveris*, 3; *Clostridium sordellii*, 4; *Clostridium ramosum*, 3; *Clostridium paraputrificum*, 1; *Clostridium hystoliticum*, 1; *Clostridium* sp., 2.

votella and *Porphyromonas* strains, and 2 of 47 (4.3%) fusobacteria produced β-lactamase. The results of MIC testing are presented in Table 1. Overall, the MICs (in micrograms per milliliter) at which 50 and 90%, respectively, of the isolates tested were inhibited were as follows: WCK 771, 0.5 and 2.0; ciprofloxacin, 2.0 and 32.0; levofloxacin, 1.0 and 8.0; moxifloxacin, 0.5 and 4.0; gatifloxacin, 0.5 and 4.0, piperacillin, 2.0 and 64.0; piperacillin-tazobactam, ≤0.125 and 8.0; imipenem, 0.125 and 1.0; clindamycin, 0.125 and 16.0; and metronidazole, 1.0 and >16.0.WCK 771 had MICs which were generally one or two dilutions lower than those of gatifloxacin but similar to those of moxifloxacin against all anaerobe groups.

Although the overall WCK 771 MIC at which 90% of the isolates tested were inhibited was one dilution lower than that of moxifloxacin, for the five groupings of *B. fragilis* group species, moxifloxacin was more active than WCK 771 against two species, inferior against one, and the same against two more. For *Prevotella* species, WCK 771 was more active than moxifloxacin for most species, and there was an even split for fusobacteria. All quinolones tested had high MICs against *Fusobacterium varium* and lactobacilli. Additionally, higher quinolone MICs were observed against *B. fragilis* and *Bacteroides vulgatus* strains than against other members of the *B. fragilis* group. Among *Prevotella* spp., quinolone MICs were higher for *P. melaninogenica* than for other members of this genus. Moxifloxacin was more active than WCK 771 for peptostreptococci, lactobacilli, and *Eubacterium lentum* but was inferior by comparison against clostridia. Because strains for which quinolone MICs were raised were not studied for resistance mechanisms, accurate comparisons with recent publications on this aspect cannot be made. The addition of tazobactam enhanced the activity of piperacillin against β-lactamase-producing anaerobic gram-negative bacilli. Although most strains tested were susceptible to clindamycin (MICs of ≤2 μg/ml), resistance was seen in some gram-negative anaerobic rods, peptostreptococci, anaerobic gram-positive non-spore-forming rods, and clostridia. The only anaerobes resistant to metronidazole were the anaerobic gram-positive bacilli.

WCK 771 is a new experimental fluoroquinolone with expanded activity against pneumococci and staphylococci (M. V. Patel, S. V. Gupte, S. K. Agarwal, D. J. Upadhyay, K. Sreenivas, Y. Chugh, N. Shetty, R. K. Beri, N. J. De Souza, and N. Khorakiwala, Abstr. 41st Intersci. Conf. Antimicrob. Agents Chemother., abstr. F-539, 2001; G. A. Pankuch, M. Jacobs, H. Khorakiwala, N. De Souza, M. Patel, and P. C. Appelbaum, Abstr. 41st Intersci. Conf. Antimicrob. Agents Chemother., abstr. F-541, 2001; M. R. Jacobs, S. Bajaksouzian, A. Windau, M. V. Patel, N. de Souza, H. Khorakiwala, and P. C. Appelbaum, Abstr. 41st Intersci. Conf. Antimicrob. Agents Chemother., abstr. F-542, 2001). Of all quinolones tested in our study, WCK 771 had the lowest overall MICs for all strains tested; no previous data on this have been previously available, to our knowledge. The MICs of ciprofloxacin, levofloxacin, gatifloxacin, and moxifloxacin are similar to those reported previously by us and other workers, while the MICs of nonquinolone agents also reflect previous findings, with low MICs of piperacillin-tazobactam and imipenem against β-lactamase-positive and -negative strains and good activity of clindamycin (except against a few gram-negative and -positive rods and clostridia) and metronidazole (except against gram-positive non-spore-forming rods). The few strains for which quinolone MICs were consistently high were predominantly *F. varium*, a rare human pathogen which is more resistant to fluoroquinolones and other antimicrobials than are other fusobacteria (5–7, 9, 11, 12, 18). The strains studied were isolated during the

past 4 years, and we did not observe the increase in quinolone resistance described by Golan and coworkers (10).

The results of this first published in vitro anaerobe study suggest a potential place for WCK 771, with MICs similar to those of moxifloxacin, in treatment of anaerobic and mixed infections where strains of the *B. fragilis* group do not play a major role (e.g., infections of the respiratory tract, skin, and soft tissue), provided that a breakpoint of <4.0 μg/ml can be achieved. Pharmacokinetic-pharmacodynamic and experimental animal studies are necessary to further delineate the clinical role of these new quinolones in therapy of anaerobic infections.

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