

Supplemental Material

Supplemental Table 1. *Neisseria* isolates screened for the presence of nL1.

Organism/Strain	Source/Reference	Screen(s) ^a
<i>N. gonorrhoeae</i>		
NCCP11945	(1)	B ^b , H ^c , P ^d
MS11	(2)	B, H, P
FA19	(3)	B, H, P
F62	(4)	B
1291	(5)	B, H, P
FA6140	(6)	B, H, P
35/02	(7)	B, H, P
IN215	Bell Flower Clinic, Indianapolis, Indiana	H, P
IN299	Bell Flower Clinic, Indianapolis, Indiana	H, P
IN314	Bell Flower Clinic, Indianapolis, Indiana	H, P
IN397	Bell Flower Clinic, Indianapolis, Indiana	H, P
IN400	Bell Flower Clinic, Indianapolis, Indiana	H, P
IN555	Bell Flower Clinic, Indianapolis, Indiana	H, P
IN578	Bell Flower Clinic, Indianapolis, Indiana	H, P
IN644	Bell Flower Clinic, Indianapolis, Indiana	H, P
IN33578	Bell Flower Clinic, Indianapolis, Indiana	H, P
IN65463	Bell Flower Clinic, Indianapolis, Indiana	H, P
IN92208	Bell Flower Clinic, Indianapolis, Indiana	H, P
IN95029	Bell Flower Clinic, Indianapolis, Indiana	H, P
IN102606	Bell Flower Clinic, Indianapolis, Indiana	H, P
IN111734	Bell Flower Clinic, Indianapolis, Indiana	H, P
IN113831	Bell Flower Clinic, Indianapolis, Indiana	H, P
IN114758	Bell Flower Clinic, Indianapolis, Indiana	H, P
FA1090	(8)	B, H, P
DGI2	(9)	B, H, P
DGI4	(9)	H, P
DGI5	(9)	H, P
DGI8	(9)	H, P
DGI10	(9)	H, P
DGI11	(9)	H, P
DGI14	(9)	H, P
DGI18	(9)	B, H, P
DGI20	(9)	H, P
DGI21	(9)	H, P
DGI24	(9)	H, P
DGI25	(9)	H, P
SK-92-679	Neisseria Reference Laboratory	B, H, P
SK-93-1035	Neisseria Reference Laboratory	B, H, P
PID1	(10)	B, H, P
PID6	(10)	H, P
PID8	(10)	H, P

PID18	(10)	B, H, P
PID20	(10)	H, P
PID24	(10)	B, H, P
PID302	(10)	H, P
PID305	(10)	H, P
PID331	(10)	H, P
PID332	(10)	B, H, P
PID333	(10)	H, P
PID334	(10)	H, P
PID335	(10)	H, P
PID336	(10)	H, P
WHO B	Centers for Disease Control and Prevention	P
WHO H	Centers for Disease Control and Prevention	P
WHO I	Centers for Disease Control and Prevention	P
WHO J	Centers for Disease Control and Prevention	P
CDC-10331	Centers for Disease Control and Prevention	P
F28	Centers for Disease Control and Prevention	P
SPL-4	Centers for Disease Control and Prevention	P
97G181	Centers for Disease Control and Prevention	P
ATCC 49226	Centers for Disease Control and Prevention	P
P-681E	Centers for Disease Control and Prevention	P
<i>N. meningitidis</i>		
MC58	(11)	B, H, P
FAM18	(12)	B, H, P
Z2491	(13)	B, H, P
ATCC13077	American Type Culture Collection	H, P
ATCC13090	American Type Culture Collection	H, P
ATCC13102	American Type Culture Collection	H, P
ATCC13106	American Type Culture Collection	H, P
ATCC23254	American Type Culture Collection	H, P
WSLH B1	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH B2	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH B3	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH B4	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH B5	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH B6	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH B7	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH B8	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH B9	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH B10	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH C1	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH C2	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH C3	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH C4	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH C5	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH C6	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH C7	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH C8	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P

WSLH C9	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH C10	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH Y1	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH Y2	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH Y3	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH Y4	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH Y5	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH Y6	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH Y7	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH Y8	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH Y9	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH Y10	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH W-135 1	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH W-135 2	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH W-135 3	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH W-135 4	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH Z1	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH Z2	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH Z3	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH X2	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
WSLH X3	Wisconsin State Laboratory of Hygiene, Madison, Wisconsin	H, P
10	M. Maiden, personal communication	B
20	M. Maiden, personal communication	B
26	M. Maiden, personal communication	B
106	M. Maiden, personal communication	B
153	M. Maiden, personal communication	B
154	M. Maiden, personal communication	B
243	M. Maiden, personal communication	B
243	M. Maiden, personal communication	B
254	M. Maiden, personal communication	B
255	M. Maiden, personal communication	B
371	M. Maiden, personal communication	B
393	M. Maiden, personal communication	B
400	M. Maiden, personal communication	B
500	M. Maiden, personal communication	B
528	M. Maiden, personal communication	B
690	M. Maiden, personal communication	B
1000	M. Maiden, personal communication	B
1014	M. Maiden, personal communication	B
3906	M. Maiden, personal communication	B
6748	M. Maiden, personal communication	B
7891	M. Maiden, personal communication	B
8680	M. Maiden, personal communication	B
053442	M. Maiden, personal communication	B
79126	M. Maiden, personal communication	B
79128	M. Maiden, personal communication	B
80049	M. Maiden, personal communication	B
92001	M. Maiden, personal communication	B

860060	M. Maiden, personal communication	B
860800	M. Maiden, personal communication	B
890326	M. Maiden, personal communication	B
931905	M. Maiden, personal communication	B
2059001	M. Maiden, personal communication	B
11-004	M. Maiden, personal communication	B
120M	M. Maiden, personal communication	B
129E	M. Maiden, personal communication	B
14/1455	M. Maiden, personal communication	B
196/87	M. Maiden, personal communication	B
204/92	M. Maiden, personal communication	B
297-0	M. Maiden, personal communication	B
312 901	M. Maiden, personal communication	B
322/85	M. Maiden, personal communication	B
38VI	M. Maiden, personal communication	B
44/76	M. Maiden, personal communication	B
50/94	M. Maiden, personal communication	B
71/94	M. Maiden, personal communication	B
88/03415	M. Maiden, personal communication	B
90/18311	M. Maiden, personal communication	B
91/40	M. Maiden, personal communication	B
94/155	M. Maiden, personal communication	B
A22	M. Maiden, personal communication	B
A4/M1027	M. Maiden, personal communication	B
AK22	M. Maiden, personal communication	B
AK50	M. Maiden, personal communication	B
α 14	M. Maiden, personal communication	B
α 153	M. Maiden, personal communication	B
α275	M. Maiden, personal communication	B
B6116/77	M. Maiden, personal communication	B
BRAZ10	M. Maiden, personal communication	B
BZ 10	M. Maiden, personal communication	B
BZ 133	M. Maiden, personal communication	B
BZ 147	M. Maiden, personal communication	B
BZ 163	M. Maiden, personal communication	B
BZ 169	M. Maiden, personal communication	B
BZ 232	M. Maiden, personal communication	B
BZ 83	M. Maiden, personal communication	B
BZ198	M. Maiden, personal communication	B
CN100	M. Maiden, personal communication	B
D1	M. Maiden, personal communication	B
D8	M. Maiden, personal communication	B
DK 24	M. Maiden, personal communication	B
DK 353	M. Maiden, personal communication	B
E26	M. Maiden, personal communication	B
E32	M. Maiden, personal communication	B
EG 011	M. Maiden, personal communication	B
EG 327	M. Maiden, personal communication	B

EG 328	M. Maiden, personal communication	B
EG 329	M. Maiden, personal communication	B
F1576	M. Maiden, personal communication	B
F4698	M. Maiden, personal communication	B
F6124	M. Maiden, personal communication	B
G2136	M. Maiden, personal communication	B
H1964	M. Maiden, personal communication	B
IAL2229	M. Maiden, personal communication	B
L93/4286	M. Maiden, personal communication	B
M-101/93	M. Maiden, personal communication	B
M40/94	M. Maiden, personal communication	B
MA-5756	M. Maiden, personal communication	B
N45/96	M. Maiden, personal communication	B
NG 080	M. Maiden, personal communication	B
NG 3/88	M. Maiden, personal communication	B
NG 4/88	M. Maiden, personal communication	B
NG 6/88	M. Maiden, personal communication	B
NG E28	M. Maiden, personal communication	B
NG E30	M. Maiden, personal communication	B
NG E31	M. Maiden, personal communication	B
NG F26	M. Maiden, personal communication	B
NG G40	M. Maiden, personal communication	B
NG H15	M. Maiden, personal communication	B
NG H36	M. Maiden, personal communication	B
NG H38	M. Maiden, personal communication	B
NG H41	M. Maiden, personal communication	B
NG P20	M. Maiden, personal communication	B
NG PB24	M. Maiden, personal communication	B
NG144/82	M. Maiden, personal communication	B
NMBI	M. Maiden, personal communication	B
OX9930141	M. Maiden, personal communication	B
OX9930304	M. Maiden, personal communication	B
OX9930342	M. Maiden, personal communication	B
OX9930357	M. Maiden, personal communication	B
OX9930486	M. Maiden, personal communication	B
OX9930499	M. Maiden, personal communication	B
OX9930715	M. Maiden, personal communication	B
OX9930716	M. Maiden, personal communication	B
OX9930765	M. Maiden, personal communication	B
OX9930951	M. Maiden, personal communication	B
OX9930963	M. Maiden, personal communication	B
OX9930970	M. Maiden, personal communication	B
OX9930996	M. Maiden, personal communication	B
OX9931018	M. Maiden, personal communication	B
OX9931019	M. Maiden, personal communication	B
OX9931037	M. Maiden, personal communication	B
OX9931039	M. Maiden, personal communication	B
OX9931049	M. Maiden, personal communication	B

OX9931066	M. Maiden, personal communication	B
OX9931111	M. Maiden, personal communication	B
OX9931152	M. Maiden, personal communication	B
OX9931165	M. Maiden, personal communication	B
OX9931197	M. Maiden, personal communication	B
OX9931218	M. Maiden, personal communication	B
OX9931238	M. Maiden, personal communication	B
OX9931242	M. Maiden, personal communication	B
OX9931249	M. Maiden, personal communication	B
OX9931268	M. Maiden, personal communication	B
OX9931283	M. Maiden, personal communication	B
OX9931352	M. Maiden, personal communication	B
OX9931436	M. Maiden, personal communication	B
OX9931550	M. Maiden, personal communication	B
OX9931553	M. Maiden, personal communication	B
OX9931563	M. Maiden, personal communication	B
OX9931676	M. Maiden, personal communication	B
OX9931715	M. Maiden, personal communication	B
OX9931875	M. Maiden, personal communication	B
OX9931911	M. Maiden, personal communication	B
OX9931966	M. Maiden, personal communication	B
OX9931967	M. Maiden, personal communication	B
OX9931990	M. Maiden, personal communication	B
OX9932015	M. Maiden, personal communication	B
OX9932020	M. Maiden, personal communication	B
OX9932077	M. Maiden, personal communication	B
OX9932088	M. Maiden, personal communication	B
OX9932093	M. Maiden, personal communication	B
OX9932099	M. Maiden, personal communication	B
OX9932142	M. Maiden, personal communication	B
OX9932180	M. Maiden, personal communication	B
OX9932316	M. Maiden, personal communication	B
OX9932386	M. Maiden, personal communication	B
OX9932389	M. Maiden, personal communication	B
OX9932412	M. Maiden, personal communication	B
S3131	M. Maiden, personal communication	B
S4355	M. Maiden, personal communication	B
S5611	M. Maiden, personal communication	B
SB25	M. Maiden, personal communication	B
SWZ107	M. Maiden, personal communication	B
Z7174	M. Maiden, personal communication	B
Z814	M. Maiden, personal communication	B
<i>N. cinerea</i>		
ATCC14685	M. Maiden, personal communication	B
<i>N. elongata</i>		
ATCC29315	M. Maiden, personal communication	B
<i>N. flavescens</i>		
ATCC13115	American Type Culture Collection	H, P

ATCC13117	American Type Culture Collection	H, P
ATCC13120	American Type Culture Collection	H, P
NRL30031	M. Maiden, personal communication	B
SK114	M. Maiden, personal communication	B
<i>N. lactamica</i>		
ATCC23970	American Type Culture Collection	B, H, P
020-06	M. Maiden, personal communication	B
<i>N. mucosa</i>		
NRL-9300	Neisseria Reference Laboratory	H, P
ATCC19696	American Type Culture Collection	H, P
ATCC25996	American Type Culture Collection	B, H, P
<i>N. polysaccharea</i>		
ATCC43768	M. Maiden, personal communication	B
<i>N. sicca</i>		
ATCC9913	American Type Culture Collection	H, P
ATCC29256	M. Maiden, personal communication	B
<i>N. subflava</i>		
ATCC10555	American Type Culture Collection	H, P
ATCC14799	American Type Culture Collection	H, P
ATCC49275	American Type Culture Collection	H, P
NJ9703	M. Maiden , personal communication	B

a, Screening method used to detect nL1

b, BLAST

c, DNA hybridization

d, PCR

Supplemental References

1. **Chung, G. T., J. S. Yoo, H. B. Oh, Y. S. Lee, S. H. Cha, S. J. Kim, and C. K. Yoo.** 2008. Complete genome sequence of *Neisseria gonorrhoeae* NCCP11945. *J. Bacteriol.* **190**:6035-6036.
2. **Swanson, J., S. Bergstrom, J. Boslego, and M. Koomey.** 1987. Gene conversion accounts for pilin structural changes and for reversible piliation "phase" changes in gonococci. *Antonie Van Leeuwenhoek* **53**:441-446.
3. **Maness, M. J., and P. F. Sparling.** 1973. Multiple antibiotic resistance due to a single mutation in *Neisseria gonorrhoeae*. *J. Infect. Dis.* **128**:321-330.
4. **Schneider, H., J. M. Griffiss, G. D. Williams, and G. B. Pier.** 1982. Immunological basis of serum resistance of *Neisseria gonorrhoeae*. *J. Gen. Microbiol.* **128**:13-22.
5. **Apicella, M. A.** 1974. Antigenically distinct populations of *Neisseria gonorrhoeae*: isolation and characterization of the responsible determinants. *J. Infect. Dis.* **130**:619-625.
6. **Faruki, H., and P. F. Sparling.** 1986. Genetics of resistance in a non-beta-lactamase-producing gonococcus with relatively high-level penicillin resistance. *Antimicrob. Agents Chemother.* **30**:856-860.
7. **Lindberg, R., H. Fredlund, R. Nicholas, and M. Unemo.** 2007. *Neisseria gonorrhoeae* isolates with reduced susceptibility to cefixime and ceftriaxone: association with genetic polymorphisms in *penA*, *mtrR*, *porB1b*, and *ponA*. *Antimicrob. Agents Chemother.* **51**:2117-2122.
8. **Nachamkin, I., J. G. Cannon, and R. S. Mittler.** 1981. Monoclonal antibodies against *Neisseria gonorrhoeae*: production of antibodies directed against a strain-specific cell surface antigen. *Infect. Immun.* **32**:641-648.
9. **O'Brien, J. P., D. L. Goldenberg, and P. A. Rice.** 1983. Disseminated gonococcal infection: a prospective analysis of 49 patients and a review of pathophysiology and immune mechanisms. *Medicine (Baltimore)* **62**:395-406.
10. **Kasper, D. L., P. A. Rice, and W. M. McCormick.** 1977. Bactericidal antibody in genital infection due to *Neisseria gonorrhoeae*. *J. Infect. Dis.* **135**:243-251.
11. **McGuinness, B. T., I. N. Clarke, P. R. Lambden, A. K. Barlow, J. T. Poolman, D. M. Jones, and J. E. Heckels.** 1991. Point mutation in meningococcal *porA* gene associated with increased endemic disease. *Lancet* **337**:514-517.
12. **Kawula, T. H., E. L. Aho, D. S. Barritt, D. G. Klapper, and J. G. Cannon.** 1988. Reversible phase variation of expression of *Neisseria meningitidis* class 5 outer membrane proteins and their relationship to gonococcal proteins II. *Infect. Immun.* **56**:380-386.
13. **Dempsey, J. A., A. B. Wallace, and J. G. Cannon.** 1995. The physical map of the chromosome of a serogroup A strain of *Neisseria meningitidis* shows complex rearrangements relative to the chromosomes of the two mapped strains of the closely related species *N. gonorrhoeae*. *J. Bacteriol.* **177**:6390-6400.