

Appendix Table. Activity of ciprofloxacin against serogroup A *Neisseria meningitidis* with reduced and full susceptibility to fluoroquinolones and comparison of mechanisms associated with elevated MICs reported in *N. meningitidis*

Location (isolates)	Serogroup	Source*	Ciprofloxacin MIC, mg/L	<i>gyrA</i> mutation	<i>parC</i> mutation	<i>gyrB</i> mutation	<i>parE</i> mutation
France 1996–98†	B	STD clinic	0.125	Asp-95→Gly	None		
Australia 1998‡	C	Blood, CSF	0.25	Asp-95→Asn	None		
Spain 2002§	B	CSF	0.12	Thr-91→Ile	None		
Argentina 2002¶	Y	CSF	0.12	None	None	None	None
Argentina 2002¶	B	Blood, CSF	0.06	Asp-95→Asn	None		
Spain 2007#**	Nongroupable	Sputum	0.25	Asp-95→Asn Asn-103→Asp Ile-111→Val Val-120→Ile Thr-91→Ile Asn-103→Asp Ile-111→Val Val-120→Ile	None		His-495→Asn
India 2005 (1)	A (12 outbreak isolates)			Thr-91→Ile Asn-103→Asp Ile-111→Val Val-120→Ile			
USA 2007–08 (2)	B (3 cases)	CSF	0.19	Thr-91→Ile			
Israel 2001 (M44/01)††	A	Blood	0.001	None	None	None	None
Israel 2000 (M23/00)	A	Blood	0.003	None	None		
Israel 2003 (M12/03)	A	Blood, CSF	0.064	Thr-91→Ile Ala-78→Val	None	Ile-474→Leu	Thr-365→Ala
Israel 2006 (M24/06)	A	Blood	0.125	Thr-91→Ile Asn-103→Asp Ile-111→Val Val-120→Ile	None	None	None

*STD, sexually transmitted disease; CSF, cerebrospinal fluid.

†Casin I, Gandry B, Lassau F, Janier M, Lagrange P, Collatz E. Decreased susceptibility to penicillin G (Pen), tetracyclines (Tet), and fluoroquinolones (Fq), and characterization of DNA gyrase mutations, in oropharyngeal and anogenital isolates of *Neisseria meningitidis* (Nm) in patients presenting at an STD clinic. In: Program and Abstracts of the 39th Interscience Conference on Antimicrobial Agents and Chemotherapy; San Francisco, CA; 1999 September 26-29; Abstract 2101. Washington: American Society for Microbiology; 1999.

‡Shultz TR, Tapsall JW, White PA, Newton PJ. An invasive isolate of *Neisseria meningitidis* showing decreased susceptibility to quinolones. *Antimicrob Agents Chemother.* 2000;44:1116.

§Alcala B, Salcedo C, de la Fuente L, Arreaza L, Uria MJ, Abad R, et al. *Neisseria meningitidis* showing decreased susceptibility to ciprofloxacin: first report in Spain. *J Antimicrob Chemother.* 2004;53:409.

¶Corso A, Faccione D, Miranda M, Rodriguez M, Regueira M, Carranza C, et al. Emergence of *Neisseria meningitidis* with decreased susceptibility to ciprofloxacin in Argentina. *J Antimicrob Chemother.* 2005;55:596–7.

#Enriquez R, Abad R, Salcedo C, Perez S, Vazquez JA. Fluoroquinolone resistance in *Neisseria meningitidis* in Spain. *J Antimicrob Chemother.* 2008;61:286–90.

**Nine additional strains reported; shown is a strain with mutations in *gyrA* similar to those found in isolate in present study.

††Identifiers of the National Center for Meningococci.