

Supplemental material for “Genomic epidemiology and molecular resistance mechanisms of azithromycin resistant *Neisseria gonorrhoeae* in Canada from 1997 to 2014”

Walter Demczuk, Irene Martin, Shelley Peterson, Amrita Bharat, Gary Van Domselaar, Morag Graham, Brigitte Lefebvre, Vanessa Allen, Linda Hoang, Greg Tyrrell, Greg Horsman, John Wylie, David Haldane, Chris Archibald, Tom Wong, Magnus Unemo, Michael R. Mulvey

Supplemental Table S1: Geographical distribution of *Neisseria gonorrhoeae* isolates selected for analysis

Isolate Collection Location	Azithromycin Susceptible	Azithromycin Resistant ^a	No. isolates included in study
Alberta	0	27	27
British Columbia	2	34	36
Manitoba	0	3	3
Nova Scotia	0	3	3
Ontario	7	50	57
Quebec	13	88	101
Saskatchewan	1	8	9
Canada	23	213	236
International ^b	9	1	10
Total	32	214	249

^aRepresents all viable azithromycin resistant (MIC \geq 2 μ g/mL) isolates available in collection.

^bIncludes ten international reference strains: ATCC49226, WHO-F, WHO-G, WHO-K, WHO-L, WHO-M, WHO-N, WHO-O, WHO-P, and France F89.

Supplemental Table S2: Temporal distribution of Canadian *Neisseria gonorrhoeae* isolates selected for analysis

Year	No. isolates available			No. of Canadian isolates included this study		
	Azithromycin Susceptible	Azithromycin Resistant	Total	Azithromycin Susceptible	Azithromycin Resistant ^a	Total ^b
1988–1996 ^c	72 ^d	0	72	2	0	2
1997	642	20	662	0	7	7
1998	1130	25	1155	1	10	11
1999	1051	11	1062	1	7	8
2000	1185	7	1192	0	7	7
2001	1210	4	1214	0	2	2
2002	1134	12	1146	0	3	3
2003	778	1	779	0	1	1
2004	844	6	850	1	3	4
2005	890	8	898	1	7	8
2006	1520	8	1528	1	6	7
2007	1425	7	1432	1	7	8
2008	925	5	930	1	5	6
2009	903	11	914	1	7	8
2010	1183	36	1219	8	36	44
2011	1158	13	1171	2	12	14
2012	1008	26	1034	1	24	25
2013	1148	36	1184	1	34	35
Jan-Jul 2014	908	51	959	1	35	36
Total	19114	287	19401	23	213	236

^aRepresents all viable azithromycin resistant (MIC \geq 2 μ g/mL) isolates available in collection.

^bTen international reference strains include WHO-F, WHO-G, WHO-K, WHO-L, WHO-M, WHO-M, WHO-O, WHO-P, ATCC49226, and France F89.

^cThe National Microbiology Laboratory began collecting *N. gonorrhoeae* isolates from 1988 and the first Canadian AZI-R isolate was detected in 1997.

^dRepresents the number of isolates tested for azithromycin susceptibility during this time period.

Supplemental Table S3: Number of single nucleotide polymorphisms (SNPs) in the core genome within, and between the major phylogenomic clades of *Neisseria gonorrhoeae* isolates

Clade	No. Isolates	Average SNPs within Clade	Maximum SNPs within Clade	Average SNPs from next clade ^a	Minimum SNPs from next clade ^a	Maximum SNPs from next clade ^a
A	21	3.0	14	7.8	5	15
B	4	0.4	1	215.3	106	241
C	10	97.7	292	363.5	269	414
D	5	3.2	10	356.6	354	364
E	5	1.0	2	474.3	464	476
F	16	6.3	49	325.2	221	494
G	11	111.9	339	584.8	519	811
H	45	64.4	246	357.4	271	513
I	10	54.3	255	313.9	246	392
J	8	88.0	189	985.1	951	1014
K	35	24.9	65	749.1	735	779
L	5	36.0	103	1314.8	1307	1340
M	14	1.4	6	1450.6 ^b	1448 ^b	1459 ^b

^aNumber of SNPs compared to the following closest ancestral clade in the phylogeny.

^bNumber of SNPs compared to clade A in the phylogeny.

Supplemental Table S4: Metadata associated with isolates tested

Isolate	BioSampleID	Year	Province	Sex	Age	Isolation Site	Organism	Clade	NG-MAST	MLST	AZI	CFX	CFM	23S rRNA A2059T	23S rRNA C2611T	mtrRp	A39T	G45D	erm	macAB
15363	SAMN04191699	1994	Quebec	Female	17	Not Given	CMRNG		380	11421	0.5	0.125	0.063	0	0	-35ADel	WT	G45D		Neg
19095	SAMN04191700	1998	British Columbia	Male		Penis/Urethra	CMRNG/AziR	K	5	1579	2	0.004	0.004	0	0	-35ADel	WT	WT		Neg
19156	SAMN04191701	1998	British Columbia	Male	33.38	Penis/Urethra	Probable CMRNG	K	21	1579	2	0.016	0.008	0	0	-35ADel	WT	WT		Neg
19173	SAMN04191702	1998	Ontario	Male		Not Given	CMRNG	K	21	1579	1	0.25	0.125	0	0	-35ADel	WT	WT		Neg
19255	SAMN04191703	1998	Ontario	Male		Not Given	Probable CMRNG	K	10502	1579	2	0.016	0.032	0	0	-35ADel	WT	WT		Neg
19328	SAMN04191704	1998	Alberta	Not Given		Not Given	CMRNG/AziR/CipR		10575	1901	2	0.063	0.016	0	0	-35ADel	WT	WT		Neg
19366	SAMN04191705	1997	Quebec	Male	41	Penis/Urethra	CMRNG/AziR	K	10576	1579	2	0.063	0.032	0	0	-35ADel	WT	WT		Neg
19398	SAMN04191706	1997	Quebec	Male	31	Penis/Urethra	CMRNG/AziR	K	21	1579	2	0.032	0.016	0	0	-35ADel	WT	WT		Neg
19418	SAMN04191707	1997	Quebec	Male	39	Rectum	CMRNG/AziR	K	21	1579	2	0.032	0.032	0	0	-35ADel	WT	WT		Neg
19432	SAMN04191708	1997	Quebec	Male	31	Penis/Urethra	CMRNG/AziR	K	21	1579	2	0.032	0.016	0	0	-35ADel	WT	WT		Neg
19433	SAMN04191709	1997	Quebec	Male	39	Penis/Urethra	CMRNG/AziR	K	21	1579	2	0.032	0.032	0	0	-35ADel	WT	WT		Pos
19439	SAMN04191710	1997	Quebec	Male	40	Penis/Urethra	CMRNG/AziR	K	21	1579	2	0.063	0.032	0	0	-35ADel	WT	WT		Neg
19446	SAMN04191711	1997	Quebec	Male	45	Throat	CMRNG/AziR	K	21	1579	2	0.032	0.016	0	0	-35ADel	WT	WT		Neg
19486	SAMN04191712	1998	British Columbia	Male	22.93	Penis/Urethra	CMRNG/AziR	K	5	1579	2	0.032	0.032	0	0	-35ADel	WT	WT		Neg
19491	SAMN04191713	1998	British Columbia	Not Given		Penis/Urethra	CMRNG/AziR/CipR		10577	7360	2	0.032	0.032	0	0	-35ADel	WT	WT		Neg
19492	SAMN04191714	1998	British Columbia	Male		Penis/Urethra	CMRNG/AziR	K	5	1579	2	0.063	0.032	0	0	-35ADel	WT	WT		Neg
19501	SAMN04191715	1998	British Columbia	Male	28.27	Penis/Urethra	Probable CMRNG	K	5	1579	2	0.008	0.008	0	0	-35ADel	WT	WT		Neg
20359	SAMN04191716	1999	British Columbia	Male	22.14	Penis/Urethra	Probable CMRNG	K	5	1579	2	0.016	0.008	0	0	-35ADel	WT	WT		Neg
20360	SAMN04191717	1999	British Columbia	Male	24.47	Penis/Urethra	AziR/EryR/TetR	K	5	1579	2	0.008	0.008	0	0	-35ADel	WT	WT		Neg
20869	SAMN04191718	1998	Nova Scotia	Male		Not Given	Probable CMRNG	G	64	1580	4	0.008	0.016	0	AC=3	WT	WT	G45D		Neg
20870	SAMN04191719	1998	Nova Scotia	Male		Not Given	AziR/EryR/TetR	G	64	1580	4	0.008	0.008	0	AC=3	WT	WT	G45D		Neg
21280	SAMN04191720	1999	British Columbia	Male		Penis/Urethra	CMRNG/AziR	K	5	1579	2	0.016	0.008	0	0	-35ADel	WT	WT		Neg
21283	SAMN04191721	1999	British Columbia	Male		Penis/Urethra	Probable CMRNG	K	5	1579	2	0.008	0.016	0	0	-35ADel	WT	WT		Neg
21295	SAMN04191722	1999	British Columbia	Male	38.15	Penis/Urethra	Probable CMRNG/CipR		10575	1901	2	0.008	0.008	0	0	-35ADel	WT	WT		Neg
21297	SAMN04191723	1999	British Columbia	Male	42.16	Penis/Urethra	Probable CMRNG	K	5	1579	2	0.008	0.008	0	0	-35ADel	WT	WT		Neg
21414	SAMN04191724	2000	British Columbia	Female	16.06	Cervix	Probable CMRNG	K	10503	1579	2	0.016	0.016	0	0	-35ADel	WT	WT		Neg
21505	SAMN04191725	2000	Ontario	Male		Penis/Urethra	Probable CMRNG	K	21	1579	2	0.016	0.032	0	0	-35ADel	WT	WT		Neg
21631	SAMN04191726	1999	Quebec	Male	41	Penis/Urethra	AziR/EryR/TetR		10578	10899	1	0.016	0.008	0	0	WT	WT	G45D		Neg
21648	SAMN04191727	1999	Quebec	Male	38	Penis/Urethra	CMRNG/AziR	K	251	1579	2	0.032	0.016	0	0	-35ADel	WT	WT		Neg
21959	SAMN04191728	2000	Ontario	Male		Rectum	CMRNG/AziR	K	21	1579	2	0.016	0.016	0	0	-35ADel	WT	WT		Neg
21960	SAMN04191729	2000	Ontario	Male		Penis/Urethra	CMRNG/AziR	K	21	1579	2	0.016	0.016	0	0	-35ADel	WT	WT		Neg
22223	SAMN04191730	2000	Ontario	Male		Penis/Urethra	CMRNG/AziR	K	21	1579	2	0.016	0.032	0	0	-35ADel	WT	WT		Neg
22247	SAMN04191731	2000	Ontario	Male	41.88	Rectum	CMRNG/AziR	K	5	1579	2	0.016	0.016	0	0	-35ADel	WT	WT		Pos
22484	SAMN04191732	2000	Ontario	Male		Penis/Urethra	CMRNG/AziR	K	21	1579	2	0.016	0.032	0	0	-35ADel	WT	WT		Neg
23545	SAMN04191733	2001	British Columbia	Female	35.92	Cervix	Probable CMRNG/AziR	K	5	1579	2	0.016	0.016	0	0	-35ADel	WT	WT		Neg
23814	SAMN04191734	2001	Quebec	Male	18	Penis/Urethra	CMRNG/AziR	K	21	1579	2	0.063	0.032	0	0	-35ADel	WT	WT		Neg
24069	SAMN04191735	2002	British Columbia	Male	45.29	Penis/Urethra	Probable CMRNG/AziR		154	1587	2	0.032	0.016	0	AC=2	WT	WT	G45D		Neg
24201	SAMN04191736	2002	British Columbia	Female	17.98	Rectum	CMRNG/AziR	K	5	1579	2	0.063	0.016	0	0	-35ADel	WT	WT		Neg
25151	SAMN04191737	2002	Quebec	Male	42	Penis/Urethra	CMRNG/AziR/CxDS	K	5	1579	2	0.125	0.063	0	0	-35ADel	WT	WT		Neg
25452	SAMN04191738	2003	British Columbia	Male	25.9	Penis/Urethra	CMRNG/AziR	K	5	1579	8	0.016	0.016	0	AC=3	-35ADel	WT	WT		Neg
26446	SAMN04191739	2004	British Columbia	Male	22.25	Penis/Urethra	PenR/TetR/CipR/CeRS		4437	7363	0.5	0.063	0.5	0	0	-35ADel	WT	G45D		Neg

26502	SAMN04191740	2004	Ontario	Male	37	Penis/Urethra	AziR/EryR		1116	1587	4	0.008	0.016	0	AC=4	WT	WT	G45D	Neg	
26629	SAMN04191741	2005	Manitoba	Male	24	Penis/Urethra	AziR/EryR	G	64	1580	4	0.004	0.008	0	AC=4	WT	WT	G45D	Neg	
26748	SAMN04191742	2004	Quebec	Male	20	Penis/Urethra	CMRNG/AziR	K	5445	1579	4	0.016	0.016	0	AC=4	-35ADel	WT	WT	Neg	
26891	SAMN04191743	2005	Ontario	Male	39	Not Given	AziR/EryR	G	64	1580	4	0.008	0.032	0	AC=4	WT	WT	G45D	Neg	
26967	SAMN04191744	2004	Ontario	Male	37	Penis/Urethra	PPNG/TRNG/AziR/CipR/EryR		1948	7823	≥ 5 12	0.016	0.032	AC=4	0	-35ADel	WT	WT	Neg	
27040	SAMN04191745	2005	British Columbia	Male	24.17	Throat	AziR/CipR/EryR/TetR		3132	1901	2	0.008	0.008	0	0	-35ADel	WT	WT	Neg	
27046	SAMN04191746	2005	Manitoba	Male	29	Rectum	AziR/EryR/TetR	G	64	1580	4	0.016	0.032	0	AC=4	WT	WT	G45D	Neg	
27455	SAMN04191747	2005	Manitoba	Female	23	Cervix	AziR/EryR	G	64	1580	2	0.008	0.016	0	AC=4	WT	WT	G45D	Neg	
27588	SAMN04191748	2005	Quebec	Female	22	Throat	CMRNG/CipR	H	1407	1901	0.5	0.032	0.125	0	0	-35ADel	WT	WT	Neg	
27632	SAMN04191749	2005	Quebec	Male	18	Rectum	CMRNG/AziR/CipR	J	3155	1901	8	0.032	0.016	0	AC=4	-35ADel	WT	WT	Neg	
27633	SAMN04191750	2005	Quebec	Male	32	Penis/Urethra	CMRNG/AziR/CipR	J	3155	1901	16	0.032	0.016	0	AC=4	-35ADel	WT	WT	Neg	
27924	SAMN04191751	2006	British Columbia	Male	35.26	Penis/Urethra	AziR/EryR	G	64	1580	4	0.008	0.008	0	AC=4	WT	WT	G45D	Neg	
28076	SAMN04191752	2006	Quebec	Male	32	Penis/Urethra	CMRNG/CipR		225	1901	1	0.032	0.032	0	0	-35ADel	WT	WT	Neg	
28194	SAMN04191753	2006	Quebec	Male	25	Penis/Urethra	CMRNG/AziR/CipR		225	1901	8	0.032	0.016	0	AC=4	-35ADel	WT	WT	Neg	
28759	SAMN04191754	2006	Ontario	Female		Not Given	CMRNG/AziR		4813	6959	16	0.008	0.008	0	0	WT	A39T	WT	ermC	Neg
29151	SAMN04191755	2006	Quebec	Female	21	Cervix	CMRNG/AziR/CipR	I	3150	1901	4	0.032	0.032	0	AC=4	-35ADel	WT	WT	Neg	
29360	SAMN04191756	2007	British Columbia	Male	46.76	Penis/Urethra	AziR/EryR/TetR	G	4815	1580	8	0.008	0.032	0	AC=4	WT	WT	G45D	Neg	
29362	SAMN04191757	2007	British Columbia	Female	21.93	Throat	AziR/EryR/TetR	G	4815	1580	8	0.004	0.032	0	AC=4	WT	WT	G45D	Neg	
30014	SAMN04191758	2007	Ontario	Male		Not Given	AziR/CipR/EryR	J	3116	8153	2	0.032	0.016	0	0	-35ADel	WT	WT	Neg	
30198	SAMN04191759	2007	Quebec	Male	31	Penis/Urethra	CMRNG/AziR/CipR		892	1901	2	0.032	0.016	0	AC=2	-35ADel	WT	WT	Neg	
30220	SAMN04191760	2007	Quebec	Male	19	Rectum	CMRNG/AziR/CipR		225	1901	2	0.032	0.032	0	0	-35ADel	WT	WT	ermB	Neg
30248	SAMN04191761	2007	Quebec	Male	54	Penis/Urethra	PPNG/TRNG/AziR/CipR/EryR		4814	7822	2	0.063	0.032	0	0	-35ADel	WT	G45D	Neg	
30374	SAMN04191762	2007	Quebec	Male	44	Rectum	CMRNG/CipR	H	3158	1901	0.5	0.063	0.125	0	0	-35ADel	WT	WT	Neg	
30382	SAMN04191763	2007	Quebec	Male	27	Penis/Urethra	Probable CMRNG/AziR/CipR		225	1901	2	0.063	0.016	0	AC=2	-35ADel	WT	WT	Neg	
30616	SAMN04191764	2006	Alberta	Male	22	Penis/Urethra	AziR/EryR	G	4815	1580	8	0.008	0.032	0	AC=4	WT	WT	G45D	Neg	
30617	SAMN04191765	2006	Alberta	Female	17	Cervix	AziR/EryR	G	4815	1580	8	0.008	0.032	0	AC=4	WT	WT	G45D	Neg	
30978	SAMN04191766	2008	Ontario	Female	36	Not Given	CMRNG/AziR/CipR		4827	11425	16	0.063	0.063	0	AC=4	-35ADel	WT	WT	Neg	
31138	SAMN04191767	2008	Ontario	Male	48	Not Given	CMRNG/AziR/CipR		4816	1901	4	0.032	0.063	0	0	-35ADel	WT	WT	ermB	Neg
31182	SAMN04191768	2008	Ontario	Female	43	Not Given	Probable CMRNG/AziR/CipR		421	6714	4	0.032	0.032	0	0	-35ADel	WT	G45D	Pos	
31256	SAMN04191769	2008	Ontario	Male	56	Not Given	CMRNG/AziR/CipR		4836	1901	32	0.063	0.032	0	AC=4	-35ADel	WT	WT	Neg	
31284	SAMN04191770	2008	Ontario	Male	22	Not Given	CMRNG/CipR	J	3108	8153	0.5	0.063	0.032	0	0	-35ADel	WT	WT	Neg	
31408	SAMN04191771	2008	Quebec	Female	18	Cervix	CMRNG/AziR/CipR		3132	1901	8	0.032	0.032	0	AC=4	-35ADel	WT	WT	Neg	
31623	SAMN04191772	2009	Quebec	Female	30	Cervix	PPNG/TRNG/AziR/CipR/EryR		1948	11426	≥ 5 12	0.125	0.125	AC=4	0	-35ADel	WT	WT	Neg	
31636	SAMN04191773	2009	British Columbia	Male	24.72	Rectum	AziR/EryR/TetR	C	2992	9363	2	0.008	0.008	0	0	menigitidis	WT	WT	Neg	
31804	SAMN04191774	2009	British Columbia	Male	20.68	Rectum	CMRNG/AziR/CipR	H	1407	1901	16	0.063	0.125	0	AC=4	-35ADel	WT	WT	Neg	
31812	SAMN04191775	2009	British Columbia	Male	20.68	Rectum	CMRNG/AziR/CipR	H	1407	1901	16	0.063	0.125	0	AC=4	-35ADel	WT	WT	Neg	
31821	SAMN04191776	2009	British Columbia	Female		Throat	CMRNG/AziR/CipR	H	1407	1901	16	0.063	0.125	0	AC=4	-35ADel	WT	WT	Neg	
31822	SAMN04191777	2009	British Columbia	Female		Rectum	CMRNG/AziR/CipR	H	1407	1901	16	0.063	0.125	0	AC=4	-35ADel	WT	WT	Neg	
31834	SAMN04191778	2009	Quebec	Male	48	Penis/Urethra	Susceptible Strain		2992	9363	0.5	0.016	0.016	0	0	WT	A39T	WT	Neg	
32151	SAMN04191779	2009	Ontario	Male	28	Not Given	CMRNG/AziR/CipR		225	1901	2	0.063	0.063	0	AC=2	-35ADel	WT	WT	Neg	
32402	SAMN04191780	2010	British Columbia	Male	19.63	Penis/Urethra	Probable CMRNG/AziR/CipR	I	285	1901	2	0.008	0.008	0	0	-35ADel	WT	WT	Neg	
32648	SAMN04191781	2010	British Columbia	Male	51.68	Penis/Urethra	CMRNG/AziR/CipR		4809	1901	8	0.063	0.016	0	AC=4	-35ADel	WT	WT	Neg	
32752	SAMN04191782	2010	British Columbia	Male	53.36	Penis/Urethra	Susceptible Strain		2992	9363	0.5	0.016	0.016	0	0	WT	A39T	WT	Neg	

32867	SAMN04191783	2010	Ontario	Male	34	Not Given	CMRNG/AziR/CxDS/CipR		4980	1901	≥5 12	0.063	0.063	AC=4	0	-35ADel	WT	WT	Neg
32928	SAMN04191784	2010	Ontario	Male	26	Not Given	CMRNG/AziR/CipR	I	3150	1579	2	0.063	0.032	0	0	-35ADel	WT	WT	Neg
32956	SAMN04191785	2010	Ontario	Male	24	Not Given	CMRNG/AziR/CipR		225	1901	16	0.063	0.032	0	AC=4	-35ADel	WT	WT	Neg
33121	SAMN04191786	2010	Alberta	Female	23	Cervix	AziR/EryR	M	688	8122	4	0.008	0.008	0	AC=4	WT	WT	WT	Neg
33128	SAMN04191787	2010	Alberta	Female	35	Throat	AziR/EryR	M	688	8122	4	0.008	0.008	0	AC=4	WT	WT	WT	Neg
33133	SAMN04191788	2010	Alberta	Male	23	Penis/Urethra	AziR/EryR	M	688	8122	4	0.008	0.008	0	AC=4	WT	WT	WT	Neg
33136	SAMN04191789	2010	Alberta	Male	42	Penis/Urethra	AziR/EryR	M	688	8122	2	0.008	0.008	0	AC=4	WT	WT	WT	Neg
33137	SAMN04191790	2010	Alberta	Female	36	Cervix	AziR/EryR	M	688	8122	4	0.008	0.008	0	AC=4	WT	WT	WT	Neg
33144	SAMN04191791	2010	Alberta	Male	43	Other	AziR/EryR	M	688	8122	4	0.008	0.016	0	AC=4	WT	WT	WT	Neg
33375	SAMN04191792	2010	Ontario	Female	29	Not Given	CMRNG/CeDS/CxDS/CipR	H	1407	1901	0.5	0.125	0.25	0	0	-35ADel	WT	WT	Neg
33383	SAMN04191793	2010	Ontario	Male	41	Not Given	CMRNG/AziR/CipR	I	3150	1901	2	0.063	0.032	0	0	-35ADel	WT	WT	Neg
33386	SAMN04191794	2010	Ontario	Female	35	Not Given	CMRNG/CipR	I	3150	10886	1	0.063	0.016	0	0	-35ADel	WT	WT	Neg
33387	SAMN04191795	2010	Ontario	Male	38	Not Given	CMRNG/AziR/CxDS/CipR	H	1407	1901	2	0.125	0.125	0	0	-35ADel	WT	WT	Neg
33404	SAMN04191796	2010	Ontario	Female	31	Not Given	CMRNG/AziR/CipR	I	3150	1901	2	0.063	0.032	0	0	-35ADel	WT	WT	Neg
33457	SAMN04191797	2010	Ontario	Male	24	Not Given	CMRNG/CeDS/CxDS/CipR	H	5372	1901	1	0.125	0.25	0	0	-35ADel	WT	WT	Neg
33523	SAMN04191798	2010	Ontario	Female	31	Not Given	CMRNG/CipR	H	1407	1901	1	0.063	0.125	0	0	-35ADel	WT	WT	Neg
33546	SAMN04191799	2010	Ontario	Male	24	Not Given	Probable CMRNG/CipR	H	3378	1901	1	0.063	0.125	0	0	-35ADel	WT	WT	Neg
33629	SAMN04191800	2010	Alberta	Female	21	Cervix	AziR/EryR	M	688	8122	2	0.004	0.004	0	AC=4	WT	WT	WT	Neg
33630	SAMN04191801	2010	Alberta	Male	22	Penis/Urethra	AziR/EryR/TetR	M	688	8122	4	0.004	0.008	0	AC=4	WT	WT	WT	Neg
33632	SAMN04191802	2010	Alberta	Female	21	Throat	AziR/EryR	M	688	8122	4	0.008	0.008	0	AC=4	WT	WT	WT	Neg
33637	SAMN04191803	2010	Alberta	Male	33	Penis/Urethra	AziR/EryR/TetR		2992	9363	4	0.004	0.008	0	AC=3	WT	A39T	WT	Neg
33638	SAMN04191804	2010	Alberta	Female	53	Cervix	AziR/EryR	M	688	8122	4	0.004	0.032	0	AC=4	WT	WT	WT	Neg
33647	SAMN04191805	2010	Alberta	Female	21	Cervix	AziR/EryR	M	688	8122	4	0.008	0.008	0	AC=4	WT	WT	WT	Neg
33648	SAMN04191806	2010	Alberta	Female	19	Rectum	AziR/EryR	M	688	8122	4	0.008	0.008	0	AC=4	WT	WT	WT	Neg
33660	SAMN04191807	2010	Alberta	Female	17	Cervix	CMRNG/AziR/CipR	I	3150	1901	2	0.063	0.032	0	0	-35ADel	WT	WT	Neg
33661	SAMN04191808	2010	Alberta	Male	25	Penis/Urethra	CMRNG/AziR/CipR	I	3150	1901	2	0.063	0.032	0	0	-35ADel	WT	WT	Neg
33759	SAMN04191809	2010	Quebec	Male	16	Penis/Urethra	AziR/EryR	A	2992	9363	8	0.004	0.016	0	AC=4	WT	A39T	WT	Neg
33815	SAMN04191810	2010	Quebec	Male	21	Penis/Urethra	AziR/EryR	A	2992	9363	8	0.004	0.008	0	AC=4	WT	A39T	WT	Neg
33817	SAMN04191811	2010	Quebec	Male	31	Penis/Urethra	AziR/EryR	A	2992	9363	8	0.004	0.016	0	AC=4	WT	A39T	WT	Neg
33825	SAMN04191812	2010	Quebec	Male	37	Throat	AziR/EryR	A	2992	9363	8	0.004	0.004	0	AC=4	WT	A39T	WT	Neg
33858	SAMN04191813	2010	Quebec	Male	21	Penis/Urethra	AziR/EryR	A	6296	9363	8	0.004	0.008	0	AC=4	WT	A39T	WT	Neg
33890	SAMN04191814	2010	Quebec	Male	46	Penis/Urethra	AziR/EryR	A	2992	9363	8	0.004	0.008	0	AC=4	WT	A39T	WT	Neg
33901	SAMN04191815	2010	Quebec	Male	25	Rectum	CMRNG/CipR	H	1407	1901	1	0.008	0.008	0	0	-35ADel	WT	WT	Neg
33904	SAMN04191816	2010	Quebec	Male	26	Throat	Probable CMRNG/AziR/CipR	J	757	1901	8	0.016	0.016	0	AC=3	-35ADel	WT	WT	Neg
33922	SAMN04191817	2010	Quebec	Male	29	Penis/Urethra	AziR/EryR	A	2992	9363	8	0.004	0.004	0	AC=4	WT	A39T	WT	Neg
33925	SAMN04191818	2010	Quebec	Male	55	Penis/Urethra	AziR/EryR	A	2992	9363	8	0.004	0.004	0	AC=4	WT	A39T	WT	Neg
33934	SAMN04191819	2010	Quebec	Male	28	Penis/Urethra	AziR/EryR	A	2992	9363	8	0.004	0.004	0	AC=4	WT	A39T	WT	Neg
33935	SAMN04191820	2010	Quebec	Male	18	Throat	AziR/EryR	A	2992	9363	8	0.002	0.004	0	AC=4	WT	A39T	WT	Neg
33969	SAMN04191821	2010	Quebec	Male	33	Throat	CMRNG/AziR/CipR	H	3149	1901	2	0.063	0.125	0	0	-35ADel	WT	WT	Neg
33997	SAMN04191822	2010	Quebec	Male	43	Penis/Urethra	Probable CMRNG/CipR	J	757	1901	0.5	0.016	0.032	0	AC=1	-35ADel	WT	WT	Neg
34099	SAMN04191823	2011	British Columbia	Male	58.57	Penis/Urethra	CMRNG/AziR/CipR	H	1407	1901	8	0.063	0.125	0	AC=3	-35ADel	WT	WT	Pos
34106	SAMN04191824	2011	Saskatchewan	Female	19.65	Cervix	AziR/EryR/PenR	M	688	8122	4	0.008	0.008	0	AC=4	WT	WT	WT	Pos
34108	SAMN04191825	2011	Saskatchewan	Female	28.01	Other	AziR/EryR	M	688	8122	4	0.016	0.016	0	AC=4	WT	WT	WT	Neg

34123	SAMN04191826	2011	Alberta	Male	22	Throat	AziR/EryR		5049	9363	16	0.008	0.008	0	AC=4	WT	A39T	WT	Neg
34131	SAMN04191827	2010	Ontario	Male	23	Penis/Urethra	PPNG/TRNG/AziR/CipR/EryR		5343	10899	≥5 12	0.063	0.032	AC=4	0	-35ADel	WT	G45D	Neg
34530	SAMN04191828	2012	British Columbia	Male	41.74	Penis/Urethra	CMRNG/AziR/CeDS/CxDS/CipR	H	1407	1901	2	0.125	0.25	0	AC=2	-35ADel	WT	WT	Neg
34565	SAMN04191829	2011	Quebec	Male	23	Penis/Urethra	CMRNG/AziR/CipR	J	757	1901	4	0.063	0.032	0	AC=2	-35ADel	WT	WT	Neg
34572	SAMN04191830	2011	Quebec	Female	23	Cervix	CMRNG/AziR/CipR	I	3150	11427	8	0.063	0.032	0	AC=3	-35ADel	WT	WT	Neg
34600	SAMN04191831	2011	Quebec	Female	22	Throat	AziR/EryR/TetR	B	7199	9363	16	0.016	0.032	0	AC=4	WT	A39T	WT	Neg
34605	SAMN04191832	2011	Quebec	Male	31	Penis/Urethra	AziR/EryR	B	7199	9363	16	0.016	0.032	0	AC=4	WT	A39T	WT	Neg
34615	SAMN04191833	2011	Quebec	Male	20	Penis/Urethra	AziR/EryR	B	8035	9363	16	0.008	0.016	0	AC=4	WT	A39T	WT	Neg
34638	SAMN04191834	2011	Quebec	Male	31	Rectum	EryR		2992	9363	1	0.016	0.032	0	0	WT	A39T	WT	Neg
34639	SAMN04191835	2011	Quebec	Male	44	Penis/Urethra	CMRNG/AziR/CipR	J	437	1901	16	0.032	0.032	0	AC=4	-35ADel	WT	WT	Neg
34745	SAMN04191836	2011	Nova Scotia	Male	26	Penis/Urethra	AziR/EryR/TetR		2992	9363	4	0.008	0.016	0	AC=3	WT	A39T	WT	Neg
34842	SAMN04191837	2012	France	Not Given		Not Given	Neisseria gonorrhoeae	H	1407	1901	0.5	2	≥4	0	0	-35ADel	WT	WT	Neg
34851	SAMN04191838	2011	Quebec	Male	39	Rectum	EryR		2992	9363	1	0.008	0.016	0	0	WT	A39T	WT	Neg
35042	SAMN04191839	2012	Alberta	Male	30	Penis/Urethra	AziR/EryR/TetR		3935	9363	8	0.032	0.032	0	AC=3	WT	A39T	WT	Neg
35211	SAMN04191840	2011	Ontario	Male	30	Not Given	CMRNG/AziR/CipR		4991	7367	2	0.032	0.032	0	0	-35ADel	WT	G45D	Neg
35410	SAMN04191841	2012	British Columbia	Male	55.48	Rectum	CMRNG/AziR/CipR		8690	1579	≥5 12	0.032	0.016	AC=4	0	-35ADel	WT	WT	Neg
35435	SAMN04191842	2012	Ontario	Male	55	Throat	CMRNG/AziR/CxDS/CipR	H	3158	1901	8	0.125	0.125	0	AC=4	-35ADel	WT	WT	Neg
35442	SAMN04191843	2012	Ontario	Male	72	Penis/Urethra	CMRNG/AziR/CipR		7986	7827	8	0.063	0.063	0	AC=4	-35ADel	WT	G45D	Neg
35443	SAMN04191844	2012	Ontario	Male	23	Penis/Urethra	CMRNG/AziR/CipR		7986	7827	8	0.063	0.063	0	AC=4	-35ADel	WT	G45D	Neg
35444	SAMN04191845	2012	Ontario	Male	20	Penis/Urethra	AziR/EryR/TetR		8203	11424	16	0.016	0.016	0	AC=4	WT	A39T	WT	Neg
35507	SAMN04191846	2012	Quebec	Male	31	Penis/Urethra	AziR/EryR/TetR		5650	1893	0.25	0.016	0.032	0	AC=1	-35ADel	WT	WT	Neg
35541	SAMN04191847	2012	Quebec	Male	31	Throat	AziR/EryR/TetR	A	2992	9363	8	0.016	0.016	0	AC=4	WT	A39T	WT	Neg
35570	SAMN04191848	2012	Quebec	Male	30	Penis/Urethra	CMRNG/AziR/CipR	H	1407	1901	16	0.063	0.125	0	AC=4	-35ADel	WT	WT	Neg
35594	SAMN04191849	2012	Quebec	Male	31	Rectum	AziR/EryR/TetR	B	7199	9363	16	0.032	0.063	0	AC=4	WT	A39T	WT	Neg
35809	SAMN04191850	2012	Ontario	Male	57.67	Penis/Urethra	CMRNG/AziR/CxDS/CipR	H	3158	1901	8	0.125	0.125	0	AC=4	-35ADel	WT	WT	Neg
35835	SAMN04191851	2012	Ontario	Male	43.21	Penis/Urethra	CMRNG/AziR/CxDS/CipR	H	3158	1901	16	0.125	0.125	0	AC=4	-35ADel	WT	WT	Neg
35846	SAMN04191852	2012	Ontario	Male	32.09	Penis/Urethra	CMRNG/AziR/CxDS/CipR	H	3158	1901	8	0.125	0.125	0	AC=4	-35ADel	WT	WT	Neg
35908	SAMN04191853	2013	British Columbia	Male	51.16	Penis/Urethra	AziR/EryR/TetR		8915	9363	16	0.016	0.016	0	AC=4	WT	A39T	WT	Neg
35917	SAMN04191854	2012	Ontario	Male	27.08	Penis/Urethra	CMRNG/AziR/CxDS/CipR	H	3158	1901	8	0.125	0.125	0	AC=4	-35ADel	WT	WT	Neg
35987	SAMN04191855	2012	Ontario	Male	23.17	Rectum	CMRNG/AziR/CxDS/CipR	H	3158	1901	8	0.125	0.125	0	AC=4	-35ADel	WT	WT	Neg
36021	SAMN04191856	2013	Ontario	Male	23.23	Rectum	CMRNG/AziR/CeDS/CxDS/CipR	H	3158	1901	8	0.125	0.25	0	AC=4	-35ADel	WT	WT	Neg
36029	SAMN04191857	2013	Ontario	Female	46.74	Vagina	CMRNG/AziR/CeDS/CxDS/CipR	H	3158	1901	8	0.125	0.25	0	AC=4	-35ADel	WT	WT	Neg
36037	SAMN04191858	2013	Ontario	Female	22.47	Throat	CMRNG/AziR/CxDS/CipR	H	3158	1901	8	0.125	0.125	0	AC=4	-35ADel	WT	WT	Neg
36045	SAMN04191859	2013	Ontario	Male	25.22	Penis/Urethra	Probable CMRNG/AziR/CipR		9436	1901	8	0.032	0.016	0	AC=4	-35ADel	WT	WT	Neg
36058	SAMN04191860	2013	Ontario	Male	22.09	Penis/Urethra	CMRNG/AziR/CxDS/CipR	H	3158	1901	8	0.125	0.125	0	AC=4	-35ADel	WT	WT	Neg
36160	SAMN04191861	2012	Quebec	Male	34	Rectum	AziR/EryR/TetR	A	2992	9363	8	0.008	0.008	0	AC=4	WT	A39T	WT	Pos
36171	SAMN04191862	2012	Quebec	Male	21	Rectum	AziR/EryR/TetR	A	2992	9363	8	0.008	0.032	0	AC=4	WT	A39T	WT	Pos
36172	SAMN04191863	2012	Quebec	Male	43	Penis/Urethra	AziR/EryR/TetR	A	2992	9363	8	0.004	0.008	0	AC=4	WT	A39T	WT	Pos
36182	SAMN04191864	2012	Quebec	Male	23	Penis/Urethra	AziR/EryR/TetR	A	2992	9363	8	0.008	0.008	0	AC=4	WT	A39T	WT	Neg
36192	SAMN04191865	2012	Quebec	Male	21	Penis/Urethra	AziR/EryR/TetR	A	2992	9363	8	0.008	0.008	0	AC=4	WT	A39T	WT	Neg
36293	SAMN04191866	2012	Quebec	Male	38	Rectum	AziR/EryR/TetR	A	2992	9363	2	0.008	0.008	0	AC=2	WT	A39T	WT	Neg
36294	SAMN04191867	2012	Quebec	Male	49	Penis/Urethra	AziR/EryR/TetR	A	2992	9363	2	0.008	0.008	0	AC=2	WT	A39T	WT	Neg
36296	SAMN04191868	2012	Quebec	Male	47	Penis/Urethra	AziR/EryR/TetR	A	2992	9363	8	0.008	0.008	0	AC=4	WT	A39T	WT	Neg

36350	SAMN04191869	2013	Saskatchewan	Female	28.95	Cervix	Probable CMRNG/AziR/CipR	H	9427	1901	8	0.032	0.125	0	AC=4	-35ADel	WT	WT	Neg
36361	SAMN04191870	2013	British Columbia	Male	53.15	Penis/Urethra	AziR/EryR/TetR		8915	9363	16	0.016	0.032	0	AC=4	WT	A39T	WT	Neg
36391	SAMN04191871	2012	Quebec	Male	29	Penis/Urethra	CMRNG/AziR/CipR	L	6360	7363	8	0.063	0.063	0	AC=3	-35ADel	WT	WT	Neg
36441	SAMN04191872	2013	Saskatchewan	Female	18.69	Cervix	AziR/CipR/EryR/TetR	H	9427	1901	8	0.032	0.063	0	AC=4	-35ADel	WT	WT	Neg
36442	SAMN04191873	2013	Saskatchewan	Male	23.05	Penis/Urethra	CMRNG/AziR/CipR	H	9427	1901	8	0.063	0.125	0	AC=4	-35ADel	WT	WT	Pos
36443	SAMN04191874	2013	Saskatchewan	Female	21.93	Cervix	AziR/CipR/EryR/TetR	H	9427	1901	8	0.063	0.125	0	AC=4	-35ADel	WT	WT	Neg
36650	SAMN04191875	2013	Saskatchewan	Male	26.17	Penis/Urethra	AziR/CeDS/CipR/EryR /TetR	H	9427	1901	8	0.063	0.25	0	AC=4	-35ADel	WT	WT	Neg
36690	SAMN04191876	2013	Saskatchewan	Male	31.3	Penis/Urethra	CMRNG/AziR/CipR	H	9427	1901	8	0.063	0.063	0	AC=4	-35ADel	WT	WT	Neg
36746	SAMN04191877	2013	Alberta	Male	35	Throat	Probable CMRNG/AziR	E	3935	9363	2	0.032	0.016	0	0	menigitidis	WT	WT	Neg
36945	SAMN04191878	2013	Quebec	Female	15	Rectum	AziR/EryR/TetR	D	9047	9363	8	0.004	0.008	0	AC=4	WT	A39T	WT	Neg
36946	SAMN04191879	2013	Quebec	Male	22	Rectum	AziR/EryR	A	2992	9363	16	0.004	0.008	0	AC=4	WT	A39T	WT	Neg
36948	SAMN04191880	2013	Quebec	Female	25	Throat	AziR/EryR	A	2992	9363	8	0.004	0.008	0	AC=4	WT	A39T	WT	Neg
36952	SAMN04191881	2013	Quebec	Male	34	Rectum	AziR/EryR	C	8015	9363	2	0.004	0.008	0	0	WHO-P- like	A39T	WT	Neg
37021	SAMN04191882	2013	British Columbia	Male	30.72	Penis/Urethra	CMRNG/AziR/CeDS/C xDS/CipR	H	3158	1901	16	0.25	0.25	0	AC=4	-35ADel	WT	WT	Neg
37086	SAMN04191883	2013	Alberta	Male	26	Penis/Urethra	CMRNG/AziR	E	6765	9363	2	0.032	0.032	0	0	menigitidis	WT	WT	Neg
37088	SAMN04191884	2013	Alberta	Male	27	Rectum	CMRNG/AziR	E	6765	9363	2	0.032	0.016	0	0	menigitidis	WT	WT	Neg
37094	SAMN04191885	2013	Alberta	Male	37	Penis/Urethra	CMRNG/AziR/CipR	L	10128	7363	8	0.032	0.032	0	AC=4	-35ADel	WT	WT	Neg
37308	SAMN04191886	2013	Ontario	Male	26.1	Penis/Urethra	CMRNG/AziR/CipR	H	3158	1901	16	0.063	0.063	0	AC=4	-35ADel	WT	WT	Neg
37320	SAMN04191887	2013	Ontario	Male	24.13	Penis/Urethra	CMRNG/AziR/CipR	H	3158	1901	16	0.063	0.125	0	AC=4	-35ADel	WT	WT	Neg
37327	SAMN04191888	2013	Ontario	Male	24.11	Penis/Urethra	CMRNG/AziR/CeDS/C xDS/CipR	H	1407	1901	2	0.125	0.5	0	AC=2	-35ADel	WT	WT	Neg
37350	SAMN04191889	2013	Ontario	Male	27.72	Rectum	CMRNG/AziR	K	1034	1579	2	0.032	0.032	0	0	-35ADel	WT	WT	Neg
37413	SAMN04191890	2013	Ontario	Male	23.88	Penis/Urethra	CMRNG/AziR	K	9700	1579	2	0.032	0.032	0	0	-35ADel	WT	WT	Neg
37456	SAMN04191891	2013	Ontario	Male	22.72	Rectum	CMRNG/AziR/CipR	H	3158	1901	8	0.063	0.125	0	AC=4	-35ADel	WT	WT	Neg
37510	SAMN04191892	2013	Ontario	Male	23.93	Rectum	CMRNG/AziR/CipR	H	3158	1901	16	0.063	0.125	0	AC=4	-35ADel	WT	WT	Neg
37535	SAMN04191893	2014	Ontario	Male	21.01	Rectum	CMRNG/AziR/CipR	H	3158	1901	8	0.063	0.125	0	AC=4	-35ADel	WT	WT	Neg
37540	SAMN04191894	2014	Ontario	Male	23.87	Penis/Urethra	CMRNG/AziR/CipR	H	10451	1901	4	0.032	0.063	0	AC=3	-35ADel	WT	WT	Neg
37576	SAMN04191895	2013	Quebec	Male	22	Penis/Urethra	AziR/EryR/TetR	F	1929	8126	8	0.004	0.004	0	AC=4	WT	WT	G45D	Neg
37599	SAMN04191896	2013	Quebec	Female	32	Cervix	AziR/EryR/TetR	D	9047	9363	8	0.008	0.016	0	AC=4	WT	A39T	WT	Neg
37624	SAMN04191897	2013	Quebec	Male	23	Penis/Urethra	AziR/EryR/TetR	C	9368	11428	2	0.008	0.032	0	0	menigitidis	WT	WT	Neg
37635	SAMN04191898	2013	Quebec	Female	25	Cervix	AziR/CipR/EryR	I	9994	1901	0.063	0.008	0.032	0	0	-35ADel	WT	WT	Neg
37649	SAMN04191899	2013	Quebec	Male	20	Penis/Urethra	AziR/EryR/TetR	C	9368	11428	4	0.008	0.016	0	0	menigitidis	WT	WT	Neg
37654	SAMN04191900	2013	Quebec	Male	25	Penis/Urethra	AziR/EryR/TetR	C	9368	11428	4	0.008	0.008	0	0	menigitidis	WT	WT	Neg
37748	SAMN04191901	2014	Alberta	Male	19	Throat	Probable CMRNG/AziR/CipR	L	10128	7363	8	0.032	0.032	0	AC=4	-35ADel	WT	WT	Neg
37750	SAMN04191902	2014	Alberta	Male	20	Throat	AziR/CipR/EryR/TetR	L	10128	7363	8	0.032	0.032	0	AC=4	-35ADel	WT	WT	Neg
37790	SAMN04191903	2014	Alberta	Male	39	Rectum	Probable CMRNG/AziR	E	6765	9363	2	0.032	0.032	0	0	menigitidis	WT	WT	Neg
37867	SAMN04191904	2014	Ontario	Male	51.26	Penis/Urethra	CMRNG/AziR/CipR	H	10451	1901	8	0.032	0.125	0	AC=2	-35ADel	WT	WT	Neg
37868	SAMN04191905	2014	Ontario	Male	25.13	Penis/Urethra	CMRNG/AziR/CipR	H	3158	1901	8	0.063	0.125	0	AC=4	-35ADel	WT	WT	Neg
38129	SAMN04191906	2014	Quebec	Male	28	Penis/Urethra	AziR/EryR	F	10567	8126	8	0.004	0.008	0	AC=4	WT	WT	WT	Neg
38130	SAMN04191907	2014	Quebec	Male	34	Penis/Urethra	CMRNG/AziR/CipR	H	3149	1901	16	0.063	0.125	0	AC=4	-35ADel	WT	WT	Neg
38131	SAMN04191908	2014	Quebec	Male	19	Penis/Urethra	CMRNG/AziR/CxDS/C ipR	H	1407	1901	2	0.125	0.125	0	0	-35ADel	WT	WT	Neg
38132	SAMN04191909	2014	Quebec	Male	20	Throat	AziR/CipR/EryR/TetR	L	2400	7363	2	0.016	0.032	0	0	-35ADel	WT	WT	Neg
38133	SAMN04191910	2014	Quebec	Male	28	Penis/Urethra	AziR/EryR	F	10567	8126	8	0.004	0.008	0	AC=4	WT	WT	WT	Neg
38134	SAMN04191911	2014	Quebec	Male	27	Throat	AziR/EryR	F	10567	8126	8	0.004	0.008	0	AC=4	WT	WT	WT	Neg

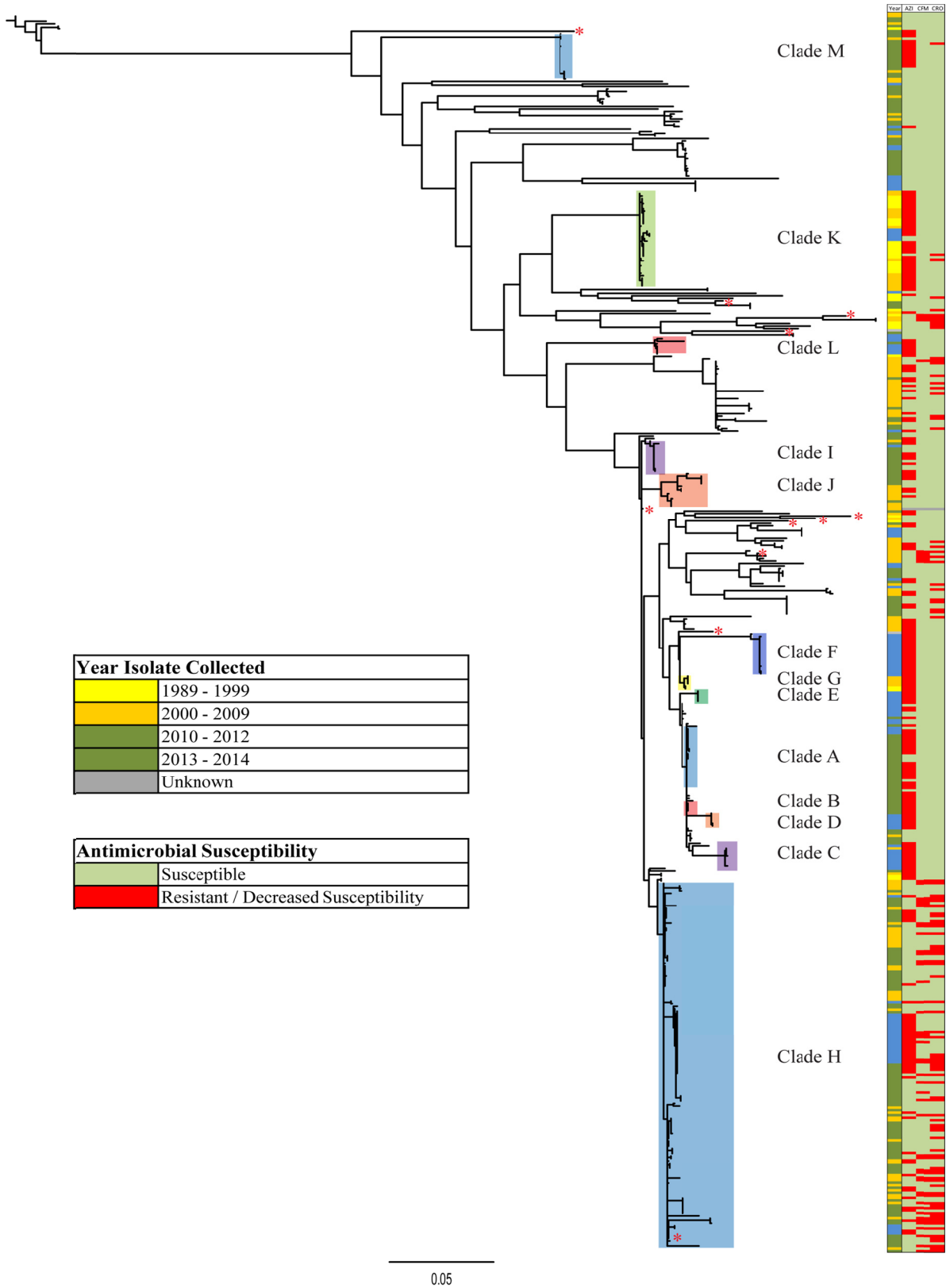
38135	SAMN04191912	2014	Quebec	Male	24	Throat	AziR/EryR/TetR	F	10567	8126	8	0.008	0.016	0	AC=4	WT	WT	WT	Neg
38136	SAMN04191913	2014	Quebec	Male	22	Penis/Urethra	AziR/EryR/TetR	F	10567	8126	8	0.004	0.008	0	AC=4	WT	WT	WT	Neg
38137	SAMN04191914	2014	Quebec	Male	27	Throat	AziR/EryR	F	10567	8126	8	0.004	0.008	0	AC=4	WT	WT	WT	Neg
38138	SAMN04191915	2014	Quebec	Male	22	Throat	AziR/EryR	F	10567	8126	8	0.008	0.004	0	AC=4	WT	WT	WT	Neg
38139	SAMN04191916	2014	Quebec	Male	21	Penis/Urethra	AziR/EryR	F	10567	8126	8	0.008	0.016	0	AC=4	WT	WT	WT	Neg
38140	SAMN04191917	2014	Quebec	Male	23	Throat	AziR/EryR	F	10568	1893	8	0.004	0.004	0	AC=4	WT	WT	G45D	Neg
38141	SAMN04191918	2014	Quebec	Male	23	Penis/Urethra	Probable CMRNG/AziR	E	7571	9363	4	0.032	0.016	0	0	menigitidis	WT	WT	Neg
38142	SAMN04191919	2014	Quebec	Male	34	Throat	AziR/EryR/TetR	F	10567	8126	8	0.004	0.016	0	AC=4	WT	WT	WT	Neg
38143	SAMN04191920	2014	Quebec	Male	38	Rectum	AziR/EryR	F	10567	8126	8	0.008	0.008	0	AC=4	WT	WT	WT	Neg
38144	SAMN04191921	2014	Quebec	Male	24	Throat	AziR/EryR/TetR	C	9368	11428	2	0.008	0.016	0	0	menigitidis	WT	WT	Neg
38145	SAMN04191922	2014	Quebec	Male	53	Penis/Urethra	AziR/EryR/TetR	C	9368	11428	2	0.008	0.016	0	0	menigitidis	WT	WT	Neg
38150	SAMN04191923	2014	Quebec	Male	26	Throat	AziR/EryR/TetR	F	10567	8126	8	0.004	0.008	0	AC=4	WT	WT	WT	Neg
38152	SAMN04191924	2014	Quebec	Male	29	Rectum	AziR/EryR	F	10567	8126	8	0.004	0.008	0	AC=4	WT	WT	WT	Neg
38155	SAMN04191925	2014	Quebec	Male	22	Throat	AziR/EryR	F	10567	8126	8	0.004	0.016	0	AC=4	WT	WT	WT	Neg
38156	SAMN04191926	2014	Quebec	Male	33	Throat	AziR/EryR/TetR	C	9368	11428	2	0.008	0.016	0	0	menigitidis	WT	WT	Neg
38158	SAMN04191927	2014	Quebec	Female	22	Throat	AziR/EryR/TetR	D	9047	9363	8	0.008	0.032	0	AC=4	WT	A39T	WT	Neg
38196	SAMN04191928	2014	Quebec	Female	19	Throat	AziR/EryR/TetR	D	10814	9363	8	0.004	0.008	0	AC=4	WT	A39T	WT	Neg
38197	SAMN04191929	2014	Quebec	Male	32	Penis/Urethra	EryR/TetR		10815	1584	1	0.008	0.008	0	0	menigitidis	WT	WT	Neg
38198	SAMN04191930	2014	Quebec	Male	23	Penis/Urethra	AziR/EryR	F	10567	8126	4	0.004	0.008	0	AC=4	WT	WT	WT	Neg
38199	SAMN04191931	2014	Quebec	Female	19	Throat	AziR/EryR	F	10567	8126	8	0.004	0.008	0	AC=4	WT	WT	WT	Neg
38200	SAMN04191932	2014	Quebec	Male	50	Throat	Probable CMRNG/AziR	C	9368	11428	2	0.008	0.016	0	0	menigitidis	WT	WT	Neg
38201	SAMN04191933	2014	Quebec	Male	21	Penis/Urethra	Probable CMRNG/AziR	C	9368	11428	2	0.008	0.016	0	0	menigitidis	WT	WT	Neg
38202	SAMN04191934	2014	Quebec	Female	22	Throat	AziR/EryR/TetR	D	9047	9363	8	0.008	0.016	0	AC=4	WT	A39T	WT	Neg
883218	SAMN04191935	1989	Saskatchewan	Male	34.35	Urethra	CMRNG/CxDS		919	1927	0.5	0.125	0.125	0	0	-35ADel	WT	G45D	Neg
ATCC4 9226	SAMN04191936		Unknown						1572	11075	0.5	0.016	0.016	0	0	WT	A39T	WT	Neg
WHO- F	SAMN04191937	1991	Canada						3303	10934	0.12 5	<0.002	<0.016	0	0	WT	WT	WT	Neg
WHO- G	SAMN04191938	1997	Thailand						621	1903	0.25	0.008		0	0	-35ADel	WT	WT	Neg
WHO- K	SAMN04191939	2003	Japan						1424	7363	0.25	0.064	0.5	0	0	-35ADel	WT	G45D	Neg
WHO- L	SAMN04191940	1996	Asia						1422	1590	0.5	0.125	0.25	0	0	WT	WT	G45D	Neg
WHO- M	SAMN04191941	1992	Philippines						3304	7367	0.25	0.012	<0.016	0	0	-35ADel	WT	G45D	Neg
WHO- N	SAMN04191942	2001	Australia						556	1583	0.12 5	0.004	<0.016	0	0	WT	A39T	WT	Neg
WHO- O	SAMN04191943	1991	Canada						495	1902	0.25	0.032	0.016	0	0	-35ADel	WT	WT	Neg
WHO- P	SAMN04191944		USA						3305	8127	2	0.004	<0.016	0	0	WHO-P- like	WT	WT	Neg

Supplemental Table S5: Multiple regression analysis of the correlation of azithromycin minimum inhibitory concentration (MIC) increments to azithromycin resistance molecular markers in *Neisseria gonorrhoeae*

Molecular marker (independent variable)	Model 1 (best fit)			Model 2		
	<i>p</i> -value	Coefficient	CI (95%)	<i>p</i> -value	Coefficient	CI (95%)
23s rRNA A2059G	<0.0001	2.11	1.95 – 2.28	<0.0001	2.13	1.97 – 2.29
23s rRNA C2611T	<0.0001	0.71	0.65 – 0.77	<0.0001	0.72	0.66 – 0.77
Any <i>mtrR</i> promoter disruption	<0.0001	0.66	0.43 – 0.89	<0.0001	0.90	0.62 – 1.18
<i>ermC</i>	<0.0001	4.12	2.62 – 5.59	<0.0001	3.80	2.37 – 5.22
<i>ermB</i>	Removed from model due to poor fit			0.06	0.95	-0.04 – 1.95
MtrR A39T	Removed from model due to poor fit			0.0004	0.56	0.25 – 0.87
MtrR G45D	Removed from model due to poor fit			0.09	-0.26	-0.57 – 0.04
Adjusted R ²	0.820			0.834		
Significance F (overall <i>p</i> -value)	<0.0001			<0.0001		

Statistical analysis performed using MS-Excel (Microsoft Corp. 2010). Azithromycin MIC increments increase from $\leq 0.5 \mu\text{g/mL}$ to $\geq 512 \mu\text{g/mL}$ corresponding to incremental values of 1 to 11, respectively. 23s rRNA A2059G and C2611T (*E. coli* numbering) variables are the number of alleles with a respective mutation, whereas other molecular markers correlate a presence or absence of the mutation with a value of 1 and 0, respectively. Promoter disruptions of *mtrR* include a -35A deletion, *N. meningitidis*-like and WHO-P-like sequences (Fig. 4). MtrR A39T, G45D and *ermC* variables (model 2) only marginally increased the adjusted R² indicating their presence contributes little to the correlation with MIC increment. The multiple regression equation for model 1 is: Estimated azithromycin MIC increment using Model 1 = 1.8 + (2.1 x No. of A2059G alleles) + (0.7 x No. of C2611T alleles) + (4.1 x *ermC*) + (0.7 x *mtrR* promoter disruption). The number of mutated 23s rRNA alleles and the presence of other molecular markers for each isolate are presented in table S4.

Supplemental Figure S1: Whole genome core single nucleotide polymorphism (SNP) maximum likelihood phylogenetic tree of 459 *Neisseria gonorrhoeae* isolates collected in Canada from 1998 to 2014, and 10 international reference strains.



Notes: The length of the scale bar represents the estimated evolutionary divergence between isolates based on the average pairwise distance between strains (number of substitutions in an isolate / total number of core SNPS). Antimicrobial susceptibilities to azithromycin (AZI, MIC \leq 1 $\mu\text{g/ml}$ as susceptible in green [n=249], MIC \geq 2 $\mu\text{g/ml}$ as resistant in red [n=214]), cefixime (CFM, MIC \leq 0.125 $\mu\text{g/ml}$ as susceptible in green [n=416], MIC \geq 0.25 $\mu\text{g/ml}$ as decreased susceptibility in red [n=54]), and ceftriaxone (CRO, MIC \leq 0.063 $\mu\text{g/ml}$ as susceptible in green [n=371], MIC \geq 0.125 $\mu\text{g/ml}$ as decreased susceptibility in red [n=99]) are shown. Red asterisks on a node indicate international *N. gonorrhoeae* reference strains (from top to bottom): WHO-F, WHO-O, WHO-L, ATCC19226, NCCP11945, WHO-G, WHO-N, WHO-M, WHO-K, WHO-P and France F89. Clade annotations represent lineages determined with all AZI resistant (n=214) and a subset of susceptible (n=32) isolates that is depicted in Figure 1 of the main manuscript.

Supplemental Figure S2: Aligned nucleotide sequences of the peptidyltransferase loop region in domain V of 23S rRNA.

Sequence ID ^a	Start ^b	Nucleotide Sequence	End ^d
FA1090 Allele 1	2054	TAGACGGAAGACCCTCGAACCTTTACTGTAGCTTTGCATTGGACCTTTGAAGTCACCTTGTTGATAGGATAGTGGGAAGGCTTGGAAAGCAAGACGCCAGCTCTCTGTGGAGTCGTCCTTGAAAAATACCACCTGGTGTCTTTGAGGTTCTAA	2203
FA1090 Allele 2	2051	TAGACGGAAGACCCTCGAACCTTTACTGTAGCTTTGCATTGGACCTTTGAAGTCACCTTGTTGATAGGATAGTGGGAAGGCTTGGAAAGCAAGACGCCAGCTCTCTGTGGAGTCGTCCTTGAAAA-TACCACCTGGTGTCTTTGAGGTTCTAA	2199
FA1090 Allele 3	2050	TAGACGGAAGACCCTCGAACCTTTACTGTAGCTTTGCATTGGACCTTTGAAGTCACCTTGTTGATAGGATAGTGGGAAGGCTTGGAAAGCAAGACGCCAGCTCTCTGTGGAGTCGTCCTTGAAAA-TACCACCTGGTGTCTTTGAGGTTCTAA	2198
FA1090 Allele 4	2050	TAGACGGAAGACCCTCGAACCTTTACTGTAGCTTTGCATTGGACCTTTGAAGTCACCTTGTTGATAGGATAGTGGGAAGGCTTGGAAAGCAAGACGCCAGCTCTCTGTGGAGTCGTCCTTGAAAA-TACCACCTGGTGTCTTTGAGGTTCTAA	2198
NCCP11945 Allele 4	2037	TAGACGGAAGACCCTCGAACCTTTACTGTAGCTTTGCATTGGACCTTTGAAGTCACCTTGTTGATAGGATAGTGGGAAGGCTTGGAAAGCAAGACGCCAGCTCTCTGTGGAGTCGTCCTTGAAAA-TACCACCTGGTGTCTTTGAGGTTCTAA	2185
35410	2037	TAGACGGAAGACCCTCGAACCTTTACTGTAGCTTTGCATTGGACCTTTGAAGTCACCTTGTTGATAGGATAGTGGGAAGGCTTGGAAAGCAAGACGCCAGCTCTCTGTGGAGTCGTCCTTGAAAA-TACCACCTGGTGTCTTTGAGGTTCTAA	2185
32380	2037	TAGACGGAAGACCCTCGAACCTTTACTGTAGCTTTGCATTGGACCTTTGAAGTCACCTTGTTGATAGGATAGTGGGAAGGCTTGGAAAGCAAGACGCCAGCTCTCTGTGGAGTCGTCCTTGAAAA-TACCACCTGGTGTCTTTGAGGTTCTAA	2185
E. coli	2051	AAGACGGAAGACCCTCGAACCTTTACTGTAGCTTTGCATTGGACCTTTGAAGTCACCTTGTTGATAGGATAGTGGGAAGGCTTGGAAAGCAAGACGCCAGCTCTCTGTGGAGTCGTCCTTGAAAA-TACCACCTGGTGTCTTTGAGGTTCTAA	2199
H. pylori	2135	AAGACGGAAGACCCTCGAACCTTTACTGTAGCTTTGCATTGGACCTTTGAAGTCACCTTGTTGATAGGATAGTGGGAAGGCTTGGAAAGCAAGACGCCAGCTCTCTGTGGAGTCGTCCTTGAAAA-TACCACCTGGTGTCTTTGAGGTTCTAA	2283
FA1090 Allele 1	2204	CCACAGCCGTCATCCGCGTCCGGGACCCGTGCATGGTGGGAGCTTTGACTGGGGCGGCTCCCTCCCAAAGCGTAACGGAGAGAGTTCGAAGGTTACTAGGTCGCGTCCGGAATCCGACTGATAGTGCAATGGCAAAGGTAGCTAACTG	2353
FA1090 Allele 2	2200	CCACAGCCGTCATCCGCGTCCGGGACCCGTGCATGGTGGGAGCTTTGACTGGGGCGGCTCCCTCCCAAAGCGTAACGGAGAGAGTTCGAAGGTTACTAGGTCGCGTCCGGAATCCGACTGATAGTGCAATGGCAAAGGTAGCTAACTG	2349
FA1090 Allele 3	2199	CCACAGCCGTCATCCGCGTCCGGGACCCGTGCATGGTGGGAGCTTTGACTGGGGCGGCTCCCTCCCAAAGCGTAACGGAGAGAGTTCGAAGGTTACTAGGTCGCGTCCGGAATCCGACTGATAGTGCAATGGCAAAGGTAGCTAACTG	2348
FA1090 Allele 4	2199	CCACAGCCGTCATCCGCGTCCGGGACCCGTGCATGGTGGGAGCTTTGACTGGGGCGGCTCCCTCCCAAAGCGTAACGGAGAGAGTTCGAAGGTTACTAGGTCGCGTCCGGAATCCGACTGATAGTGCAATGGCAAAGGTAGCTAACTG	2348
NCCP11945 Allele 4	2186	CCACAGCCGTCATCCGCGTCCGGGACCCGTGCATGGTGGGAGCTTTGACTGGGGCGGCTCCCTCCCAAAGCGTAACGGAGAGAGTTCGAAGGTTACTAGGTCGCGTCCGGAATCCGACTGATAGTGCAATGGCAAAGGTAGCTAACTG	2335
35410	2186	CCACAGCCGTCATCCGCGTCCGGGACCCGTGCATGGTGGGAGCTTTGACTGGGGCGGCTCCCTCCCAAAGCGTAACGGAGAGAGTTCGAAGGTTACTAGGTCGCGTCCGGAATCCGACTGATAGTGCAATGGCAAAGGTAGCTAACTG	2335
32380	2186	CCACAGCCGTCATCCGCGTCCGGGACCCGTGCATGGTGGGAGCTTTGACTGGGGCGGCTCCCTCCCAAAGCGTAACGGAGAGAGTTCGAAGGTTACTAGGTCGCGTCCGGAATCCGACTGATAGTGCAATGGCAAAGGTAGCTAACTG	2335
E. coli	2200	CSTTGCACCCTAATCCGCGTCCGGGACCCGTGCATGGTGGGAGCTTTGACTGGGGCGGCTCCCTCCCAAAGCGTAACGGAGAGAGTTCGAAGGTTACTAGGTCGCGTCCGGAATCCGACTGATAGTGCAATGGCAAAGGTAGCTAACTG	2349
H. pylori	2284	CGTGCCTGTTATCCACAGGACCGCAATGCTGGTGGGAGTTGACTGGGGCGGCTCCCTCCCAAAGCGTAACGGAGAGAGTTCGAAGGTTACTAGGTCGCGTCCGGAATCCGACTGATAGTGCAATGGCAAAGGTAGCTAACTG	2433
FA1090 Allele 1	2354	CSAGACCCACAAGTCCGGCAGCTCCGAAGCAGGACATAGTGTCCGGTGGTCTGATGGGAAGGCCATCGCTCAACGGATAAAAAGTACTCCGGGATAACAGGCTTGAATCCGCCAAGAGTTTCAATCCAGCCGGGAGTTGGCAC	2503
FA1090 Allele 2	2350	CSAGACCCACAAGTCCGGCAGCTCCGAAGCAGGACATAGTGTCCGGTGGTCTGATGGGAAGGCCATCGCTCAACGGATAAAAAGTACTCCGGGATAACAGGCTTGAATCCGCCAAGAGTTTCAATCCAGCCGGGAGTTGGCAC	2498
FA1090 Allele 3	2349	CSAGACCCACAAGTCCGGCAGCTCCGAAGCAGGACATAGTGTCCGGTGGTCTGATGGGAAGGCCATCGCTCAACGGATAAAAAGTACTCCGGGATAACAGGCTTGAATCCGCCAAGAGTTTCAATCCAGCCGGGAGTTGGCAC	2497
FA1090 Allele 4	2349	CSAGACCCACAAGTCCGGCAGCTCCGAAGCAGGACATAGTGTCCGGTGGTCTGATGGGAAGGCCATCGCTCAACGGATAAAAAGTACTCCGGGATAACAGGCTTGAATCCGCCAAGAGTTTCAATCCAGCCGGGAGTTGGCAC	2497
NCCP11945 Allele 4	2336	CSAGACCCACAAGTCCGGCAGCTCCGAAGCAGGACATAGTGTCCGGTGGTCTGATGGGAAGGCCATCGCTCAACGGATAAAAAGTACTCCGGGATAACAGGCTTGAATCCGCCAAGAGTTTCAATCCAGCCGGGAGTTGGCAC	2484
35410	2336	CSAGACCCACAAGTCCGGCAGCTCCGAAGCAGGACATAGTGTCCGGTGGTCTGATGGGAAGGCCATCGCTCAACGGATAAAAAGTACTCCGGGATAACAGGCTTGAATCCGCCAAGAGTTTCAATCCAGCCGGGAGTTGGCAC	2484
32380	2336	CSAGACCCACAAGTCCGGCAGCTCCGAAGCAGGACATAGTGTCCGGTGGTCTGATGGGAAGGCCATCGCTCAACGGATAAAAAGTACTCCGGGATAACAGGCTTGAATCCGCCAAGAGTTTCAATCCAGCCGGGAGTTGGCAC	2484
E. coli	2350	CSAGCSTGACCGCCGAGCAGGTCGGAAGCAGGTCATAGTGTCCGGTGGTCTGATGGGAAGGCCATCGCTCAACGGATAAAAAGTACTCCGGGATAACAGGCTTGAATCCGCCAAGAGTTTCAATCCAGCCGGGAGTTGGCAC	2498
H. pylori	2434	TAAGACATACAAGTCAAGCAGAGACGAAAGTCCGGTCAATAGTGTCCGGTGGTCTGATGGGAAGGCCATCGCTCAACGGATAAAAAGTACTCCGGGATAACAGGCTTGAATCCGCCAAGAGTTTCAATCCAGCCGGGAGTTGGCAC	3029
FA1090 Allele 1	2504	CTCATGTCGCGCTATACATCCTGGGCTGTAGTCGGTCCCAAGGTTATGGCTGTTCGCCATTTTAAAGTGTACGTGAGTGGTGTAAACGTCGCTGAGACAGTTTGGTCCCTATCT	2623
FA1090 Allele 2	2499	CTCATGTCGCGCTATACATCCTGGGCTGTAGTCGGTCCCAAGGTTATGGCTGTTCGCCATTTTAAAGTGTACGTGAGTGGTGTAAACGTCGCTGAGACAGTTTGGTCCCTATCT	2617
FA1090 Allele 3	2498	CTCATGTCGCGCTATACATCCTGGGCTGTAGTCGGTCCCAAGGTTATGGCTGTTCGCCATTTTAAAGTGTACGTGAGTGGTGTAAACGTCGCTGAGACAGTTTGGTCCCTATCT	2616
FA1090 Allele 4	2498	CTCATGTCGCGCTATACATCCTGGGCTGTAGTCGGTCCCAAGGTTATGGCTGTTCGCCATTTTAAAGTGTACGTGAGTGGTGTAAACGTCGCTGAGACAGTTTGGTCCCTATCT	2616
NCCP11945 Allele 4	2485	CTCATGTCGCGCTATACATCCTGGGCTGTAGTCGGTCCCAAGGTTATGGCTGTTCGCCATTTTAAAGTGTACGTGAGTGGTGTAAACGTCGCTGAGACAGTTTGGTCCCTATCT	2603
35410	2485	CTCATGTCGCGCTATACATCCTGGGCTGTAGTCGGTCCCAAGGTTATGGCTGTTCGCCATTTTAAAGTGTACGTGAGTGGTGTAAACGTCGCTGAGACAGTTTGGTCCCTATCT	2603
32380	2485	CTCATGTCGCGCTATACATCCTGGGCTGTAGTCGGTCCCAAGGTTATGGCTGTTCGCCATTTTAAAGTGTACGTGAGTGGTGTAAACGTCGCTGAGACAGTTTGGTCCCTATCT	2603
E. coli	2499	CTCATGTCGCGCTATACATCCTGGGCTGTAGTCGGTCCCAAGGTTATGGCTGTTCGCCATTTTAAAGTGTACGCGAGCTGGGTTAGAACGTCGCTGAGACAGTTTGGTCCCTATCT	2617
H. pylori	3583	CTCATGTCGCGCTATACATCCTGGGCTGTAGTCGGTCCCAAGGTTATGGCTGTTCGCCATTTTAAAGCCTACCGGAGCTGGGTTTCAAGACTCCTGAGACAGTTCGCTCCCTATCT	3701

^a FA1090 alleles 1, 2, 3 and 4 correspond to 23S rRNA sequences of *N. gonorrhoeae* FA1090 (GenBank accession number NC_002946.2) and include locus tags NGO_r02 (gene ID: 3370843), NGO_r05 (gene ID: 3370844), NGO-r08 (gene ID: 3370845) and NGO_r11 (gene ID: 3370846), respectively. The sequences of all *N. gonorrhoeae* NCCP11945 (GenBank accession number NC_011035.1) 23S rRNA alleles were identical, however allele 4 (locus tag NGK_rna23s4, gene ID 6448471) was oriented in a positive DNA strand direction and was used for alignment purposes. *E. coli* sequence corresponds to *Escherichia coli* V00331 (GenBank: V00331.1); and *H. pylori* sequence corresponds to the 23s rRNA portion of *Helicobacter pylori* 23S and 5S ribosomal genes (GenBank U27270.1) (1-4). Sequences for 35410 and 32380 (GenBank: KT954109 and KT954110, respectively) were determined *in silico* from the whole genome sequencing data produced in this study. All four 23S alleles of 35410 had the A2059T mutation and 32380 had the C2611T mutation (*E. coli* numbering) in all four alleles.

^b Start and end number indicate nucleotide positions from the 5' end for each positively oriented gene.

^c ^ indicates the position associated with macrolide resistance corresponding to position 2143 of *H. pylori*, 2059 of *E. coli*, and 2045 of *N. gonorrhoeae* NCCP11945.

* Indicates the position associated with macrolide resistance corresponding to 2695 of *H. pylori*, 2611 of *E. coli*, 2599 of *N. gonorrhoeae* GenBank sequence numbers AF450074 and AF450081; and 2597 of *N. gonorrhoeae* NCCP11945.

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