```
                1         10        20        30        40        50        60        70        80
NleH1_Q8X831    MLSPYSV.NTGCSWNSLTRNLTSPDNRVLSSVRDAAVHSDNGAQVKVGNRTYRVVATDNKFCVTRESHSGCFTNLLHRTGWPKGEISRKI
NleH2_Q8XAL6    MLSPSSI.NTGCSWNSLTRNLTSPDNRVLSSVRDAAVHSDSGTQVTVGNRTYRVVVTDNKFCVTRESHSGCFTNLLHRTGWPKGEISRKI
OspG_Q3YTH2     MK.......................................................................................
VPA1328         MSLFSVPSPTRGMLNM..NLSGRELA.......................KLCCMDIKKIS........NKDIKRT...........
VopG_A33_1697   MPIISSI.PLRYTLGM..SVTLSTID.......................SF.AKDIKSIIQQLDEDKNKKLISMT...........
consensus>70    M.......................................................n...v.............l...........

                90        100       110       120                 130       140       150       160
NleH1_Q8X831    EVMLNASPVSAAMERGIVHSNRPDLPPVDYAPPELPSVDY...............NRLSVPGNVIGT..GGNAVVYEDAEDATKVLKMFT
NleH2_Q8XAL6    EAMLNTSPVSTTIERGSVHSNRPDLPPVDYAQPELPPADYTQS..E..LPR.VSNNKSPVPGNVIGT..GGNAVVYEDMEDTTKVLKMFT
OspG_Q3YTH2     TS....TIIQTPFPFENNNSHA.GT...............VT................EPVLGKLIGQ..GSTAEIFEDVNDSSALYKKYD
VPA1328         UR....TLISTPSLFKRAQVKR.LLVKLDQCPPEHPKTVYELI................GKANGGLFQTFEGTNRDVFIDN.DIGVGYKLFK
VopG_A33_1697   ER....YLCRGRNGIKKEKINN.ILSNLNNGKPP..KNVLDSIISEHAIPCCLSLLEEGSSGRSSFEGTHRIVYIDD.DTGFGLKILK
consensus>70    e.......v.......................l...d...p.......................v.g..i....G....!%.D..D.....K.f.

                                    170       180       190       200                 210       220       230
NleH1_Q8X831    TSQS.N.......E...EVTSFVRCFNQYYGAGSAEKIYGNNGDIIGTRMD.....KINGESLLN..ISSLPAQAEHTIYDMFDELLQKG
NleH2_Q8XAL6    ISQY.H.......E...EVTSFVRCFNQYYGSGSAEKIYNDNGNVIGTRMN.....KINGESLLD..IPSLPAQAEQTIYDMFDELLKKG
OspG_Q3YTH2     LIGIQY......NEILEMAWQTSELFNAFYGDEASV.VI.QYGGDVYTRML.....RVPGTPLSDIDTADIPDNIESTYLQLICILNELS
VPA1328         VNST.WAKYPRSDERLNDIYRNKYFYNGIYANYAQFGSI......EMIDDRQVDKPKILVGVFKMIDGAERLAPDEKIPFSVLLNLELLG
VopG_A33_1697   NDSS.WSKCFAADLRLNFLYQLKRFYSGRYAAFSNYKIV......HIEDDV.FDGKFIKAIFFRKIPGCEPLSRWVQIPLSILLELSMG
consensus>70    ............e...e...#...%n..Y......i.....................!...............#.........L#..g

                240       250       260       270       280       290
NleH1_Q8X831    IIFVDTTETNVIYDRAKNEF...NPIDISSY.NVSDRSWSES.QIMQ.SYHGGKQDLISTVISK.I
NleH2_Q8XAL6    IIFVDTTETNVIYDRMKNEF...NPIDISSY.NVSDISWSEH.QVMQ.SYHGGKLDLISTVISK.I
OspG_Q3YTH2     IIHYDLNTGNMIYDKESESL...FPIDFRNIYAEYYAATKKDKEIIDRRLQMRTNDFYSILNRKYL
VPA1328         YMPFDVKPENFVKVKNSGGNYDYIPIDSKGI.GLYRSESKRTFHVEKFRQNFGAYDYKKVFVDYSR
VopG_A33_1697   FMPFDIKPDNFVKVKNDNDQYEYVPIDAKLI.GKINTGSFRTVRVLELREQQLPYCYSGKYVDVAQ
consensus>70    .l..D....N.......n......PID.................!.q.....g..d..........
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