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Antimicrobial Activity of Doripenem Against Leading Bacterial Pathogens: Results From a Latin American Surveillance Study (2003-2006)

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Amended Abstract*

Background: Doripenem (DOR) is a parenteral 1-β-methyl-carbapenem with potent antibacterial activity and was recently approved in the United States for treating adults with complicated urinary tract and intra-abdominal infections. We evaluated the in vitro activity of DOR and comparator agents against patient isolates from Latin America (LA). Knowledge of geographical susceptibility (S) profiles is critical in assessing emerging resistances (R) and identifying the most appropriate therapies for particular regions.

Methods: Consecutive, nonduplicate bacterial isolates (13,809) were collected from patients in 10 medical centers in Brazil (45.2%), Chile (21.1%), Argentina (17.9%), Mexico (12.9%), and Venezuela (2.9%). Isolate identifications were confirmed and susceptibility testing was performed using CLSI reference methods at a central laboratory (JMI Laboratories, North Liberty, IA).

Results: Selected organisms and DOR results are in the Table. DOR inhibited all oxacillin (OXA)-S staphylococci and *S. pneumoniae*, including penicillin (PEN)-R strains, at 2 µg/mL. ESBL phenotypes were observed in 15.2% and 44.9% of *E. coli* and *Klebsiella* spp. isolates, respectively, with corresponding DOR MIC_{90} results at ≤0.06 µg/mL and 0.5 µg/mL. DOR and MEM were equally potent against *Acinetobacter* spp. (MIC_{50}, 2 µg/mL) and PSA (MIC_{50}, 1 µg/mL), although DOR inhibited a greater number of PSA (78%) at MIC values of ≤4 µg/mL than did MEM (71.0%) or imipenem (IPM; 67.9%). Moreover, DOR inhibited 21.8% of 261 IPM- and/or MEM-R PSA isolates at MIC values ≤4 µg/mL..

	MIC (µg/mL)		% Cumulative Inhibited at MIC					
Organism (no. tested)	**50%**	**90%**	**≤0.25**	**0.5**	**1**	**2**	**4**	**8**
OXA-S *S. aureus* (2078)	≤0.06	≤0.06	99.8	99.9	99.9	100		
OXA-S CoNS (232)	≤0.06	0.12	98.3	98.7	99.1	100		
Enterococcus spp. (1012)	4	>8	1	1.5	2.6	21.3	60.3	72.2
PEN-R *S. pneumoniae** (9)	≤0.06	0.25		77.8	100			
PEN- S *S. pneumoniae* (899)	≤0.06	0.25	90.0	99.9	100			
E. coli (1761)	≤0.06	≤0.06	99.8	99.9	100			
Klebsiella spp. (1173)	≤0.06	0.12	94.7	96.8	98.3	98.8	99.1	99.7
Enterobacter spp. (655)	≤0.06	0.25	93.9	97.7	98.9	99.8	100	
P aeruginosa (1291)	1	>8	28.8	46.5	59.6	68.1	78.1	88.9
Acinetobacter spp. (647)	2	>8	18.9	26.9	45.4	66.6	74.7	82.1

Conclusion: DOR showed potent activity against LA Enterobacteriaceae (including ESBL- and/or AmpC-producing strains), staphylococci (OXA-S), and streptococci, and was comparable to other carbapenems against PSA. Given limited therapeutic choices available, DOR shows a promising broad spectrum that should prove useful in geographic regions with problematic emerging R.

*Updated to reflect new CLSI breakpoints for *S. pneumoniae* when testing penicillin (≤2/4/≥8 µg/mL).

Introduction

Selection of antimicrobial therapy and the timing of its administration are important determinants of morbidity and mortality for critically ill patients with serious infections. The selection of empiric treatment should be broad enough to cover likely pathogens, including antimicrobial-resistant strains. Infections caused by multidrug-resistant (MDR) gram-positive pathogens in North American patients represent a serious clinical challenge, whereas in Latin America, resistant gram-negative pathogens are most problematic. In Latin America, more than 50% of nosocomial-acquired *Klebsiella pneumoniae* infections are caused by extended-spectrum β-lactamase (ESBL) producers, leading to the increased usage of carbapenems. As a consequence, increases in carbapenem resistance rates have been observed among pathogens such as *Pseudomonas aeruginosa* and *Acinetobacter* spp. Development of antimicrobial agents possessing potent antimicrobial activity against these pathogens or at least showing a low predisposition to select for resistance is highly desirable.

Doripenem (formerly S-4661) is a parenteral 1-β-methyl-carbapenem recently approved by the United States Food and Drug Administration (US-FDA) for treatment of complicated urinary tract and intra-abdominal infections in adults. The doripenem molecular structure confers β-lactamase stability and resistance to inactivation by renal dehydropeptidases. The characteristics of doripenem include a spectrum and potency against gram-positive pathogens most similar to that of imipenem, and activity against gram-negative pathogens similar to that of meropenem. A particular feature, attributed to the side chain at position 2, is greater activity against MDR gram-negative nonfermenters (except for *Stenotrophomonas maltophilia*).

The objective of this study was to evaluate the in vitro activity of doripenem and comparator agents against pathogens isolated from hospitalized patients in Latin American medical centers.

Materials and Methods

Bacterial Isolates

A total of 13,809 consecutive, nonduplicate bacterial isolates were submitted from 10 Latin American medical centers between January 2003 and December 2006. All isolates were identified at the participating institution by routine methodologies in use at each laboratory. Upon receipt at the central monitor (JMI Laboratories, North Liberty, Iowa, USA), isolates were subcultured to ensure viability and purity. Confirmation of species identification was performed with the Vitek system (bioMérieux Vitek, St Louis, Missouri, USA) or conventional methods, as required.

Susceptibility Testing

Antimicrobial susceptibility testing was performed by the broth microdilution method, following recommendations of the Clinical and Laboratory Standards Institute (CLSI, 2006). Antimicrobial powders were obtained from the respective manufacturers and microdilution plates were prepared by TREK Diagnostics (Cleveland, Ohio, USA). Susceptibility results were interpreted according to CLSI document M100-S18 (2008) for all comparison agents. USA-FDA doripenem susceptibility breakpoints were used for *Acinetobacter* spp. (≤1 µg/mL), Enterobacteriaceae (≤0.5 µg/mL), *P. aeruginosa* (≤2 µg/mL), and *Streptococcus anginosus* group (≤0.12 µg/mL). *Escherichia coli* and *K. pneumoniae* isolates exhibiting MIC values of ≥2 µg/mL for aztreonam and/or ceftazidime and/or ceftriaxone were considered as ESBL phenotypes. Quality control was performed by testing *E. coli* ATCC 25922, *P. aeruginosa* ATCC 27853, *Haemophilus influenzae* ATCC 49247, *Staphylococcus aureus* ATCC 29213, and *S. pneumoniae* ATCC 49619.

Results

- The 13,809 isolates examined as part of the SENTRY Program originated from Brazil (45.2%), Chile (21.1%), Argentina (17.9%), Mexico (12.9%), and Venezuela (2.9%); bacterial isolates were collected primarily from blood-stream (54.9%), lower respiratory tract (17.5%), and skin and soft tissue (6.2%) infections.
- Ranking species included (91.3% of total): *S. aureus* (23.6%); *E. coli* (12.7%); *P. aeruginosa* (9.3%); *Klebsiella* spp. (8.5%); coagulase-negative staphylococci (CoNS; 8.0%); *Enterococcus* spp. (7.3%); *S. pneumoniae* (6.8%); *Enterobacter* spp. (4.7%); *Acinetobacter* spp. (4.7%); *Streptococcus* spp. (3.2%); and *H. influenzae* (2.3%).
- Doripenem exhibited potent activity against all oxacillin-susceptible staphylococci and *S. pneumoniae* isolates at MIC values of ≤2 µg/mL and ≤1 µg/mL, respectively (Table 1).
- Doripenem was also active against penicillin-susceptible (MIC_{90}, 0.25 µg/mL) and penicillin-non-susceptible (MIC_{90}, 0.25 µg/mL) *S. pneumoniae* strains, as well as against beta-haemolytic streptococci ($MIC_{50/90}$, ≤0.06/≤0.06 µg/mL) (Table 1).
- A total of 15.2% and 44.9% of the *E. coli* and *Klebsiella* spp. isolates studied, respectively, displayed ESBL phenotypes (Table 2). Doripenem (MIC_{50}, ≤0.06 µg/mL) was as potent as meropenem against *E. coli* (MIC_{50}, ≤0.06 µg/mL) regardless of ESBL phenotype; a slight increase in carbapenem MIC values was noticed among ESBL phenotype-positive *Klebsiella* spp. (Table 3).
- Among *Klebsiella* spp., 3.2% had doripenem MIC values ≥0.5 µg/mL (Table 2) and 1.2% were ≥4 µg/mL (data not shown). All 14 of these isolates were also categorized as intermediate or resistant to imipenem and meropenem, but were inhibited by concentrations of ≤1 µg/mL polymyxin B (data not shown).
- Against the 97 *Enterobacter* spp. isolates showing cefepime MICs ≥16 µg/mL, doripenem (MIC_{50}, 0.12 µg/mL) and meropenem (MIC_{50}, ≤0.06 µg/mL) were at least 4-fold more potent than imipenem (MIC_{50}, 0.5 µg/mL) (Table 2).
- Doripenem and meropenem were equally potent against *Acinetobacter* spp. (MIC_{50}, 2 µg/mL) and *P. aeruginosa* (MIC_{50}, 1 µg/mL); however, doripenem inhibited a greater number of *P. aeruginosa* isolates (78.2%) at MIC values of ≤4 µg/mL than did meropenem (71.0%) or imipenem (67.9%) (Table 4).
- Doripenem (MIC_{50}, 8 µg/mL) was more active than meropenem (MIC_{50}, >8 µg/mL) against imipenem-resistant *P. aeruginosa* isolates, and inhibited 21.8% of imipenem-resistant *P. aeruginosa*, while meropenem inhibited only 8.8% of these strains (Table 5).
- Polymyxin B was the only agent active against all imipenem-resistant *Acinetobacter* spp. ($MIC_{50/90}$, ≤0.5/0.5 µg/mL) and *P. aeruginosa* ($MIC_{50/90}$, 1/1 µg/mL); potency was unaffected by the carbapenem-resistant phenotype. Only 0.4% of *Acinetobacter* spp. showed polymyxin B MIC results at ≥4 µg/mL (all susceptible to carbapenems) (Table 4).

Table 1. In Vitro Activity of Doripenem in Comparison to Selected Antimicrobial Agents Tested Against Gram-positive Pathogens Collected From Latin American Medical Centers (2003-2006)

	MIC (µg/mL)			% by Category*	
Organism (No. Tested)/ Antimicrobial Agent	**50%**	**90%**	**Range**	**Susceptible**	**Resistant**
***S. aureus* (oxacillin-susceptible; 2078)**					
Doripenem	≤0.06	≤0.06	≤0.008-2	-^	-^
Meropenem	0.12	0.12	0.015-2	100.0	0.0
Imipenem	≤0.12	≤0.5	≤0.12->8	100.0	0.1
Ertapenem	≤0.25	0.25	≤0.008-4	100.0	0.0
Ceftriaxone	4	4	≤0.25->32	99.4	0.1
Ceftazidime	8	8	≤1-8	91.9	0.9
Cefepime	2	4	≤0.12->16	99.9	0.1
Piperacillin-tazobactam	1	2	≤0.12->64	99.8	0.2
Teicoplanin	≤2	≤2	≤0.12-16	100.0	0.0
Vancomycin	1	1	0.25-2	100.0	0.0
Linezolid	2	2	0.12-2	100.0	0.0
Levofloxacin	≤0.5	≤0.5	≤0.12->8	96.9	2.7
Coagulase-negative staphylococci (oxacillin-susceptible; 232)					
Doripenem	≤0.06	0.12	≤0.008-2	-^	-^
Meropenem	0.12	0.25	0.03-4	100.0	0.0
Imipenem	≤0.12	≤0.5	≤0.12-1	100.0	0.0
Ertapenem	≤0.25	0.5	≤0.06->8	99.6	0.4
Ceftriaxone	1	4	≤0.25-32	97.4	0.0
Ceftazidime	4	8	≤1->16	95.3	1.3
Cefepime	0.5	2	≤0.12-8	100.0	0.0
Piperacillin-tazobactam	≤0.5	1	≤0.12-4	100.0	0.0
Teicoplanin	≤2	4	≤0.12-16	99.1	0.0
Vancomycin	1	2	0.25-2	100.0	0.0
Linezolid	1	1	≤0.5-2	100.0	0.0
Levofloxacin	0.25	≤0.5	≤0.06->4	94.8	4.3
***S. pneumoniae* (936)**					
Doripenem	≤0.06	0.25	≤0.008-1	-^	-^
Meropenem	≤0.03	0.25	≤0.008-1	90.0	0.3
Imipenem	≤0.12	≤0.5	≤0.12-1	80.4	0.1
Ertapenem	≤0.06	0.5	≤0.008-1	100.0	0.0
Ceftriaxone	≤0.25	0.5	≤0.008-4	99.4	0.1
Cefepime	≤0.12	0.5	≤0.06-2	90.0	1.0
Levofloxacin	1	1	0.25->4	99.7	0.3
Linezolid	1	1	≤0.12-2	100.0	0.0
Vancomycin	≤1	≤1	≤0.06-≤1	100.0	0.0
Beta-haemolytic streptococci (324)					
Doripenem	≤0.06	≤0.06	≤0.008-0.06	-^	-^
Meropenem	0.01	0.06	≤0.008-0.12	100.0	0.0
Ertapenem	≤0.25	≤0.25	≤0.008-≤1	100.0	0.0
Imipenem	≤0.12	≤0.5	≤0.12-≤0.5	100.0	0.0
Penicillin	≤0.01	0.06	≤0.015-0.12	100.0	0.0
Ceftriaxone	≤0.25	≤0.25	≤0.25	100.0	0.0
Cefepime	≤0.12	≤0.12	≤0.12-025	100.0	0.0
Levofloxacin	≤0.5	1	0.12->4	99.7	0.3
Linezolid	1	1	0.25-2	100.0	0.0
Vancomycin	0.25	0.5	≤0.12-1	100.0	0.0
***Enterococcus faecium* (160)**					
Doripenem	>8	>16	0.03->16	-^	-^
Meropenem	>8	>16	0.12->16	3.1	87.6
Imipenem	>8	>8	≤0.12->8	15.1	80.5
Ampicillin	>16	>16	≤1->16	26.2	73.8
Chloramphenicol	8	16	4->16	87.5	3.1
Gentamicin HL	≤500	>1000	≤500->1000	67.5	42.6
Streptomycin HL	2000	>2000	≤1000->2000	43.1	56.9
Quinupristin-dalfopristin	1	>2	≤0.25->2	75.0	13.8
Teicoplanin	≤2	>16	0.25->16	74.8	24.5
Vancomycin	1	>16	0.25->16	70.0	26.3
Linezolid	1	2	0.5-2	100.0	0.0
***Enterococcus faecalis* (809)**					
Doripenem	4	>8	0.015->16	-^	-^
Meropenem	8	16	≤0.06->16	40.4	24.8
Imipenem	2	8	≤0.12->8	88.4	3.8
Chloramphenicol	8	>16	4->16	66.3	32.2
Ampicillin	≤1	4	≤1->16	98.5	1.5
Gentamicin HL	≤500	>1000	≤500->1000	69.0	31.0
Streptomycin HL	≤1000	>2000	≤1000->2000	75.4	24.6
Teicoplanin	≤2	≤2	≤0.12->16	95.8	4.1
Vancomycin	1	2	0.25->16	95.4	4.3
Linezolid	1	2	0.5-2	100.0	0.0

*Breakpoint criteria are those of CLSI M100-S18 (2008).
^No breakpoints established.

Table 2. In Vitro Activity of Doripenem in Comparison to Selected Antimicrobial Agents Tested Against the Main Enterobacteriaceae Pathogens Collected From Latin American Medical Centers (2003-2006)

	MIC (µg/mL)			% by Category*	
Organism (No. Tested)/ Antimicrobial Agent	**50%**	**90%**	**Range**	**Susceptible**	**Resistant**
***E. coli* (1761)**					
Doripenem	≤0.06	≤0.06	≤0.008-1	99.9	-^
Meropenem	≤0.06	≤0.12	≤0.008-1	100.0	0.0
Imipenem	≤0.12	≤0.5	≤0.12-1	100.0	0.0
Ertapenem	≤0.06	≤0.06	≤0.008-4	99.9	0.1
Piperacillin-tazobactam	2	16	≤0.12->256	93.1	3.2
Ceftriaxone	≤0.25	>32	≤0.25->32	87.3	10.4
Ceftazidime	≤1	8	≤1->16	90.5	6.3
Cefepime	≤0.12	8	≤0.12->16	91.0	7.0
Levofloxacin	≤0.5	>4	≤0.03->4	73.8	23.3
Amikacin	2	4	≤0.25->32	98.5	0.2
Gentamicin	≤2	>8	≤2->8	85.3	13.5
Trimethoprim-sulfamethoxazole	>2	>2	≤0.5->2	49.9	50.1
***Klebsiella* spp. (1173)**					
Doripenem	≤0.06	0.12	0.03-16	96.8	-^
Meropenem	≤0.06	0.12	0.015->8	98.9	0.4
Imipenem	0.25	0.5	≤0.12->8	99.4	0.3
Ertapenem	≤0.06	0.5	≤0.008->16	96.3	2.5
Ceftriaxone	≤0.25	>32	≤0.25->32	60.1	31.5
Ceftazidime	≤1	>16	≤1->16	68.9	23.5
Cefepime	≤0.12	>16	≤0.12->16	72.6	22.8
Levofloxacin	≤0.5	>4	≤0.03->4	78.9	18.5
Gentamicin	≤2	>8	≤1->8	64.7	31.6
Amikacin	≤4	32	0.5->32	85.1	9.1
Trimethoprim-sulfamethoxazole	≤0.5	>2	≤0.5->2	66.7	33.3
***Enterobacter* spp. (655)**					
Doripenem	≤0.06	0.25	0.15-4	97.7	-^
Meropenem	≤0.06	0.25	≤0.5-4	100.0	0.0
Imipenem	0.5	1	≤0.12-4	100.0	0.0
Ertapenem	≤0.06	2	≤0.008->8	94.8	1.4
Ceftriaxone	≤0.25	>32	≤0.25->32	65.2	26.7
Ceftazidime	≤1	>16	≤1->16	67.4	28.3
Cefepime	≤0.12	>16	≤0.12->16	85.2	10.7
Levofloxacin	≤0.5	>4	≤0.03->4	84.7	14.0
Gentamicin	≤2	>8	≤2->8	75.9	20.6
Amikacin	4	32	0.5->32	86.6	9.0
Trimethoprim-sulfamethoxazole	≤0.5	>2	≤0.5->2	73.0	27.0

*Breakpoint criteria are those of CLSI M100-S18 (2008) or the US-FDA (doripenem only).
^No resistance breakpoints established.

Table 4. In Vitro Activity of Doripenem in Comparison to Selected Antimicrobial Agents Tested Against Nonfermentative Gram-negative Pathogens Collected From Latin American Medical Centers (2003-2006)

	MIC (µg/mL)			% by Category*	
Organism (No. Tested)/ Antimicrobial Agent	**MIC_{50}**	**MIC_{90}**	**Range**	**Susceptible**	**Resistant**
***Pseudomonas aeruginosa* (1291)**					
Doripenem	1	>8	0.03->16	68.1	-^
Meropenem	1	>8	0.03->16	71.0	19.8
Imipenem	2	>8	≤0.12->8	67.9	20.2
Piperacillin-tazobactam	16	>64	≤0.12->256	59.6	21.7
Ceftazidime	4	>16	≤1->16	64.3	28.9
Cefepime	4	>16	≤0.12->16	66.8	17.8
Levofloxacin	1	>4	0.06->4	58.1	37.8
Tobramycin	0.5	>16	≤0.12->16	65.7	33.6
Amikacin	4	>32	≤0.12->32	74.8	21.8
Polymyxin B	1	1	≤0.12-2	100.0	0.0
***Acinetobacter* spp. (647)**					
Doripenem	2	>8	0.03->16	45.4	-^
Meropenem	2	>8	0.06->16	72.8	0.5
Imipenem	1	>8	≤0.12->8	78.5	19.9
Ampicillin-sulbactam	16	>16	≤0.25->32	43.0	9.7
Piperacillin-tazobactam	>64	>64	≤0.12->256	24.3	3.3
Ceftazidime	>16	>16	≤1->16	23.8	69.4
Cefepime	>16	>16	≤0.12->16	32.9	51.5
Levofloxacin	>4	>4	0.06->4	27.8	58.7
Tobramycin	4	>16	≤0.12->16	50.1	45.3
Amikacin	>32	>32	≤0.25->32	32.1	62.9
Polymyxin B	≤0.5	≤1	≤0.12->4	99.6	0.4

*Breakpoint criteria are those of CLSI M100-S18 (2008) or the US-FDA (doripenem only).
^No resistance breakpoints established.

Table 3. Cumulative Frequency Distribution of Carbapenems Against Commonly Occurring Resistant Subsets of Enterobacteriaceae Isolated From Latin American Patients (2003-2006)

	Cumulative % Inhibited at MIC (µg/mL)																																	
	Doripenem							**Imipenem**							**Meropenem**							**Ertapenem**													
Organism (No. of Isolates)	**≤0.25**	**0.5**	**1**	**2**	**4**	**8**	**>8**	**≤0.25**	**0.5**	**1**	**2**	**4**	**8**	**>8**	**≤0.25**	**0.5**	**1**	**2**	**4**	**8**	**>8**	**≤0.25**	**0.5**	**1**	**2**	**4**	**8**	**>8**	**≤0.25**	**0.5**	**1**	**2**	**4**	**8**	**>8**
Escherichia coli* (1761)																																		
ESBL positive (268)	98.9	99.3	100.0					75.7	98.9	100.0					98.9	99.6	100.0					87.5	94.7	99.2	99.6	100.0								
ESBL negative (1493)	100.0							75.7	99.7	100.0					100.0							99.8	99.9	99.9	100.0									
***Klebsiella* spp. (1173)**																																		
ESBL positive (527)	88.2	93.0	96.2	97.3	98.1	99.2	100.0	67.4	92.0	97.0	98.3	98.7	99.2	100.0	89.6	92.4	94.5	97.0	97.5	99.1	100.0	75.0	87.9	90.6	91.7	94.4	96.9	100.0						
ESBL negative (646)	100.0							72.9	99.2	100.0					100.0							99.8	100.0											
***Enterobacter* spp. (655)**																																		
Cefepime MICs ≥16 µg/mL (97)	82.5	93.8	95.9	99.0	100.0			34.0	42.3	78.4	92.8	99.0	100.0		83.5	90.7	93.8	97.9	100.0			48.5	57.7	68.0	82.5	94.8	97.9	100.0							
Cefepime MICs ≤8 µg/mL (558)	95.9	98.4	99.5	100.0				28.1	76.3	95.5	99.5	100.0			96.1	98.7	99.6	100.0				85.6	90.1	93.4	96.9	99.3	99.6	100.0							

Table 5. Cumulative Frequency Distributions of Doripenem, Meropenem, and Polymyxin B Against Imipenem-resistant *Acinetobacter* spp. and *P. aeruginosa* Isolated From Latin American Patients (2003-2006)

	Cumulative % Inhibited at MIC (µg/mL)																					
	Doripenem						**Meropenem**						**Polymyxin B**									
Organism (No. of Isolates)	**≤1**	**2**	**4**	**8**	**16**	**>16**	**≤1**	**2**	**4**	**8**	**16**	**>16**	**≤0.25**	**0.5**	**1**	**2**	**4**	**≤0.25**	**0.5**	**1**	**2**	**4**
***Acinetobacter* spp. (647)**																						
Imipenem resistant (129)	0.00	0.00	0.8	14.0	96.1	100.0	0.00	0.00	0.00	3.1	99.2	100.0	3.1	93.0	99.2	100.0						
Imipenem intermediate (10)	0.00	10.0	60.0	100.0			0.00	0.00	10.0	100.0			0.0	0.0	100.0							
Imipenem susceptible (508)	57.9	84.6	93.7	99.0	100.0		48.8	84.3	92.5	98.4	100.0		5.9	82.7	98.0	99.6	100.0					
***P. aeruginosa* (1291)**																						
Imipenem resistant (261)	0.8	3.4	21.8	52.5	86.6	100.0	0.00	1.9	8.8	28.7	95.8	100.0	0.4	24.1	96.9	100.0						
Imipenem intermediate (154)	7.8	16.9	54.5	88.3	100.0	100.0	3.2	7.8	27.9	58.4	100.0	100.0	0.0	33.8	98.1	100.0						
Imipenem susceptible (876)	86.3	96.3	99.0	99.9	100.0	100.0	80.8	91.2	97.0	99.4	100.0	100.0	0.2	43.3	98.4	100.0						

Conclusions

- Doripenem showed potent activity against Enterobacteriaceae (including ESBL- and/or AmpC-producing strains), oxacillin-susceptible staphylococci, and streptococci isolated throughout Latin America.
- Doripenem also demonstrated potent activity against *Acinetobacter* spp. and *P. aeruginosa*, and was more active than meropenem against imipenem-resistant *P. aeruginosa* isolates (exclusive of metallo-β-lactamase producers).
- Antimicrobial resistance continues to increase globally and therapeutic options for the treatment of some serious infectious diseases are limited. Doripenem has a promising broad spectrum of activity that should prove useful in geographic regions such as Latin America, where AmpC and ESBL phenotypes are more frequently encountered.

Selected References

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Presented at the American Society for Microbiology 108th General Meeting, June 1-5, 2008, Boston, MA.