

Supplemental Table 1 Transcriptome analysis of *N. meningitidis* infected to HBMEC

A) Wild type *N. meningitidis* not infected versus infected to HBMEC

Feature ID	Gene length	Ratio (B/A)	RNA from bacteria not infected (A)			RNA from bacteria infected (B)		
			Unique gene reads	Total gene reads	RPKM	Unique gene reads	Total gene reads	RPKM
<i>NMB0977</i>	474	8.04	135	139	253.1	1103	1135	2035.4
<i>mdaB</i>	579	8.00	179	181	269.8	1442	1471	2159.6
<i>rpsQ</i>	264	7.51	70	70	228.8	534	534	1719.4
<i>rpsK</i>	396	6.24	250	250	544.8	1585	1585	3402.3
<i>rplW</i>	315	5.88	62	62	169.9	370	370	998.4
<i>rpsH</i>	393	5.70	162	162	355.8	937	937	2026.7
<i>rpsT</i>	264	5.51	437	437	1428.6	2445	2445	7872.4
<i>NMB1858</i>	387	5.15	39	39	87.0	204	204	448.1
<i>rpsS</i>	279	4.68	95	95	293.9	451	451	1374.1
<i>NMB1236</i>	279	4.66	109	109	337.2	516	516	1572.1
<i>rplR</i>	354	4.45	189	189	460.8	853	853	2048.2
<i>NMB0337</i>	999	4.11	754	754	651.4	3150	3150	2680.3
<i>rplA</i>	696	4.00	762	762	944.9	3093	3093	3777.5
<i>rpmI</i>	198	3.94	23	23	100.3	92	92	395.0
<i>NMB0651</i>	390	3.62	14	50	110.6	34	184	401.0
<i>NMB1305</i>	828	3.50	94	94	98.0	334	334	342.9
<i>rpsM</i>	363	3.41	337	337	801.2	1167	1167	2732.7
<i>NMB1304</i>	1137	3.41	338	338	256.6	1170	1170	874.7
<i>rplO</i>	435	3.40	427	427	847.2	1476	1476	2884.2
<i>NMB1575</i>	294	3.20	48	48	140.9	156	156	451.0
<i>rplQ</i>	369	3.16	329	329	769.5	1054	1054	2428.0
<i>rplK</i>	435	3.10	424	424	841.2	1336	1336	2610.7
<i>rpsE</i>	519	3.01	721	721	1198.9	2204	2204	3609.7
<i>rplF</i>	534	2.96	545	545	880.8	1638	1638	2607.4

<i>rpsR</i>	231	2.95	54	54	201.7	162	162	596.1
<i>NMB2095</i>	375	2.94	1693	1693	3896.3	5048	5048	11442.5
<i>NMB1343</i>	438	2.89	49	49	96.5	144	144	279.5
<i>hfq</i>	294	2.83	165	165	484.4	474	474	1370.5
<i>rpmA</i>	273	2.81	587	587	1855.7	1672	1672	5206.0
<i>rpsD</i>	621	2.78	991	991	1377.2	2793	2793	3823.1
<i>NMB0057</i>	357	2.72	41	50	120.9	126	138	328.6
<i>secY</i>	1311	2.67	823	823	541.8	2234	2234	1448.5
<i>aroG</i>	1056	2.67	541	541	442.1	1466	1466	1180.1
<i>NMB1474</i>	210	2.63	15	15	61.6	40	40	161.9
<i>NMB0398</i>	282	2.59	19	19	58.1	50	50	150.7
<i>NMB0650</i>	420	2.57	39	139	285.6	74	362	732.6
<i>NMB0311</i>	246	2.56	99	99	347.3	257	257	888.0
<i>rpsC</i>	693	2.52	1481	1481	1844.4	3783	3783	4640.2
<i>NMB0615</i>	1305	2.46	833	833	550.9	2083	2083	1356.8
<i>rplJ</i>	501	2.41	1386	1386	2387.5	3385	3385	5743.2
<i>NMB0649</i>	225	2.39	33	33	126.6	80	80	302.2
<i>rplV</i>	330	2.37	351	351	917.9	844	844	2174.0
<i>NMB1322</i>	303	2.32	209	209	595.3	492	492	1380.2
<i>rpsP</i>	246	2.32	408	408	1431.4	959	959	3313.7
<i>NMB0791</i>	510	2.27	1118	1118	1891.9	2581	2581	4301.8
<i>rplT</i>	360	2.23	1078	1078	2584.3	2437	2437	5754.2
<i>NMB1468</i>	324	2.20	829	829	2208.2	1855	1855	4866.7
<i>mtrC</i>	1239	2.20	1702	1702	1185.5	3799	3799	2606.3
<i>rpoA</i>	987	2.17	2235	2235	1954.3	4921	4921	4238.1
<i>NMB1426</i>	1254	2.16	477	477	328.3	1048	1048	710.4
<i>NMB1380</i>	387	2.16	187	187	417.0	410	410	900.5
<i>icd</i>	2226	2.15	2540	2540	984.8	5553	5553	2120.5
<i>NMB1592</i>	489	2.15	315	315	555.9	688	688	1195.9
<i>NMB0890</i>	489	2.14	120	120	211.8	261	261	453.7
<i>bfrB</i>	474	2.13	69	69	125.6	149	149	267.2

<i>NMB1056</i>	213	2.11	14	14	56.7	30	30	119.7
<i>rpsJ</i>	312	2.11	901	901	2492.3	1927	1927	5250.0
<i>NMB0404</i>	321	2.10	106	106	285.0	226	226	598.5
<i>NMB2078</i>	582	2.10	994	994	1474.0	2119	2119	3094.9
<i>NMB1369</i>	555	2.09	343	343	533.4	729	729	1116.5
<i>NMB1368</i>	1389	2.07	1674	1674	1040.1	3514	3514	2150.5
<i>NMB1048</i>	1470	2.07	361	361	211.9	757	757	437.7
<i>NMB1580</i>	900	2.06	189	189	181.2	396	396	374.0
<i>dnaK</i>	1929	2.06	4728	4728	2115.3	9869	9869	4348.8
<i>ilvI</i>	1728	2.03	1913	1913	955.4	3944	3944	1940.1
<i>NMB1986</i>	432	2.03	156	156	311.6	321	321	631.6
<i>NMB1381</i>	381	2.01	183	183	414.5	373	373	832.2
<i>mapA</i>	2259	-2.00	2662	2662	1017.0	1351	1351	508.4
<i>NMB0581</i>	1662	-2.00	603	603	313.1	306	306	156.5
<i>lipB</i>	1260	-2.00	381	381	261.0	193	193	130.2
<i>NMB0213</i>	987	-2.01	316	316	276.3	160	160	137.8
<i>avtA</i>	1293	-2.02	524	524	349.7	264	264	173.6
<i>fumC</i>	1389	-2.02	1908	1908	1185.5	961	961	588.1
<i>NMB0599</i>	771	-2.02	227	227	254.1	114	114	125.7
<i>nqrE</i>	594	-2.02	235	235	341.4	118	118	168.9
<i>NMB1590</i>	336	-2.03	555	555	1425.5	278	278	703.3
<i>NMB2043</i>	972	-2.03	50	50	44.4	21	25	21.9
<i>NMB1125</i>	372	-2.03	0	144	334.1	0	72	164.5
<i>pilB</i>	1569	-2.04	732	732	402.6	365	365	197.7
<i>NMB1459</i>	924	-2.04	297	297	277.4	148	148	136.2
<i>uvrD</i>	2208	-2.04	843	843	329.5	420	420	161.7
<i>NMB0012</i>	972	-2.04	398	398	353.4	198	198	173.2
<i>NMB0208</i>	840	-2.04	284	284	291.8	141	141	142.7
<i>NMB0317</i>	474	-2.05	131	131	238.5	65	65	116.6
<i>NMB1413</i>	587	-2.05	35	105	154.4	24	52	75.3
<i>nuoD</i>	1257	-2.05	505	505	346.7	250	250	169.1

<i>dinG</i>	2151	-2.05	887	887	355.9	439	439	173.5
<i>NMB1551</i>	1104	-2.05	0	95	74.3	0	47	36.2
<i>NMB0587</i>	876	-2.05	283	283	278.8	140	140	135.8
<i>NMB0588</i>	756	-2.05	261	261	297.9	129	129	145.0
<i>recQ</i>	2301	-2.06	954	954	357.8	471	471	174.0
<i>mutS</i>	2595	-2.06	1159	1159	385.5	572	572	187.4
<i>NMB0314</i>	969	-2.06	449	449	399.9	221	221	193.9
<i>hemL</i>	1284	-2.07	714	714	479.9	351	351	232.4
<i>NMB0050</i>	2151	-2.07	767	767	307.7	377	377	149.0
<i>NMB0276</i>	957	-2.07	401	401	361.6	197	197	175.0
<i>NMB0541</i>	498	-2.07	110	110	190.6	54	54	92.2
<i>NMB1352</i>	435	-2.07	53	53	105.2	26	26	50.8
<i>NMB1348</i>	816	-2.07	259	259	273.9	127	127	132.3
<i>NMB0255</i>	576	-2.07	102	102	152.8	50	50	73.8
<i>pyrH</i>	720	-2.07	402	402	481.9	197	197	232.6
<i>NMB1418</i>	870	-2.07	192	192	190.5	94	94	91.8
<i>NMB1042</i>	2472	-2.07	711	711	248.2	348	348	119.7
<i>NMB0530</i>	1086	-2.08	481	481	382.2	235	235	183.9
<i>xerC</i>	906	-2.08	199	199	189.6	97	97	91.0
<i>NMB0636</i>	384	-2.09	109	109	245.0	53	53	117.3
<i>recX</i>	462	-2.09	72	72	134.5	35	35	64.4
<i>NMB1736</i>	812	-2.09	105	105	111.6	51	51	53.4
<i>orn</i>	564	-2.09	208	208	318.3	101	101	152.2
<i>NMB1770</i>	966	-2.09	0	33	29.5	0	16	14.1
<i>mtgA</i>	702	-2.10	223	223	274.2	108	108	130.8
<i>NMB1711</i>	780	-2.10	273	273	302.1	132	132	143.9
<i>NMB2130</i>	243	-2.10	29	29	103.0	14	14	49.0
<i>NMB0108</i>	666	-2.11	293	293	379.7	141	141	180.0
<i>pgi</i>	1644	-2.11	641	641	336.5	308	308	159.3
<i>NMB1166</i>	1314	-2.11	0	302	198.4	0	145	93.8
<i>NMB0984</i>	944	-2.12	23	25	22.9	12	12	10.8

<i>NMB0621</i>	828	-2.12	192	192	200.1	92	92	94.4
<i>folK</i>	495	-2.13	65	65	113.3	31	31	53.2
<i>NMB0911</i>	966	-2.13	3	21	18.8	1	10	8.8
<i>pgsA</i>	564	-2.13	84	84	128.5	40	40	60.3
<i>putA</i>	3606	-2.13	1902	1902	455.2	905	905	213.3
<i>fabD</i>	927	-2.14	1456	1456	1355.5	691	691	633.6
<i>NMB1923</i>	384	-2.14	38	38	85.4	18	18	39.8
<i>miaA</i>	942	-2.15	260	260	238.2	123	123	111.0
<i>metK</i>	1170	-2.15	676	676	498.6	319	319	231.8
<i>NMB0104</i>	675	-2.15	106	106	135.5	50	50	63.0
<i>tbp2</i>	2139	-2.16	385	385	155.3	181	181	71.9
<i>gltS</i>	1215	-2.16	694	694	493.0	326	326	228.1
<i>nuoA</i>	357	-2.16	49	49	118.5	23	23	54.8
<i>NMB1779</i>	5988	-2.17	120	917	132.2	68	430	61.0
<i>fabF-I</i>	1248	-2.17	3178	3178	2197.7	1490	1490	1014.9
<i>nuoF</i>	1302	-2.17	493	493	326.8	231	231	150.8
<i>NMB1877</i>	2016	-2.17	570	570	244.0	267	267	112.6
<i>NMB1444</i>	336	-2.17	186	186	477.7	87	87	220.1
<i>NMB2055</i>	930	-2.17	263	263	244.1	123	123	112.4
<i>NMB0665</i>	1176	-2.17	349	349	256.1	163	163	117.8
<i>NMB2098</i>	591	-2.17	182	182	265.8	85	85	122.3
<i>NMB0285</i>	1870	-2.18	521	521	240.4	243	243	110.5
<i>ppnK</i>	891	-2.18	296	296	286.7	138	138	131.7
<i>dedA</i>	645	-2.18	157	157	210.1	73	73	96.2
<i>NMB0867</i>	924	-2.19	194	194	181.2	90	90	82.8
<i>NMB2007</i>	1392	-2.19	414	414	256.7	192	192	117.2
<i>lnt</i>	1575	-2.19	468	468	256.4	217	217	117.1
<i>NMB1713</i>	966	-2.19	0	82	73.3	0	38	33.4
<i>NMB0746</i>	375	-2.20	65	65	149.6	30	30	68.0
<i>NMB1359</i>	1011	-2.20	273	273	233.0	126	126	105.9
<i>nuoI</i>	480	-2.20	115	115	206.8	53	53	93.9

<i>NMB0995</i>	684	-2.21	157	157	198.1	72	72	89.5
<i>hitA</i>	324	-2.22	166	166	442.2	76	76	199.4
<i>NMB2024</i>	606	-2.23	274	274	390.2	125	125	175.3
<i>cysD-1</i>	924	-2.23	0	101	94.3	0	46	42.3
<i>fbpC</i>	1059	-2.23	547	547	445.8	249	249	199.9
<i>rfaA-2</i>	867	-2.23	0	233	231.9	0	106	103.9
<i>NMB1908</i>	726	-2.23	231	231	274.6	105	105	122.9
<i>accC</i>	1362	-2.25	1974	1974	1250.8	892	892	556.7
<i>mtr</i>	1242	-2.25	363	363	252.2	164	164	112.2
<i>NMB1836</i>	1872	-2.25	457	457	210.7	206	206	93.5
<i>NMB1960</i>	483	-2.26	842	842	1504.5	379	379	667.0
<i>NMB0598</i>	609	-2.26	225	225	318.9	101	101	141.0
<i>nuoG</i>	2262	-2.26	1032	1032	393.7	463	463	174.0
<i>NMB1961</i>	828	-2.27	843	843	878.7	377	377	387.0
<i>lpxB</i>	1173	-2.27	481	481	353.9	215	215	155.8
<i>murF</i>	1368	-2.27	665	665	419.5	297	297	184.5
<i>mgtE</i>	1455	-2.28	567	567	336.3	253	253	147.8
<i>NMB1815</i>	843	-2.28	348	348	356.3	155	155	156.3
<i>radA</i>	1380	-2.28	443	443	277.0	197	197	121.3
<i>NMB2006</i>	1410	-2.28	623	623	381.3	277	277	167.0
<i>NMB0593</i>	2427	-2.28	749	749	266.3	333	333	116.6
<i>NMB1782</i>	303	-2.28	27	27	76.9	12	12	33.7
<i>NMB0293</i>	2112	-2.29	602	602	246.0	267	267	107.5
<i>NMB0583</i>	669	-2.29	135	149	192.2	63	66	83.9
<i>mafA-2</i>	942	-2.29	0	217	198.8	0	96	86.6
<i>nuoK</i>	306	-2.30	68	68	191.8	30	30	83.3
<i>NMB0855</i>	657	-2.30	34	34	44.7	15	15	19.4
<i>NMB1917</i>	408	-2.30	68	68	143.8	30	30	62.5
<i>NMB1553</i>	318	-2.31	44	50	135.7	20	22	58.8
<i>NMB1227</i>	396	-2.31	50	50	109.0	22	22	47.2
<i>NMB1783</i>	1225	-2.31	123	123	86.7	54	54	37.5

<i>cysD-2</i>	924	-2.32	0	89	83.1	0	39	35.9
<i>gntP</i>	1386	-2.32	493	493	307.0	216	216	132.5
<i>NMB1984</i>	1112	-2.32	198	206	159.9	82	90	68.8
<i>NMB2147</i>	423	-2.33	71	71	144.9	31	31	62.3
<i>nuoH</i>	1077	-2.33	360	360	288.5	157	157	123.9
<i>NMB1525</i>	2033	-2.33	117	117	49.7	51	51	21.3
<i>NMB1280</i>	1428	-2.33	941	941	568.7	410	410	244.1
<i>NMB0247</i>	438	-2.34	46	46	90.6	20	20	38.8
<i>NMB1275</i>	1445	-2.34	352	352	210.2	153	153	90.0
<i>NMB1568</i>	441	-2.34	283	283	553.8	123	123	237.1
<i>NMB1872</i>	441	-2.34	129	129	252.5	56	56	107.9
<i>NMB1452</i>	1140	-2.35	1003	1003	759.3	434	434	323.6
<i>hsdM</i>	1545	-2.35	361	361	201.7	156	156	85.8
<i>NMB1608</i>	753	-2.36	172	172	197.1	74	74	83.5
<i>NMB0544</i>	723	-2.36	179	179	213.7	77	77	90.5
<i>NMB0985</i>	498	-2.36	177	177	306.7	76	76	129.7
<i>NMB1163</i>	372	-2.37	0	147	341.0	0	63	144.0
<i>dnaX</i>	2115	-2.37	698	698	284.8	299	299	120.2
<i>dinP</i>	957	-2.38	293	293	264.2	125	125	111.0
<i>NMB2111</i>	846	-2.38	60	61	62.2	25	26	26.1
<i>NMB1524</i>	1368	-2.39	355	355	224.0	151	151	93.8
<i>dnaQ-1</i>	1413	-2.39	400	400	244.3	170	170	102.3
<i>rfaA-1</i>	867	-2.39	0	292	290.7	0	124	121.6
<i>recB</i>	3615	-2.39	1103	1103	263.3	468	468	110.0
<i>NMB0269</i>	726	-2.40	151	151	179.5	64	64	74.9
<i>pheS</i>	993	-2.40	361	361	313.7	153	153	131.0
<i>ppk</i>	2151	-2.40	1121	1121	449.8	474	474	187.3
<i>NMB0527</i>	423	-2.40	90	90	183.6	38	38	76.4
<i>potD-1</i>	1380	-2.41	1463	1463	914.9	617	617	380.0
<i>lgtF</i>	759	-2.42	138	138	156.9	58	58	65.0
<i>NMB1517</i>	300	-2.42	74	74	212.9	31	31	87.8

<i>NMB1395</i>	1041	-2.43	172	172	142.6	72	72	58.8
<i>NMB0434</i>	1170	-2.43	270	270	199.2	113	113	82.1
<i>nuoC</i>	594	-2.44	144	144	209.2	60	60	85.9
<i>NMB0378</i>	1575	-2.45	1603	1603	878.4	664	664	358.4
<i>NMB2133</i>	1230	-2.45	457	457	320.7	189	189	130.6
<i>NMB0395</i>	939	-2.47	282	282	259.2	116	116	105.0
<i>pglB</i>	1242	-2.47	275	275	191.1	113	113	77.3
<i>lipA</i>	2115	-2.48	779	779	317.9	319	319	128.2
<i>cysN-2</i>	1287	-2.50	0	143	95.9	0	58	38.3
<i>NMB0088</i>	1401	-2.51	909	909	560.0	368	368	223.3
<i>NMB0882</i>	333	-2.51	99	99	256.6	40	40	102.1
<i>nuoB</i>	483	-2.52	119	119	212.6	48	48	84.5
<i>NMB0036</i>	1266	-2.52	1121	1121	764.2	451	451	302.8
<i>NMB0653</i>	1269	-2.53	119	388	263.9	69	156	104.5
<i>NMB1273</i>	1437	-2.53	388	388	233.0	156	156	92.3
<i>NMB1346</i>	1778	-2.53	316	316	153.4	127	127	60.7
<i>NMB1279</i>	1110	-2.53	625	625	485.9	251	251	192.2
<i>NMB1507</i>	360	-2.54	75	75	179.8	30	30	70.8
<i>NMB0474</i>	783	-2.56	111	111	122.3	44	44	47.8
<i>NMB1299</i>	1367	-2.58	203	203	128.2	80	80	49.7
<i>NMB0024</i>	597	-2.58	66	66	95.4	26	26	37.0
<i>gapA-1</i>	1032	-2.59	431	431	360.4	169	169	139.2
<i>NMB0316</i>	687	-2.59	207	207	260.0	81	81	100.2
<i>NMB0846</i>	1035	-2.60	200	200	166.8	78	78	64.1
<i>NMB2150</i>	570	-2.60	159	159	240.7	62	62	92.5
<i>NMB1508</i>	1458	-2.61	539	539	319.0	210	210	122.4
<i>NMB0964</i>	2277	-2.61	1709	1709	647.7	665	665	248.3
<i>NMB0222</i>	474	-2.61	54	54	98.3	21	21	37.7
<i>NMB0234</i>	540	-2.61	103	103	164.6	40	40	63.0
<i>NMB0596</i>	1815	-2.63	786	786	373.7	303	303	141.9
<i>NMB1202</i>	462	-2.64	26	26	48.6	10	10	18.4



<i>cysT</i>	837	-2.65	180	180	185.6	69	69	70.1
<i>NMB2034</i>	744	-2.65	251	251	291.2	96	96	109.7
<i>NMB1414</i>	774	-2.67	17	21	23.4	6	8	8.8
<i>ackA-I</i>	1200	-2.68	322	322	231.6	122	122	86.4
<i>lbpB</i>	2214	-2.68	103	103	40.1	39	39	15.0
<i>NMB1077</i>	552	-2.69	82	82	128.2	31	31	47.7
<i>NMB1018</i>	483	-2.71	80	80	142.9	30	30	52.8
<i>NMB0701</i>	255	-2.71	24	24	81.2	9	9	30.0
<i>NMB0032</i>	528	-2.71	128	128	209.2	48	48	77.3
<i>NMB1871</i>	678	-2.72	249	249	317.0	93	93	116.6
<i>nadC</i>	882	-2.72	284	284	277.9	106	106	102.2
<i>parC</i>	2304	-2.72	799	799	299.3	298	298	109.9
<i>NMB0744</i>	480	-2.73	604	604	1086.0	225	225	398.4
<i>priA</i>	2190	-2.73	605	605	238.4	225	225	87.3
<i>cysH-I</i>	741	-2.73	0	35	40.8	0	13	14.9
<i>NMB0034</i>	840	-2.75	590	590	606.2	218	218	220.6
<i>NMB1699</i>	366	-2.77	60	60	141.5	22	22	51.1
<i>NMB1992</i>	627	-2.77	142	142	195.5	52	52	70.5
<i>mafA-I</i>	942	-2.78	0	271	248.3	0	99	89.3
<i>mtrF</i>	1569	-2.78	307	307	168.9	112	112	60.7
<i>NMB1993</i>	759	-2.79	184	184	209.2	67	67	75.0
<i>NMB0432</i>	789	-2.80	174	174	190.3	63	63	67.9
<i>NMB1386</i>	456	-2.81	36	36	68.1	13	13	24.2
<i>dadA</i>	1257	-2.81	385	385	264.3	139	139	94.0
<i>NMB0741</i>	1440	-2.82	330	330	197.8	119	119	70.2
<i>NMB1475</i>	807	-2.82	1310	1310	1400.9	471	471	496.1
<i>NMB0263</i>	924	-2.83	298	298	278.3	107	107	98.4
<i>NMB0582</i>	543	-2.84	123	123	195.5	44	44	68.9
<i>NMB1464</i>	492	-2.84	151	151	264.9	54	54	93.3
<i>vapA</i>	2092	-2.84	445	445	183.6	159	159	64.6
<i>NMB0201</i>	411	-2.84	28	28	58.8	10	10	20.7

<i>mutY</i>	1050	-2.86	166	166	136.4	59	59	47.8
<i>pglD</i>	1911	-2.86	533	533	240.7	189	189	84.1
<i>NMB1327</i>	1404	-2.87	266	266	163.5	94	94	56.9
<i>NMB0826</i>	1236	-2.89	168	168	117.3	59	59	40.6
<i>NMB0078</i>	657	-2.89	22	57	74.9	9	20	25.9
<i>NMB1606</i>	1518	-2.90	420	420	238.8	147	147	82.3
<i>cysJ-1</i>	1815	-2.91	0	149	70.8	0	52	24.4
<i>NMB2132</i>	1467	-2.91	238	238	140.0	83	83	48.1
<i>NMB1122</i>	1144	-2.91	218	218	164.5	76	76	56.5
<i>cysI-2</i>	1770	-2.92	0	207	100.9	0	72	34.6
<i>ribD</i>	1110	-2.92	460	460	357.7	160	160	122.5
<i>acnA</i>	2607	-2.93	767	767	253.9	266	266	86.7
<i>NMB0497</i>	5937	-2.93	115	866	125.9	50	300	43.0
<i>NMB1000</i>	1018	-2.93	171	179	151.8	60	62	51.8
<i>NMB0994</i>	1092	-2.93	286	286	226.0	99	99	77.1
<i>NMB1989</i>	966	-2.94	258	258	230.5	89	89	78.3
<i>NMB0367</i>	387	-2.95	59	61	136.0	18	21	46.1
<i>NMB1962</i>	279	-2.95	259	259	801.2	89	89	271.2
<i>aceF</i>	1608	-2.96	4029	4029	2162.4	1380	1380	729.5
<i>NMB1657</i>	618	-2.97	69	371	518.1	11	127	174.7
<i>glnD</i>	2559	-2.97	743	743	250.6	254	254	84.4
<i>NMB1970</i>	1782	-2.98	675	675	326.9	230	230	109.7
<i>NMB0827</i>	1120	-2.99	159	159	122.5	54	54	41.0
<i>NMB1367</i>	1065	-2.99	227	227	184.0	77	77	61.5
<i>lbpA</i>	2832	-3.00	759	759	231.3	257	257	77.1
<i>NMB0372</i>	678	-3.01	75	89	113.3	21	30	37.6
<i>sbp</i>	1056	-3.02	232	232	189.6	78	78	62.8
<i>NMB1669</i>	630	-3.02	122	122	167.1	41	41	55.3
<i>NMB2121</i>	345	-3.05	36	36	90.1	12	12	29.6
<i>NMB1941</i>	354	-3.05	42	42	102.4	14	14	33.6
<i>NMB0794</i>	363	-3.05	27	27	64.2	9	9	21.1

<i>NMB0215</i>	567	-3.07	142	142	216.1	47	47	70.5
<i>NMB0810</i>	651	-3.07	245	245	324.8	81	81	105.8
<i>hemD</i>	741	-3.11	245	245	285.3	80	80	91.8
<i>NMB1466</i>	732	-3.11	138	138	162.7	45	45	52.3
<i>nadB</i>	1509	-3.13	441	441	252.2	143	143	80.6
<i>NMB0256</i>	342	-3.15	31	31	78.2	10	10	24.9
<i>NMB2107</i>	765	-3.15	56	59	66.6	19	19	21.1
<i>pgmB</i>	666	-3.17	596	596	772.3	191	191	243.8
<i>fabF-2</i>	1251	-3.18	316	316	218.0	101	101	68.6
<i>NMB1274</i>	984	-3.20	208	208	182.4	66	66	57.0
<i>NMB1376</i>	2778	-3.22	276	276	85.7	87	87	26.6
<i>NMB0188</i>	1128	-3.22	349	349	267.0	110	110	82.9
<i>NMB0830</i>	1011	-3.26	215	215	183.5	67	67	56.3
<i>NMB0371</i>	408	-3.26	122	122	258.1	38	38	79.2
<i>NMB0753</i>	234	-3.27	29	29	107.0	9	9	32.7
<i>cysG-2</i>	1452	-3.28	0	139	82.6	0	43	25.2
<i>cysI-1</i>	1770	-3.29	0	230	112.1	0	71	34.1
<i>NMB2035</i>	693	-3.31	114	114	142.0	35	35	42.9
<i>NMB0552</i>	1074	-3.33	285	285	229.0	87	87	68.9
<i>cysN-1</i>	1287	-3.33	0	141	94.6	0	43	28.4
<i>pivNM-1A</i>	957	-3.35	0	76	68.5	0	23	20.4
<i>NMB1830</i>	660	-3.36	129	129	168.7	39	39	50.2
<i>NMB1991</i>	975	-3.39	224	224	198.3	67	67	58.4
<i>cysG-1</i>	1452	-3.43	0	179	106.4	0	53	31.0
<i>nadA</i>	1113	-3.45	306	306	237.3	90	90	68.7
<i>NMB0792</i>	1416	-3.50	365	365	222.5	106	106	63.6
<i>NMB0084</i>	1406	-3.52	461	461	283.0	133	133	80.4
<i>NMB1721</i>	1410	-3.54	331	331	202.6	95	95	57.3
<i>NMB0809</i>	798	-3.54	115	115	124.4	33	33	35.2
<i>NMB0604</i>	1065	-3.54	8078	8078	6546.0	2316	2316	1848.5
<i>thiG</i>	789	-3.55	269	269	294.2	77	77	83.0

<i>lgtG</i>	1054	-3.56	291	291	238.3	83	83	66.9
<i>NMB0035</i>	1167	-3.57	2363	2363	1747.5	672	672	489.5
<i>NMB0892</i>	423	-3.59	46	46	93.9	13	13	26.1
<i>dpnC</i>	804	-3.59	131	131	140.6	37	37	39.1
<i>NMB1607</i>	468	-3.60	110	110	202.8	31	31	56.3
<i>anmK</i>	1131	-3.62	321	321	244.9	90	90	67.6
<i>NMB0866</i>	870	-3.63	204	204	202.4	57	57	55.7
<i>NMB1740</i>	411	-3.66	36	36	75.6	10	10	20.7
<i>gluD</i>	1266	-3.66	274	274	186.8	76	76	51.0
<i>NMB0991</i>	1113	-3.69	107	247	191.5	40	68	51.9
<i>cytX</i>	1224	-3.70	437	437	308.1	120	120	83.3
<i>NMB1539</i>	1008	-3.70	71	135	115.6	18	37	31.2
<i>NMB0597</i>	354	-3.76	63	63	153.6	17	17	40.8
<i>NMB0534</i>	414	-3.82	79	79	164.7	21	21	43.1
<i>NMB0409</i>	1212	-3.84	238	238	169.5	63	63	44.2
<i>cysJ-2</i>	1815	-3.90	0	165	78.5	0	43	20.1
<i>NMB0374</i>	1404	-3.93	72	209	128.5	25	54	32.7
<i>NMB1818</i>	1422	-3.93	519	519	315.0	134	134	80.1
<i>NMB1780</i>	1743	-3.99	16	314	155.5	4	80	39.0
<i>pivNM-1B</i>	957	-4.02	0	99	89.3	0	25	22.2
<i>NMB1786</i>	1155	-4.06	188	188	140.5	47	47	34.6
<i>pprC</i>	1155	-4.06	276	276	206.2	69	69	50.8
<i>thiE</i>	618	-4.19	194	194	270.9	47	47	64.6
<i>NMB0506</i>	1521	-4.22	162	162	91.9	39	39	21.8
<i>NMB1775</i>	1806	-4.23	53	196	93.7	13	47	22.1
<i>NMB1626</i>	1104	-4.27	0	101	79.0	0	24	18.5
<i>NMB1990</i>	969	-4.33	239	239	212.9	56	56	49.1
<i>NMB1523</i>	297	-4.34	205	205	595.7	48	48	137.4
<i>thiO</i>	1101	-4.37	405	405	317.5	94	94	72.6
<i>frpB</i>	2145	-4.39	346	346	139.2	80	80	31.7
<i>NMB0023</i>	408	-4.40	39	39	82.5	9	9	18.8

<i>NMB0865</i>	474	-4.52	49	49	89.2	11	11	19.7
<i>NMB1012</i>	504	-4.53	58	58	99.3	13	13	21.9
<i>NMB1772</i>	1839	-4.57	107	108	50.7	24	24	11.1
<i>NMB1879</i>	312	-4.65	55	55	152.1	12	12	32.7
<i>prpB</i>	879	-4.65	220	220	216.0	48	48	46.4
<i>cstA</i>	2082	-4.69	998	998	413.7	216	216	88.2
<i>cysH-2</i>	741	-4.70	0	37	43.1	0	8	9.2
<i>NMB1400</i>	2229	-4.87	537	537	207.9	112	112	42.7
<i>mobA</i>	578	-4.87	96	96	143.3	20	20	29.4
<i>NMB1015</i>	794	-4.91	58	58	63.0	12	12	12.8
<i>accB</i>	456	-4.95	483	483	914.1	99	99	184.5
<i>NMB0175</i>	810	-5.00	192	192	204.6	39	39	40.9
<i>nrdR</i>	465	-5.03	104	104	193.0	21	21	38.4
<i>NMB1737</i>	1404	-5.05	348	348	213.9	70	70	42.4
<i>NMB0505</i>	285	-5.08	25	25	75.7	5	5	14.9
<i>NMB1880</i>	966	-5.18	250	250	223.4	49	49	43.1
<i>NMB1634</i>	1209	-5.18	245	245	174.9	48	48	33.7
<i>NMB1054</i>	936	-5.19	101	133	122.6	24	26	23.6
<i>NMB1878</i>	588	-5.34	142	142	208.4	27	27	39.0
<i>NMB1092</i>	507	-5.37	74	74	126.0	14	14	23.5
<i>NMB1738</i>	1428	-5.49	400	400	241.7	74	74	44.0
<i>sdhC</i>	378	-5.81	63	63	143.8	11	11	24.7
<i>NMB1059</i>	219	-6.50	320	320	1261.0	50	50	194.1
<i>NMB0965</i>	273	-6.77	20	20	63.2	3	3	9.3
<i>NMB0970</i>	1425	-8.24	27	430	260.4	2	53	31.6
<i>NMB1010</i>	564	-8.63	51	51	78.0	6	6	9.0
<i>NMB0022</i>	339	-8.73	43	43	109.5	5	5	12.5
<i>NMB1089</i>	339	-9.81	29	29	73.8	3	3	7.5
<i>NMB1014</i>	594	-10.15	60	60	87.2	6	6	8.6
<i>NMB0987</i>	546	-10.66	11	21	33.2	1	2	3.1
<i>NMB1001</i>	573	-11.51	68	68	102.4	6	6	8.9

<i>NMB1087</i>	306	-14.72	29	29	81.8	2	2	5.6
----------------	-----	--------	----	----	------	---	---	-----

RNA was purified from bacteria that infected HBMEC (see Materials and Methods), using an Illustra RNAspin mini RNA isolation kit (GE Healthcare). The residual eukaryotic RNAs were removed by a MICROBEnrich Kit (Invitrogen). The resultant bacterial RNAs were subjected to RNA-seq by a HiSeq 2000 sequencing system with 8 million reads of total RNA, which were analyzed by Filgen, Japan. The results were analyzed by CLC Genomics Workbench with the RNA-seq expression server 5.5, referring to the NCBI\_*Neisseria meningitidis*\_MC58 database. The genes with read numbers less than 20 and with expression ratios (B/A) within the range from -1.5 to 1.5 were eliminated. Unique gene reads and total gene reads mean the number of reads that match uniquely to the gene and all of the reads that are mapped to this gene, both reads that map uniquely to the gene and reads that matched to more positions in the reference, respectively. RPKM stands for reads per kilobase of exon per million mapped sequence reads. RPKM is one of the standard measures to estimate the number of transcripts by RNA-seq, and is calculated by the following formula:  $10^9 \times (\text{number of unique gene reads}) / (\text{gene length} \times \text{number of total gene reads})$ . The genes were aligned by the ratio

of RNA from bacteria infected per not infected (shown in gray), and the genes that were highly expressed upon HBMEC infection are shown in the upper lines

B) *ΔgltT-ΔgltM* versus wild type *N. meningitidis* strains, both infected to HBMEC

Gene name	Annotated function	Gene length	Ratio (C/B)	Wild type strain (B)			<i>ΔgltT-ΔgltM</i> mutant (C)		
				Unique gene reads	Total gene reads	RPKM	Unique gene reads	Total gene reads	RPKM
<i>NMB1634</i>	phage replication initiation protein	1209	-9.17	48	48	33.7	2	2	3.7
<i>NMB0970</i>	replication initiation factor	1425	-5.06	2	53	31.6	0	4	6.2
<i>NMB1772</i>	hypothetical protein	1839	-4.58	24	24	11.1	2	2	2.4
<i>NMB0367</i>	hypothetical protein	387	-4.01	18	21	46.1	2	2	11.5
<i>NMB1780</i>	hemolysin activation protein	1743	-3.06	4	80	39.0	0	10	12.8
<i>NMB0372</i>	hypothetical protein	678	-2.87	21	30	37.6	2	4	13.1
<i>NMB1539</i>	IS1106 transposase	1008	-2.83	18	37	31.2	3	5	11.0
<i>NMB1738</i>	putative secretion protein	1428	-2.83	74	74	44.0	10	10	15.6
<i>NMB0826</i>	C-5 cytosine-specific DNA methylase	1236	-2.82	59	59	40.6	8	8	14.4
<i>NMB2037</i>	hypothetical protein	240	-2.56	47	47	166.5	7	7	64.9
<i>NMB0252</i>	hypothetical protein	708	-2.52	66	66	79.2	10	10	31.4
<i>NMB2111</i>	MafB-related protein	846	-2.48	25	26	26.1	4	4	10.5
<i>NMB1958</i>	putative thioredoxin	501	-2.44	83	83	140.8	13	13	57.7
<i>NMB1737</i>	putative secretion protein	1404	-2.43	70	70	42.4	11	11	17.4



<i>NMB0866</i>	hypothetical protein	870	-2.42	57	57	55.7	9	9	23.0
<i>NMB0483</i>	hypothetical protein	285	-2.39	0	25	74.6	0	4	31.2
<i>NMB1880</i>	putative ABC transporter, periplasmic solute-binding protein	966	-2.34	49	49	43.1	8	8	18.4
<i>NMB0827</i>	type II restriction enzyme-related protein	1120	-2.29	54	54	41.0	9	9	17.9
<i>NMB1657</i>	comE operon protein 1-related protein	618	-2.21	11	127	174.7	1	22	79.2
<i>NMB0976</i>	TspB-related protein	396	-2.20	0	23	49.4	0	4	22.5
<i>NMB1375</i>	putative modification methylase	2110	-2.15	73	73	29.4	13	13	13.7
<i>NMB0648</i>	hypothetical protein	423	-2.10	66	66	132.6	12	12	63.1
<i>NMB1020</i>	hypothetical protein	546	-2.05	43	43	66.9	8	8	32.6
<i>NMB0681</i>	hypothetical protein	225	-2.04	32	32	120.9	6	6	59.3
<i>NMB0188</i>	hypothetical protein	1128	-2.00	110	110	82.9	21	21	41.4
<i>thiO</i>	glycine oxidase	1101	-1.99	94	94	72.6	18	18	36.4
<i>cytX</i>	probable hydroxymethylpyrimidine transporter CytX	1224	-1.99	120	120	83.3	23	23	41.8
<i>NMB1400</i>	hypothetical protein	2229	-1.94	112	112	42.7	22	22	22.0
<i>mtrF</i>	efflux pump component MtrF	1569	-1.94	112	112	60.7	22	22	31.2
<i>NMB0583</i>	IS1016C2 transposase	669	-1.94	63	66	83.9	13	13	43.2
<i>NMB1018</i>	hypothetical protein	483	-1.91	30	30	52.8	6	6	27.6
<i>frpB</i>	iron-regulated outer membrane protein	2145	-1.91	80	80	31.7	16	16	16.6
<i>NMB1224</i>	hypothetical protein	402	-1.91	30	30	63.4	6	6	33.2
<i>NMB1299</i>	pseudogene	1367	-1.91	80	80	49.7	16	16	26.0

<i>NMB1418</i>	lipid A biosynthesis lauroyl acyltransferase	870	-1.89	94	94	91.8	19	19	48.6
<i>NMB0121</i>	hypothetical protein	378	-1.87	44	44	98.9	9	9	53.0
<i>NMB2016</i>	type IV pilin-related protein	450	-1.86	73	73	137.9	15	15	74.2
<i>NMB1271</i>	mercury transport periplasmic protein	213	-1.85	29	29	115.7	6	6	62.7
<i>NMB1303</i>	MerR family transcriptional regulator	408	-1.85	29	29	60.4	6	6	32.7
<i>NMB1376</i>	pseudogene	2778	-1.85	87	87	26.6	18	18	14.4
<i>prpB</i>	2-methylisocitrate lyase	879	-1.83	48	48	46.4	10	10	25.3
<i>NMB1000</i>	pseudogene	1018	-1.82	60	62	51.8	13	13	28.4
<i>NMB0371</i>	hypothetical protein	408	-1.81	38	38	79.2	8	8	43.6
<i>atpE</i>	ATP synthase FOF1 subunit A	237	-1.81	360	360	1291.2	76	76	713.5
<i>NMB0647</i>	Unknown	1239	-1.81	142	142	97.4	30	30	53.9
<i>NMB1413</i>	putative IS1016 family transposase	587	-1.81	24	52	75.3	6	11	41.7
<i>NMB0412</i>	cell division protein FtsL-related protein	270	-1.80	66	66	207.8	14	14	115.4
<i>NMB0215</i>	hypothetical protein	567	-1.80	47	47	70.5	10	10	39.2
<i>NMB0498</i>	hypothetical protein	510	-1.76	23	23	38.3	5	5	21.8
<i>NMB1411</i>	IS1016C2 transposase	654	-1.76	5	23	29.9	1	5	17.0
<i>NMB0269</i>	competence protein	726	-1.75	64	64	74.9	14	14	42.9
<i>NMB1466</i>	hypothetical protein	732	-1.72	45	45	52.3	10	10	30.4
<i>NMB2137</i>	Unknown	213	-1.69	1659	1659	6620.6	374	374	3907.0
<i>prcC</i>	anticodon nuclease	1143	-1.69	53	53	39.4	12	12	23.4

<i>NMB1227</i>	hypothetical protein	396	-1.68	22	22	47.2	5	5	28.1
<i>NMB2035</i>	hypothetical protein	693	-1.67	35	35	42.9	8	8	25.7
<i>NMB0350</i>	hypothetical protein	453	-1.66	26	26	48.8	6	6	29.5
<i>NMB0175</i>	zinc transporter	810	-1.66	39	39	40.9	9	9	24.7
<i>nadA</i>	quinolinate synthetase	1113	-1.64	90	90	68.7	21	21	42.0
<i>NMB1851</i>	hypothetical protein	261	-1.64	30	30	97.7	7	7	59.7
<i>thiG</i>	thiazole synthase	789	-1.63	77	77	83.0	18	18	50.8
<i>NMB1775</i>	hypothetical protein	1806	-1.63	13	47	22.1	4	11	13.6
<i>NMB1407</i>	pseudogene	1130	-1.63	98	98	73.7	23	23	45.3
<i>NMB1548</i>	TspB protein	1647	-1.61	61	118	60.9	13	28	37.8
<i>NMB1991</i>	iron(III) ABC transporter permease	975	-1.60	67	67	58.4	16	16	36.5
<i>cysD-1</i>	sulfate adenylyltransferase subunit 2	924	-1.60	0	46	42.3	0	11	26.5
<i>NMB2043</i>	pseudogene	972	-1.59	21	25	21.9	3	6	13.7
<i>NMB1159</i>	hypothetical protein	891	-1.58	0	87	83.0	0	21	52.4
<i>NMB1959</i>	hypothetical protein	384	-1.58	128	128	283.3	31	31	179.6
<i>NMB1405</i>	FrpA/C-like protein	1203	-1.58	402	454	320.8	101	110	203.5
<i>NMB0809</i>	hypothetical protein	798	-1.58	33	33	35.2	8	8	22.3
<i>NMB0521</i>	hypothetical protein	459	-1.57	37	37	68.5	9	9	43.6
<i>anmK</i>	anhydro-N-acetylmuramic acid kinase	1131	-1.56	90	90	67.6	22	22	43.3
<i>NMB0584</i>	FrpC operon protein	816	-1.56	52	94	97.9	13	23	62.7

<i>NMB0120</i>	hypothetical protein	552	-1.56	49	49	75.5	12	12	48.4
<i>NMB1647</i>	amino acid symporter	1419	-1.56	554	554	331.9	136	136	213.3
<i>dedA</i>	DedA membrane-associated protein	645	-1.55	73	73	96.2	18	18	62.1
<i>NMB0316</i>	hypothetical protein	687	-1.55	81	81	100.2	20	20	64.8
<i>fabF-2</i>	3-oxoacyl-ACP synthase	1251	-1.54	101	101	68.6	25	25	44.5
<i>NMB1883</i>	hypothetical protein	291	-1.53	32	32	93.5	8	8	61.2
<i>NMB1346</i>	pseudogene	1778	-1.52	127	127	60.7	32	32	40.0
<i>NMB0830</i>	hypothetical protein	1011	-1.51	67	67	56.3	17	17	37.4
<i>NMB1993</i>	iron(III) ABC transporter ATP-binding protein	759	-1.51	67	67	75.0	17	17	49.8
<i>NMB0409</i>	hypothetical protein	1212	-1.50	63	63	44.2	16	16	29.4
<i>rpsH</i>	30S ribosomal protein S8	393	-1.50	937	937	2026.7	238	238	1347.5
<i>NMB2015</i>	hypothetical protein	270	1.37	23	23	72.4	12	12	98.9
<i>NMB0197</i>	Unknown	288	1.37	111	111	327.6	58	58	448.1
<i>nrdR</i>	transcriptional regulator	465	1.37	21	21	38.4	11	11	52.6
<i>NMB1474</i>	4-oxalocrotonate tautomerase	210	1.37	40	40	161.9	21	21	222.5
<i>NMB0996</i>	hypothetical protein	372	1.37	80	80	182.8	42	42	251.2
<i>ssb</i>	ssDNA-binding protein	525	1.38	451	451	730.2	237	237	1004.5
<i>cysK</i>	cysteine synthase	933	1.38	1214	1214	1106.0	639	639	1523.9
<i>NMB1899</i>	hypothetical protein	444	1.38	93	93	178.0	49	49	245.6
<i>NMB2021</i>	aminopeptidase	267	1.38	237	237	754.5	125	125	1041.7

<i>NMB1428</i>	aminopeptidase	1797	1.38	654	654	309.4	346	346	428.4
<i>NMB1176</i>	hypothetical protein	402	1.39	0	49	103.6	0	26	143.9
<i>NMB1713</i>	IS30 family transposase	966	1.52	0	38	33.4	0	22	50.7
<i>NMB0266</i>	hypothetical protein	327	1.52	181	181	470.5	105	105	714.5
<i>NMB1368</i>	ATP-dependent RNA helicase	1389	1.53	3514	3514	2150.5	2056	2056	3293.6
<i>fnt</i>	methionyl-tRNA formyltransferase	927	1.53	369	369	338.4	216	216	518.5
<i>gloA</i>	lactoylglutathione lyase	417	1.54	440	440	896.9	259	259	1382.0
<i>pgmB</i>	beta-phosphoglucomutase	666	1.55	191	191	243.8	113	113	377.5
<i>metK</i>	S-adenosylmethionine synthetase	1170	1.55	319	319	231.8	189	189	359.4
<i>NMB0606</i>	hypothetical protein	267	1.56	230	230	732.2	137	137	1141.7
<i>NMB0947</i>	dihydrolipoamide dehydrogenase	1404	1.56	967	967	585.5	577	577	914.4
<i>NMB1871</i>	hypothetical protein	678	1.58	93	93	116.6	56	56	183.8
<i>NMB1727</i>	hypothetical protein	429	1.58	144	144	285.3	87	87	451.2
<i>NMB1858</i>	hypothetical protein	387	1.59	204	204	448.1	124	124	713.0
<i>NMB1607</i>	sigma-54 dependent response regulator	468	1.60	31	31	56.3	19	19	90.3
<i>NMB1490</i>	Unknown	432	1.61	1237	1237	2434.0	761	761	3919.7
<i>def</i>	peptide deformylase	504	1.62	392	392	661.1	243	243	1072.8
<i>NMB1906</i>	hypothetical protein	222	1.68	25	25	95.7	16	16	160.4
<i>NMB2002</i>	hypothetical protein	219	1.68	187	187	725.8	120	120	1219.2
<i>kat</i>	catalase	1515	1.68	976	976	547.6	627	627	920.9

<i>aceF</i>	pyruvate dehydrogenase E2 component	1608	1.69	1380	1380	729.5	890	890	1231.6
<i>gcvH</i>	glycine cleavage system protein H	387	1.69	492	492	1080.7	318	318	1828.4
<i>NMB1590</i>	hypothetical protein	336	1.71	278	278	703.3	182	182	1205.3
<i>NMB1336</i>	hypothetical protein	549	1.73	215	215	332.9	142	142	575.5
<i>accB</i>	acetyl-CoA carboxylase biotin carboxyl carrier protein subunit	456	1.80	99	99	184.5	68	68	331.8
<i>NMB0087</i>	hypothetical protein	198	1.91	26	26	111.6	19	19	213.5
<i>NMB0459</i>	hypothetical protein	1110	3.76	0	23	17.6	0	33	66.2
<i>gltM</i>	L-glutamate ABC transporter component GltM	495	#DIV/0!	110	110	188.9	0	0	0.0
<i>gltT</i>	L-glutamate ABC transporter GltT	777	#DIV/0!	428	428	468.2	0	0	0.0

The results were analyzed by CLC Genomics Workbench with the RNA-seq expression server 5.5, referring to the NCBI\_Neisseria meningitidis\_MC58 database. The genes with read numbers less than 20 and expression ratios (C/B) within the range from -1.5 to 1.5 were eliminated. Unique gene reads and total gene reads mean the number of reads that match uniquely to the gene and all of the reads that are mapped to this gene, both reads that map uniquely to the gene and reads that matched to more positions in the reference, respectively. RPKM stands for reads per kilobase of exon per million mapped sequence reads. RPKM is one of the standard methods to

estimate the number of transcripts by RNA-seq, and is calculated by the following formula:  $10^9 \times (\text{number of unique gene reads}) / (\text{gene length} \times \text{number of total gene reads})$ . The genes were aligned by the ratio of RNA from  $\Delta gltT$ - $\Delta gltM$  mutant per wild type *N. meningitidis* strain (shown in gray columns), and the genes that were highly expressed in the  $\Delta gltT$ - $\Delta gltM$  mutant are shown in the upper columns. The genes with clearly known functions are shown with the gene name, and not as an annotated number in the table.