

Supplementary Table 1. Virulence-associated and predicted virulence-associated genes from the pathogenic *Neisseria* spp.^a

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| ABC transport (NMB1880) * |
| adhesin (NMB0586) * |
| <i>bcp</i> * |
| <i>bfrA</i> * |
| <i>bfrB</i> * |
| <i>ctrA</i> |
| <i>ctrB</i> |
| <i>ctrC</i> |
| <i>ctrD</i> |
| <i>dca / pptA</i> * |
| <i>dsbA</i> * |
| endonuclease (NMB0533) * |
| <i>envA</i> * |
| <i>fabZ</i> * |
| <i>fbpA</i> * |
| <i>fbpB</i> * |
| <i>frpA</i> |
| <i>frpA</i> -related (NMB1407) * |
| <i>frpC</i> * |
| <i>fur</i> * |
| <i>hap</i> * |
| <i>hecB</i> (hemolysin activation) |
| hemagglutinin/hemolysin (NMB0493) |
| hemagglutinin/hemolysin (NMB1214) |
| hemagglutinin/hemolysin (NMB1768) |
| hemagglutinin/hemolysin (NMB0497 & NMB1779) |
| <i>hemH</i> * |
| hemolysin (NMB1646) * |
| hemolysin (NMB1738) |
| hemolysin activator (NMB0496 & NMB1780) |
| <i>hmbR</i> * |
| <i>hsf</i> |
| IgA protease * |
| iron ABC transport system (NMB1989) * |
| iron ABC transport system (NMB1990) * |
| iron ABC transport system (NMB1991) * |
| <i>kat</i> * |
| <i>kdtA</i> * |
| <i>lbpA</i> * |
| <i>lbpB</i> |
| <i>lgtA</i> * |
| <i>lgtB</i> * |
| <i>lgtC</i> |
| <i>lgtD</i> |
| <i>lgtE</i> |
| <i>lgtF</i> * |

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| <i>lgtG</i> |
| <i>lipA</i> |
| <i>lipB</i> |
| <i>lpxA</i> * |
| <i>lpxB</i> * |
| <i>lpxD</i> * |
| macrophage infectivity potentiator (NMB0995) * |
| macrophage infectivity potentiator (NMB1567) * |
| <i>mtrR</i> * |
| <i>mtrC</i> * |
| <i>mtrD</i> * |
| <i>mtrE</i> * |
| <i>nadA</i> |
| <i>narE</i> |
| <i>nlpD</i> * |
| NMB0065 |
| <i>norZ</i> * |
| <i>omp85</i> * |
| <i>ompH</i> * |
| <i>opa</i> * |
| <i>opc</i> |
| outer membrane lipoprotein (NMB1946) * |
| <i>pglA / pgtA</i> * |
| <i>pglB</i> * |
| <i>pglC</i> * |
| <i>pglD</i> * |
| <i>pglE</i> * |
| <i>pglF</i> * |
| <i>pglG</i> |
| <i>pglH</i> |
| <i>pglI / wbpC</i> * |
| <i>pgm</i> * |
| <i>phoP / misR</i> * |
| <i>phoQ / misS</i> * |
| <i>pilC</i> * |
| <i>pilD</i> * |
| <i>pilE</i> * |
| <i>pilF</i> * |
| <i>pilG</i> * |
| <i>pilT</i> * |
| <i>pilV</i> * |
| <i>porA</i> * |
| <i>porB</i> * |
| <i>prc</i> (peptidase) * |
| protease (NMB2127) * |
| <i>rfaC</i> * |
| <i>rfaD</i> * |
| <i>rfaE</i> * |

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| <i>rfaF</i> * |
| <i>rfaK</i> * |
| <i>rmpM</i> * |
| <i>sacA</i> |
| <i>sacB</i> |
| <i>sacC</i> |
| <i>sacD</i> |
| secretion protein (NMB1737) |
| <i>siaA</i> |
| <i>siaB</i> |
| <i>siaC</i> |
| <i>siaD</i> (serogroup B & C alleles) |
| sialyltransferase (NMB0922) * |
| <i>sodB</i> * |
| <i>sodC</i> |
| <i>ssa1</i> * |
| <i>tbp1</i> (<i>tbpA</i>) |
| <i>tbp2</i> (<i>tbpB</i>) |
| TonB-dependent receptor (NMB0293) |
| TonB-dependent receptor (NMB1346) * |
| TonB-dependent receptor (NMB1449) |
| TonB-dependent receptor (NMB1829) |
| TonB-dependent receptor (NMB1882) * |
| toxin-activating (NMB1210) |
| toxin-activating (NMB1763) |
| transferrin binding protein (NMB2132) * |
| <i>tspA</i> * |
| <i>tspB</i> * |
| twitching motility protein (NMB0051) * |
| <i>vacJ</i> * |
| <i>vapA</i> * |
| VapD-related (NMB1753) |
| <i>virG</i> * |

^aGenes listed in bold face are those present in at least one of the strains of *N. lactamica* tested in this study.

*Genes that are present in all of the four pathogenic *Neisseria* spp. genome sequences.