

Table S3. Presence or absence of phase variable genes in commensal *Neisseria*. Targets were identified by searching the literature for genes known or hypothesized to be phase variable in pathogenic *Neisseria*.

* Experimentally proven (K) or strong candidate (S) for phase variation.

** Gene used as a query to search for orthologs in commensal genomes. Genes in bold have the phase variable (PV) repeat in the promoter.

*** The nucleotides in the repeat are in parentheses, followed by a number denoting the length of the repeat. A lower case "c" indicates that the repeat is present in the coding region.

aa: gene absent, PV repeat absent
pp: gene present, PV repeat present
pa: gene present, PV repeat absent
p?: gene present, PV repeat has not been defined

<i>Nci</i> : <i>N. cinerea</i>	<i>Nsu</i> : <i>N. subflava</i>
<i>Npo</i> : <i>N. polysaccharea</i>	<i>Nsi</i> : <i>N. sicca</i>
<i>Nla</i> : <i>N. lactamica</i> 23970	<i>Nmu</i> : <i>N. mucosa</i>
<i>Nfl</i> : <i>N. flavescens</i>	<i>Nel</i> : <i>N. elongata</i>

S		RplK	NMB0127	(C) c	435	pa	pa	pp	pp	pa	pp	pp	pp
K	<i>pgtA / pglA</i>	Pilin glycosylation protein	NMB0218	(G) 11	1131	aa	pa	pp	aa	aa	aa	aa	aa
K		Hypothetical protein	NMB0297	(G) c	99	aa	aa	pa	aa	aa	aa	aa	aa
S		TspA	NMB0341	(C) 7	2628	pa	pa	pa	aa	aa	aa	aa	aa
S		Hypothetical protein	NMB0368	(A) 11	459	pa	pp	pp	pp	aa	pa	aa	aa
K	<i>dca/pptA</i>	Competence-associated protein / pilin phosphorylcholine transferase	NMB0415	(G) 9	1648	aa							
S		AmiC	NMB0456		1251	p?							
S		Phage associated	NMB0486	(C) 6 (N)10 (G) 7	1343	aa	aa	pp	pa	aa	aa	aa	aa
S		Glycosyltransferase	NMB0624	(CAAACAA) 34	1222	aa							
S	<i>hsdS</i>	Type I restriction enzyme S protein	NMB0831	(G) 7	1174	aa	pp	aa	aa	aa	aa	aa	pa
S		Glycotransferase	NMB0846	(A) 8	1035	pa	aa	aa	pa	pp	pa	pa	pa
S		SodB	NMB0884	(T) 5	588	pa	pp	pp	pa	pa	pa	pa	pa
S		AzIc-related	NMB0892	(A) 6	423	pp	pp	pp	pa	pp	pp	pp	pp
S		FunZ	NMB0961	(CAAT) 5	1596	aa	pa	aa	aa	aa	aa	aa	aa
S		Phage associated	NMB0970	(C) 6 (N)10 (G) 7	1425	aa	aa	pp	pa	aa	aa	aa	aa
K	<i>opc</i>	Class 5 outer membrane protein	NMB1053	(C) 12	819	aa							
S		Ner	NMB1080	(A) 7	263	aa							
S		Putative glycosyl transferase	NMB1255	(G) c	1011	aa	pa	pp	aa	aa	aa	aa	aa
K		Type III restriction system methylase	NMB1261	(CCCAA) 16	2084	aa	pp	pp	pa	aa	aa	pa	aa
S		Mod	NMB1375	(GCCA) 20	2110	aa							
S		NifS	NMB1379	(C) 8	1215	pa							
S		RTX-type toxin	NMB1407	(ATAACAAA) 4	1130	aa							
K	<i>porA</i>	Outer membrane protein	NMB1429	(G) 11	1179	p?	aa	aa	p?	p?	p?	p?	aa
S		Ppx	NMB1467	(C) c	1509	pp	pa	pa	pa	pa	pa	pa	pp
S		Hypothetical protein	NMB1507	(CAAG) 11	360	aa	pp	pp	aa	aa	aa	aa	aa
S	<i>lbpA</i>	Lactoferrin-binding protein A	NMB1540	(G) 8	2832	pa	aa	pa	pa	aa	aa	aa	aa
S		Phage associated	NMB1543	(C) 8 (N) 10 (G)	1215	aa	aa	pa	pa	aa	aa	aa	aa

				7									
S		Phage associated	NMB1634	(C) 8 (N) 9 (G) 7	1209	aa	aa	pa	pa	aa	aa	aa	aa
K	<i>hmbR</i>	Hemoglobin receptor	NMB1668	(G) 10	2376	aa	pa	aa	aa	pa	pa	aa	pa
S		FixP	NMB1723	(AT) 5	1098	pa	pp	pp	pa	pp	pp	pp	pa
S		Phage associated	NMB1741	(C) 6 (N) 10 (G) 7	1343	aa	aa	pp	pa	aa	aa	aa	aa
S		CvaA	NMB1783	(C) 5	1225	aa							
S		Hypothetical protein	NMB1786	(A)	1155	p?	aa						
K	<i>pglH</i>	Pilin glycosylation protein	NMB1819	(C) 10	156	aa	pa	aa	aa	aa	pa	pa	aa
S	<i>wbpC</i> / <i>pglII</i>	Putative lipopolysaccharide biosynthesis or pilin glycosylation protein	NMB1836	(G) 13	1872	aa	pa	pp	aa	aa	aa	pa	aa
K	<i>lgtA</i>	Acto-N-neotetraose biosynthesis glycosyl transferase	NMB1929	(G) 11	1050	pa	pp	pp	aa	aa	aa	aa	pa
S		Hypothetical protein	NMB1931	(G) 7	348	pa	pa	aa	aa	aa	aa	aa	aa
S	<i>aspA</i>	Putative serotype-1-specific antigen	NMB1969	(C) 10	3249	aa							
K	<i>frpB/fetA</i>	Iron-regulated outer membrane protein	NMB1988	(C) 11	2145	p?							
K	<i>nadA</i>	Putative adhesin / invasin	NMB1994	(TAAA) 9	1095	p?	aa	aa	aa	aa	p?	p?	aa
S		Map	NMB2093	(A) 7	780	pa	pp	pp	pa	pa	pa	pa	pa
S		MafA-3	NMB2104	(G) c	964	pa	pa	pa	pa	aa	aa	aa	aa
K	<i>pilC2</i>	Pilin biogenesis protein	NMC0033	(G) 11 & (G) c	3147	aa	aa	pa	aa	aa	aa	aa	aa
S	<i>mtfB</i>	ABC transporter ATP-binding component	NMC0086	(G) 7	2087	aa							
K	<i>pilC1</i>	Pilin biogenesis protein	NMC0371	(G) c	3117	pa	pa	aa	pa	aa	aa	aa	aa
S	<i>pglB2</i>	Pilin glycosylation protein	NMC0399	(A) c	1579	pa	pa	pa	pa	pp	pp	pp	pa
K	<i>pglG</i>	Pilin glycosylation protein	NMC0401	(C) 7	1084	pa	aa	pa	pa	pa	pa	pa	pa
K	<i>pglE</i>	Pilin glycosylation protein	NMC0568	(CAAACAA) 34 or (CAAACAC) 26	1180	aa	pp	pp	aa	aa	aa	aa	aa

