

From Structure, to Function, to Pathogenesis: Understanding the Immunological Consequences  
of The Unique Peptidoglycan of *Borrelia burgdorferi*

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partial fulfillment of the requirements for the degree of

Master of Science  
In  
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Supplementary Data

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**Supplementary Table 1: Unique Genes Expressed in PBMCs Stimulated with PG<sup>Bb</sup> for 12 Hours**

Gene ID	Gene Name	Log2Fold Change
ENSG00000000971	CFH	0.10992
ENSG00000005882	PDK2	0.20438
ENSG00000006453	BAIAP2L1	1.4584
ENSG000000063127	SLC6A16	0.41062
ENSG000000069020	MAST4	0.61125
ENSG000000082438	COBLL1	0.1536
ENSG00000102781	KATNAL1	0.84869
ENSG00000105136	ZNF419	0.1211
ENSG00000105409	ATP1A3	0.59234
ENSG00000105982	RNF32	1.4401
ENSG00000107890	ANKRD26	0.25047
ENSG00000113494	PRLR	-0.038514
ENSG00000115109	EPB41L5	0.046706
ENSG00000115425	PECR	0.15394
ENSG00000117155	SSX2IP	0.047136
ENSG00000119326	CTNNAL1	0.52339
ENSG00000119927	GPAM	0.47333
ENSG00000121039	RDH10	0.1188
ENSG00000123836	PFKFB2	0.1368
ENSG00000125966	MMP24	1.1653
ENSG00000127328	RAB3IP	0.66515
ENSG00000127585	FBXL16	0.098879
ENSG00000128000	ZNF780B	0.15141
ENSG00000130518	KIAA1683	0.4434
ENSG00000131849	ZNF132	0.35963
ENSG00000134709	HOOK1	0.68001
ENSG00000136541	ERMN	0.60363
ENSG00000136695	IL36RN	6.0325
ENSG00000137310	TCF19	0.48301
ENSG00000138311	ZNF365	1.8058
ENSG00000143156	NME7	0.51195
ENSG00000143674	MLK4	0.60237
ENSG00000144026	ZNF514	0.19523
ENSG00000145375	SPATA5	0.41685
ENSG00000151229	SLC2A13	-0.23686
ENSG00000151882	CCL28	0.10908
ENSG00000161298	ZNF382	0.37519
ENSG00000161912	ADCY10P1	0.48718
ENSG00000162927	PUS10	0.99092
ENSG00000162971	TYW5	0.6123
ENSG00000163395	IGFN1	6.7157

ENSG00000163818	LZTFL1	1.052
ENSG00000164056	SPRY1	2.0924
ENSG00000164251	F2RL1	0.9447
ENSG00000166321	NUDT13	0.20463
ENSG00000166333	ILK	0.87035
ENSG00000166455	C16orf46	1.6354
ENSG00000168116	KIAA1586	0.20943
ENSG00000169629	RGPD8	0.93347
ENSG00000170425	ADORA2B	0.85785
ENSG00000171033	PKIA	0.41761
ENSG00000172912	COX6B1P3	1.2894
ENSG00000173041	ZNF680	0.3967
ENSG00000173080	RXFP4	1.3789
ENSG00000175414	ARL10	0.74343
ENSG00000176177	ENTHD1	2.0106
ENSG00000176268	CYCSP34	0.45268
ENSG00000177034	MTX3	0.37957
ENSG00000177932	ZNF354C	0.43082
ENSG00000178075	GRAMD1C	0.72982
ENSG00000178752	FAM132B	1.616
ENSG00000179941	BBS10	0.052418
ENSG00000180189	HMGB1P14	1.338
ENSG00000180263	FGD6	-1.3373
ENSG00000180787	ZFP3	-0.048943
ENSG00000182109	RP11-69E11.4	0.2659
ENSG00000183323	CCDC125	0.39707
ENSG00000183742	MACC1	2.5588
ENSG00000184903	IMMP2L	-0.03291
ENSG00000185621	LMLN	1.2281
ENSG00000188177	ZC3H6	0.49723
ENSG00000188206	HNRNPU-AS1	0.51744
ENSG00000189042	ZNF567	0.15374
ENSG00000196150	ZNF250	0.44372
ENSG00000196268	ZNF493	0.42824
ENSG00000196458	ZNF605	0.38124
ENSG00000196586	MYO6	0.7721
ENSG00000197008	ZNF138	0.18479
ENSG00000197050	ZNF420	0.12265
ENSG00000197061	HIST1H4C	0.39515
ENSG00000197863	ZNF790	0.26378
ENSG00000198237	RP11-98J23.2	0.24274
ENSG00000198298	ZNF485	-0.44006
ENSG00000198919	DZIP3	-0.094
ENSG00000204444	APOM	0.80738
ENSG00000204611	ZNF616	0.025791

ENSG00000211630	IGKV1D-13	-0.28695
ENSG00000211800	TRAV20	0.43562
ENSG00000211846	TRAJ43	0.66016
ENSG00000211859	TRAJ30	0.62832
ENSG00000211872	TRAJ17	0.62832
ENSG00000213809	KLRK1	0.033748
ENSG00000214511	HIGD1C	0.93838
ENSG00000215067	AC027763.2	0.39358
ENSG00000215221	UBA52P6	1.6552
ENSG00000215267	AKR1C7P	1.6555
ENSG00000216331	HIST1H1PS1	0.56563
ENSG00000219355	RPL31P52	1.4241
ENSG00000219928	RP11-40C6.2	-0.0021614
ENSG00000223505	RP11-397P13.7	0.87242
ENSG00000223969	AC002456.2	1.4306
ENSG00000224005	AC022400.1	1.1721
ENSG00000224043	AC016725.4	0.49565
ENSG00000224114	RP11-343H5.4	2.3752
ENSG00000224298	AC069363.1	3.6816
ENSG00000224707	E2F3-IT1	1.3528
ENSG00000224796	RPL32P1	-0.43019
ENSG00000225447	RPS15AP10	1.3371
ENSG00000225523	IGKV6D-21	0.32375
ENSG00000225975	AC074138.3	1.0079
ENSG00000226163	RP11-167P22.3	0.62731
ENSG00000226330	RP11-739N20.2	1.7542
ENSG00000226352	RP11-523H24.3	0.99968
ENSG00000226744	AC079781.5	0.73067
ENSG00000227113	RP11-460N20.4	1.099
ENSG00000227161	AC092755.4	0.88707
ENSG00000227512	RP11-413M3.4	2.0158
ENSG00000227827	RP11-958N24.2	0.69046
ENSG00000227925	RP11-191N8.2	1.8849
ENSG00000228028	AC069257.8	2.4359
ENSG00000228554	AC004837.5	0.97074
ENSG00000229271	AC091493.2	1.9316
ENSG00000229629	RP11-302K17.4	0.74795
ENSG00000230847	RP11-195E2.1	0.74417
ENSG00000230912	RP3-508I15.10	1.3269
ENSG00000231102	RP11-298J23.5	1.4376
ENSG00000231145	AC013468.1	-0.8588
ENSG00000231365	RP11-418J17.1	0.53462
ENSG00000231395	AC124914.3	1.649
ENSG00000231564	EIF4A1P11	1.2238
ENSG00000231655	AC011742.3	1.1524

ENSG00000231795	ITCH-IT1	0.91042
ENSG00000231889	TRAF3IP2-AS1	1.4717
ENSG00000232104	RP11-509J21.1	0.39729
ENSG00000232504	AC105053.4	-0.15719
ENSG00000232543	IGHD4-11	0.1367
ENSG00000232618	RP11-439L18.1	1.7593
ENSG00000232855	AF131217.1	1.1564
ENSG00000233899	RP4-742C19.8	0.38529
ENSG00000233937	CTC-338M12.4	0.93441
ENSG00000234084	RP3-388E23.2	0.84816
ENSG00000234511	C5orf58	1.3059
ENSG00000234756	RP11-120C12.3	1.5528
ENSG00000234784	RP11-182I10.1	1.5052
ENSG00000235027	AC068580.6	-0.3969
ENSG00000235066	AC009303.1	1.0879
ENSG00000235284	SNORD62A	0.77677
ENSG00000235477	RP11-122G18.5	0.87396
ENSG00000236002	CTB-75G16.1	1.0681
ENSG00000236234	AC091132.1	2.2881
ENSG00000236324	RP3-403L10.3	2.0316
ENSG00000236896	RP11-535C21.3	1.4362
ENSG00000236901	MIR600HG	0.63021
ENSG00000237200	ZBTB40-IT1	1.088
ENSG00000237281	AC021016.8	1.9762
ENSG00000237319	RP1-136J15.1	0.71841
ENSG00000237350	CDC42P6	0.69226
ENSG00000237483	RP11-423E7.1	2.1353
ENSG00000237672	KRR1P1	1.1988
ENSG00000238015	RP4-641G12.3	0.4042
ENSG00000238042	RP11-815M8.1	3.1816
ENSG00000238105	GOLGA2B	0.2896
ENSG00000239353	RP11-492E3.51	0.92879
ENSG00000239503	MARK2P8	1.6648
ENSG00000240808	CTD-3236F5.1	0.46898
ENSG00000241014	RP11-244H3.1	0.18579
ENSG00000241042	RP11-145M4.1	0.40164
ENSG00000241120	HMG1P8	0.37946
ENSG00000241489	AF011889.5	0.73927
ENSG00000242531	RP11-299J3.6	0.077614
ENSG00000242992	FTH1P4	1.3903
ENSG00000243153	RP11-342M1.4	1.1285
ENSG00000243609	RPS2P44	1.1147
ENSG00000244026	FAM86DP	0.27306
ENSG00000245648	RP11-277P12.20	0.95825
ENSG00000246084	CTD-2506J14.1	0.47027

ENSG00000248334	WHAMMP2	0.35482
ENSG00000248366	TRAJ51	0.66016
ENSG00000249042	CTD-2015H6.3	1.5877
ENSG00000249864	RP11-39K24.10	-0.12052
ENSG00000249930	AC007016.3	1.0715
ENSG00000250762	RP1-313L4.4	1.2481
ENSG00000253234	IGLV2-5	0.71149
ENSG00000253720	RP11-473O4.3	1.7038
ENSG00000253816	RP11-1415C14.3	0.5019
ENSG00000254165	RP11-503E24.2	1.095
ENSG00000254177	RP11-1149M10.1	1.255
ENSG00000254286	RP11-89K10.1	0.68674
ENSG00000254328	CTC-308K20.4	0.99643
ENSG00000254461	RP11-755F10.3	0.93062
ENSG00000254681	PKD1P5	0.25937
ENSG00000255139	AP000442.1	0.93393
ENSG00000255893	RP11-685N10.1	0.11857
ENSG00000255933	RP11-495K9.5	1.2311
ENSG00000256234	RP11-283G6.4	1.0476
ENSG00000256667	KLRAP1	0.43125
ENSG00000257202	RP11-512N21.3	2.1781
ENSG00000257221	RP11-689B22.2	1.0473
ENSG00000257742	RP11-350F4.2	0.17058
ENSG00000257964	RP11-133N21.10	0.95973
ENSG00000258273	RP11-370I10.4	0.40913
ENSG00000258284	POLR2KP1	0.61058
ENSG00000258365	RP11-1105G2.3	1.2877
ENSG00000258512	RP11-796G6.2	1.0139
ENSG00000258791	LINC00520	1.8647
ENSG00000258966	RP5-1163L11.3	1.9789
ENSG00000258968	RP11-829H16.5	0.66071
ENSG00000259116	RP11-973N13.4	1.276
ENSG00000259118	RP11-840I19.3	1.1331
ENSG00000259367	RP11-815J21.4	2.6815
ENSG00000259453	RP11-815J21.1	2.7093
ENSG00000259456	RP5-914P20.5	0.32941
ENSG00000259540	RP11-526I2.1	1.7075
ENSG00000259671	RP11-925D8.6	2.8843
ENSG00000259746	CTD-3065B20.1	0.91444
ENSG00000259762	RP11-158M2.4	1.0458
ENSG00000259767	RP11-90B9.2	0.85008
ENSG00000259883	CTD-2382E5.4	1.6204
ENSG00000259950	RP11-170L3.4	0.98397
ENSG00000260318	COX6CP1	1.0698
ENSG00000260335	RP11-345J4.6	0.77626

ENSG00000260461	RP11-541N10.3	0.52606
ENSG00000260517	RP11-426C22.5	0.93329
ENSG00000260618	RP11-23N2.4	0.86633
ENSG00000260940	RP4-575N6.5	1.0122
ENSG00000261399	LA16c-329F2.1	2.2488
ENSG00000261592	RP11-178L8.3	1.2393
ENSG00000261775	RP11-100I7.3	1.0659
ENSG00000262248	RP11-235E17.5	1.5427
ENSG00000263975	CTB-58E17.9	1.9161
ENSG00000265218	RP11-927P21.1	0.94403
ENSG00000266049	RP11-703M24.5	0.8337
ENSG00000266173	STRADA	0.74552
ENSG00000266405	CBX3P2	0.68671
ENSG00000266538	RP11-385D13.3	1.0807
ENSG00000266651	RP11-138I1.3	0.53112
ENSG00000266936	CTC-215O4.4	1.2669
ENSG00000267278	MAP3K14-AS1	0.55078
ENSG00000267304	AC004637.1	0.94383
ENSG00000267312	RP11-1094M14.7	2.0603
ENSG00000267331	AC005258.3	1.959
ENSG00000267590	NDUFA3P1	1.007
ENSG00000267638	RP11-546M21.6	1.7256
ENSG00000267657	CTB-186H2.2	0.3439
ENSG00000267680	ZNF224	0.65776
ENSG00000267701	RP11-28F1.2	1.6458
ENSG00000268024	AC005549.3	0.22087
ENSG00000268098	AP000688.1	0.62832
ENSG00000268172	AL590452.1	2.8701
ENSG00000268279	RP11-434D12.1	0.49988
ENSG00000268764	CTC-450M9.1	0.16781
ENSG00000269304	AC010522.1	1.4544
ENSG00000269305	AL158147.2	1.1838
ENSG00000269483	AC006272.1	-0.70426
ENSG00000270179	RP11-159N11.4	0.92965
ENSG00000270184	RP11-568J23.5	0.94977
ENSG00000270531	RP11-169K17.2	0.50264
ENSG00000270558	CTD-2124B8.2	-0.15714
ENSG00000270674	RP11-216F19.2	0.75918
ENSG00000270696	RP11-342K6.1	0.37246
ENSG00000270822	RP11-730B22.1	0.72087
ENSG00000270962	RP11-403I13.10	0.76723
ENSG00000271014	RP11-717A5.1	0.77218
ENSG00000271020	RP11-10C24.1	0.23832
ENSG00000271204	RP11-138A9.1	3.1242
ENSG00000271664	RP4-800G7.3	0.92216



**Supplementary Table 2: Unique Genes Expressed in PBMCs Stimulated with PG<sup>Bb</sup> for 72 Hours**

Gene ID	Gene Name	Log2Fold Change
ENSG00000001460	STPG1	0.8095
ENSG00000001630	CYP51A1	1.3361
ENSG00000002587	HS3ST1	2.2469
ENSG00000002726	ABP1	-0.016277
ENSG00000006757	PNPLA4	0.58835
ENSG000000069869	NEDD4	0.55223
ENSG000000087245	MMP2	4.6039
ENSG000000090889	KIF4A	0.0031831
ENSG00000100558	PLEK2	1.0772
ENSG00000115884	SDC1	4.1269
ENSG00000116885	OSCP1	0.78757
ENSG00000117479	SLC19A2	0.066525
ENSG00000117595	IRF6	1.7535
ENSG00000119723	COQ6	0.41328
ENSG00000119865	CNRIP1	1.0627
ENSG00000120586	MRC1	-1.7292
ENSG00000125388	GRK4	0.94235
ENSG00000130684	ZNF337	1.1589
ENSG00000134184	GSTM1	0.19636
ENSG00000140479	PCSK6	2.5345
ENSG00000142224	IL19	2.8319
ENSG00000147434	CHRNA6	1.9216
ENSG00000149968	MMP3	4.5416
ENSG00000154146	NRGN	-0.16334
ENSG00000156414	TDRD9	2.7651
ENSG00000156970	BUB1B	-0.37206
ENSG00000158079	PTPDC1	0.10274
ENSG00000158481	CD1C	0.34788
ENSG00000160683	CXCR5	1.1521
ENSG00000164251	F2RL1	1.5095
ENSG00000164266	SPINK1	2.6585
ENSG00000169385	RNASE2	1.3919
ENSG00000170801	HTRA3	3.0756
ENSG00000184986	TMEM121	-0.055947
ENSG00000185052	SLC24A3	4.5681
ENSG00000186642	PDE2A	0.86193
ENSG00000196656	AC004057.1	-0.15873
ENSG00000198429	ZNF69	0.83363
ENSG00000204044	RP11-465L10.10	1.2287

ENSG00000204099	NEU4	2.2409
ENSG00000204428	LY6G5C	0.13161
ENSG00000204444	APOM	0.37851
ENSG00000211658	IGLV3-27	0.42103
ENSG00000211695	TRGV9	0.95917
ENSG00000211701	TRGV1	0.36113
ENSG00000211766	TRBJ2-2P	0.24728
ENSG00000211815	TRAV36DV7	0.12615
ENSG00000213135	AC015815.6	0.31194
ENSG00000215283	HMGB3P24	0.44746
ENSG00000223576	RP11-61K9.2	0.39681
ENSG00000225218	AP001628.6	0.4105
ENSG00000225439	BOLA3-AS1	0.6435
ENSG00000226221	AC022431.1	0.31589
ENSG00000226874	AC005154.8	1.0817
ENSG00000227376	FTH1P16	0.92016
ENSG00000227598	RP1-167A14.2	0.80795
ENSG00000227932	RP13-16H11.2	0.42914
ENSG00000228413	AC024937.2	2.0699
ENSG00000232679	RP11-400N13.3	1.8023
ENSG00000233850	AC103563.8	0.38036
ENSG00000234789	RP11-483H20.4	1.5881
ENSG00000235215	RP11-145M4.2	1.9095
ENSG00000235240	AC026185.1	0.31615
ENSG00000235449	RP11-480I12.2	0.62249
ENSG00000236310	AC005027.3	1.0412
ENSG00000237281	AC021016.8	1.1981
ENSG00000237547	IGHJ2P	0.22548
ENSG00000238024	DDX39BP2	0.93479
ENSG00000238231	RP11-460I13.6	0.95593
ENSG00000239480	RP11-514P8.2	0.77005
ENSG00000240163	RP11-745A24.1	0.814
ENSG00000243621	AC003989.3	0.40073
ENSG00000244116	IGKV2-28	0.74628
ENSG00000244267	RP11-244C20.1	0.8351
ENSG00000248785	HIGD1AP14	0.93479
ENSG00000249572	CTD-2203K17.1	0.88615
ENSG00000249751	ECSCR	1.7788
ENSG00000250677	RP11-576N17.2	0.23976
ENSG00000250948	RP11-1079K10.2	-0.22641
ENSG00000251039	IGKV2D-40	0.40429
ENSG00000251546	IGKV1D-39	0.53439
ENSG00000253123	RP11-527N22.1	5.3159
ENSG00000253269	CTB-37A13.1	0.38209
ENSG00000253520	RP11-798K23.5	0.45537

ENSG00000253739	RP11-90P5.7	0.27362
ENSG00000254328	CTC-308K20.4	0.43888
ENSG00000256582	RP11-75L1.1	0.2748
ENSG00000259767	RP11-90B9.2	1.2854
ENSG00000259952	AC009133.15	-0.23104
ENSG00000260401	RP11-800A3.4	0.2351
ENSG00000260953	RP11-426C22.6	1.4888
ENSG00000263924	RP11-210K20.2	0.69174
ENSG00000265010	RP11-661C3.2	0.8913
ENSG00000265136	RP13-638C3.6	0.70054
ENSG00000267331	AC005258.3	1.3322
ENSG00000267764	RP11-484L8.1	2.0344
ENSG00000267855	NDUFA7	0.68217
ENSG00000267898	CTD-2639E6.9	-0.12857
ENSG00000268076	AC087239.1	-0.049061
ENSG00000269104	AL035681.1	0.18046
ENSG00000269681	CTD-3187F8.6	0.94775
ENSG00000269843	CTC-490E21.10	0.83816
ENSG00000269949	RP11-738E22.3	1.2071
ENSG00000271064	RP11-792A8.3	1.0133

**Supplementary Table 3: Unique Genes Expressed in PBMCs Stimulated with Live *Borrelia* for 12 Hours**

Gene ID	Gene Name	Log2Fold Change
ENSG00000006747	SCIN	2.935
ENSG00000011028	MRC2	0.61173
ENSG00000049130	KITLG	2.9912
ENSG00000054598	FOXC1	0.90011
ENSG00000055732	MCOLN3	1.4111
ENSG00000090920	FCGBP	1.6584
ENSG00000096696	DSP	1.4521
ENSG00000104213	PDGFR1	2.7844
ENSG00000110200	ANAPC15	-0.029713
ENSG00000116983	HPCAL4	1.6315
ENSG00000118849	RARRES1	0.12493
ENSG00000120337	TNFSF18	0.89145
ENSG00000121933	ADORA3	0.10753
ENSG00000124614	RPS10	-0.1387
ENSG00000127720	METTL25	-0.021236
ENSG00000128594	LRRC4	- 0.050261
ENSG00000130558	OLFM1	1.7581
ENSG00000134146	ATPBD4	0.33826
ENSG00000134198	TSPAN2	1.0832
ENSG00000134716	CYP2J2	1.274
ENSG00000138829	FBN2	0.50618
ENSG00000140807	NKD1	1.4377
ENSG00000142156	COL6A1	1.1075
ENSG00000143147	GPR161	0.50068
ENSG00000145431	PDGFC	-0.067738
ENSG00000146858	ZC3HAV1L	0.84906
ENSG00000147576	ADHFE1	0.59919
ENSG00000148468	FAM171A1	0.85839
ENSG00000151790	TDO2	2.9277
ENSG00000155265	GOLGA7B	0.85789
ENSG00000155324	GRAMD3	0.59318
ENSG00000157110	RBPMS	0.60396
ENSG00000157168	NRG1	-1.126
ENSG00000162174	ASRGL1	0.11574
ENSG00000164399	IL3	-0.33864
ENSG00000165259	HDX	1.0747
ENSG00000165338	HECTD2	0.19658
ENSG00000165731	RET	2.2781
ENSG00000171855	IFNB1	1.2619
ENSG00000173578	XCR1	2.539
ENSG00000174194	AGAP8	0.54979

ENSG00000177707	PVRL3	1.8181
ENSG00000178965	C1orf173	3.2199
ENSG00000182584	ACTL10	-0.41446
ENSG00000184307	ZDHHC23	0.6847
ENSG00000184788	SATL1	- 0.099695
ENSG00000185272	RBM11	1.5847
ENSG00000185614	FAM212A	- 0.067847
ENSG00000185829	ARL17A	0.18291
ENSG00000186648	LRRC16B	-0.11787
ENSG00000187260	WDR86	1.0133
ENSG00000189283	FHIT	0.16154
ENSG00000196358	NTNG2	0.61291
ENSG00000198467	TPM2	0.89537
ENSG00000203315	AC015815.2	0.22579
ENSG00000203815	AL358813.2	-0.25638
ENSG00000203827	NBPF16	1.408
ENSG00000205726	ITSN1	0.53617
ENSG00000205810	KLRC3	0.36416
ENSG00000211652	IGLV7-43	0.30918
ENSG00000211806	TRAV25	0.15852
ENSG00000211842	TRAJ47	0.15852
ENSG00000211847	TRAJ42	0.027435
ENSG00000211920	IGHD6-13	- 0.04687
ENSG00000211968	IGHV1-58	0.28005
ENSG00000213172	RP1-228H13.2	0.35733
ENSG00000213277	MARCKSL1P1	0.57362
ENSG00000214479	AL139333.1	0.13029
ENSG00000215769	hsa-mir-6080	0.55058
ENSG00000223350	IGLV9-49	- 0.30816
ENSG00000223534	HLA-DQB1-AS1	0.29372
ENSG00000223749	AC004383.4	-0.060267
ENSG00000224083	RP11-39K24.4	0.87945
ENSG00000225889	AC074289.1	0.66897
ENSG00000225948	RP11-554I8.1	0.75574
ENSG00000226791	AC109826.1	-0.71366
ENSG00000227028	SLC8A1-AS1	-0.31196
ENSG00000227055	AC009961.5	0.69618
ENSG00000227689	SRP68P2	0.46833
ENSG00000227730	MTND6P5	0.50984
ENSG00000227946	AC007383.3	0.20606
ENSG00000228097	RP11-39K24.12	0.97718
ENSG00000228137	AP001469.7	0.40463
ENSG00000228166	MTND1P11	0.015142
ENSG00000229036	RP1-20N2.6	0.76996
ENSG00000229054	AC074338.4	0.6087

ENSG00000229413	AC018638.1	0.24293
ENSG00000229931	RP1-151F17.1	0.46853
ENSG00000230149	RP3-508I15.19	0.68378
ENSG00000230225	MTND5P14	0.24146
ENSG00000231414	AC016700.6	0.28879
ENSG00000232218	RP1-149A16.16	- 0.15349
ENSG00000233903	Z83851.4	0.10071
ENSG00000234073	AC011816.1	0.68644
ENSG00000234286	AC006026.13	0.34061
ENSG00000235724	AC009299.2	1.5448
ENSG00000235772	AP001625.6	0.25244
ENSG00000235917	RP11-39K24.14	0.31969
ENSG00000236254	MTND4P14	0.26282
ENSG00000236709	DAPK1-IT1	- 0.0063155
ENSG00000236861	AC006378.2	1.2901
ENSG00000237015	CTA-984G1.5	- 0.12848
ENSG00000237082	COX5BP6	0.57189
ENSG00000237286	AC004906.3	1.144
ENSG00000237711	RP11-39K24.13	0.40025
ENSG00000238151	MLLT10P1	0.11313
ENSG00000239819	IGKV1D-8	0.088053
ENSG00000240291	RP11-499P20.2	0.87743
ENSG00000241975	TCEB1P19	0.40322
ENSG00000242622	RP11-18H7.1	0.63391
ENSG00000243565	AC009950.1	0.076995
ENSG00000246263	KB-431C1.4	0.53996
ENSG00000246731	CTD-2514K5.2	-0.21373
ENSG00000248489	CTD-2007H13.3	-0.014326
ENSG00000248932	RP11-319G6.1	0.53527
ENSG00000249947	XBP1P1	0.70313
ENSG00000250688	TRAJ55	0.17348
ENSG00000251155	RP11-384K6.4	0.44367
ENSG00000251160	RP11-399D2.1	1.0635
ENSG00000253328	KB-431C1.3	0.78311
ENSG00000254859	RP11-661A12.5	0.15162
ENSG00000255148	RP4-791M13.4	0.86812
ENSG00000255198	SNHG9	0.32875
ENSG00000256452	RP11-667M19.10	0.30048
ENSG00000257261	RP11-96H19.1	0.50758
ENSG00000257924	RP11-493L12.5	0.060743
ENSG00000258230	RP11-511H9.3	0.59265
ENSG00000258870	EIF4EBP1P1	0.2847
ENSG00000258872	RP11-304L20.1	0.73304
ENSG00000259628	RP11-467H10.2	0.47999
ENSG00000259657	PIGHP1	0.66053

ENSG00000259678	RP11-707P17.1	0.41004
ENSG00000259812	RP11-5N23.3	0.55218
ENSG00000259959	RP11-121C2.2	0.91047
ENSG00000260101	RP11-568N6.1	0.95031
ENSG00000260807	RP11-161M6.2	0.68007
ENSG00000261015	RP1-90J20.11	0.46944
ENSG00000261114	RP11-325K4.2	0.32413
ENSG00000261353	CTA-14H9.5	0.17134
ENSG00000261355	RP11-698N11.4	1.0533
ENSG00000261716	RP11-196G18.22	1.0267
ENSG00000264745	RP11-403A21.2	0.59932
ENSG00000267344	CTB-39G8.3	0.31208
ENSG00000267387	CTD-2240E14.4	2.0197
ENSG00000267711	RP11-686D22.5	0.66747
ENSG00000267745	RP11-686D22.8	0.61763
ENSG00000268155	AL161450.1	-0.020101
ENSG00000268208	AC008372.1	0.20953
ENSG00000268396	AC012485.1	0.20953
ENSG00000268544	RP11-277L2.4	0.82672
ENSG00000269182	AC010760.1	0.13029
ENSG00000271644	RP3-365I19.2	-0.051137

**Supplementary Table 4: Unique Genes Expressed in PBMCs Stimulated with Live *Borrelia* for 72 Hours**

Gene ID	Gene Name	Log2Fold Change
ENSG00000005381	MPO	-0.17
ENSG00000006704	GTF2IRD1	0.47801
ENSG00000011201	KAL1	- 0.21966
ENSG00000040608	RTN4R	-0.14731
ENSG00000049167	ERCC8	- 0.029308
ENSG00000049246	PER3	-0.44699
ENSG00000049883	PTCD2	0.20037
ENSG00000053747	LAMA3	1.7513
ENSG00000066379	ZNRD1	0.1354
ENSG00000069011	PITX1	0.17468
ENSG00000070404	FSTL3	0.1251
ENSG00000071539	TRIP13	- 0.50927
ENSG00000073464	CLCN4	0.61109
ENSG00000085871	MGST2	- 0.27907
ENSG00000087299	L2HGDH	- 0.20494
ENSG00000089685	BIRC5	- 0.010646
ENSG00000089847	ANKRD24	0.46129
ENSG00000091831	ESR1	- 0.13819
ENSG00000092067	CEBPE	0.63106
ENSG00000099810	MTAP	- 0.2859
ENSG00000099889	ARVCF	- 0.038937
ENSG00000100321	SYNGR1	0.15501
ENSG00000100427	MLC1	- 0.28258
ENSG00000100479	POLE2	0.013051
ENSG00000101003	GIN51	- 0.57087
ENSG00000101425	BPI	0.38336
ENSG00000102043	MTMR8	0.24577
ENSG00000103852	TTC23	- 0.23075
ENSG00000104863	LIN7B	0.2286
ENSG00000104883	PEX11G	- 0.057229
ENSG00000105146	AURKC	0.18411
ENSG00000105258	POLR2I	0.093567
ENSG00000105370	LIM2	0.15586
ENSG00000105464	GRIN2D	0.18633
ENSG00000105559	PLEKHA4	0.25267
ENSG00000106327	TFR2	0.18739
ENSG00000106588	PSMA2	0.059026
ENSG00000107562	CXCL12	- 0.4444
ENSG00000107593	PKD2L1	0.8734
ENSG00000108984	MAP2K6	0.30867
ENSG00000109680	TBC1D19	0.21453



ENSG00000110203	FOLR3	0.65546
ENSG00000111665	CDCA3	- 0.21805
ENSG00000112425	EPM2A	0.10403
ENSG00000112742	TTK	-0.14802
ENSG00000112818	MEP1A	0.61894
ENSG00000113966	ARL6	- 0.039034
ENSG00000114854	TNNC1	0.1807
ENSG00000115163	CENPA	-0.045163
ENSG00000115255	REEP6	- 0.1469
ENSG00000116761	CTH	- 0.012777
ENSG00000117245	KIF17	0.25888
ENSG00000117262	GPR89A	- 0.11519
ENSG00000117650	NEK2	0.084363
ENSG00000119411	BSPRY	- 0.28652
ENSG00000119915	ELOVL3	- 0.020066
ENSG00000119943	PYROXD2	- 0.0086022
ENSG00000123096	SSPN	0.59029
ENSG00000124802	EEF1E1	-0.17895
ENSG00000125650	PSPN	- 0.22289
ENSG00000125869	LAMP5	-0.043944
ENSG00000125900	SIRPD	0.54884
ENSG00000127990	SGCE	0.24006
ENSG00000128694	OSGEPL1	- 0.072394
ENSG00000130707	ASS1	0.45877
ENSG00000130812	ANGPTL6	0.093328
ENSG00000132623	ANKEF1	- 0.22244
ENSG00000133067	LGR6	- 0.03309
ENSG00000133740	E2F5	0.27492
ENSG00000134222	PSRC1	0.11234
ENSG00000134247	PTGFRN	0.050101
ENSG00000134490	TMEM241	0.1361
ENSG00000135437	RDH5	0.16261
ENSG00000135747	ZNF670	0.1384
ENSG00000136010	ALDH1L2	1.0913
ENSG00000137831	UACA	0.1989
ENSG00000138030	KHK	- 0.35783
ENSG00000138346	DNA2	0.048377
ENSG00000138778	CENPE	- 0.15141
ENSG00000140090	SLC24A4	0.29107
ENSG00000141642	ELAC1	0.19206
ENSG00000142046	TMEM91	0.19278
ENSG00000142731	PLK4	- 0.39071
ENSG00000143228	NUF2	- 0.034938
ENSG00000144035	NAT8	0.27421
ENSG00000144115	THNSL2	0.00727

ENSG00000144120	TMEM177	0.090493
ENSG00000144214	LYG1	0.084511
ENSG00000145217	SLC26A1	- 0.057109
ENSG00000145331	TRMT10A	0.31634
ENSG00000145687	SSBP2	0.010151
ENSG00000145850	TIMD4	0.16098
ENSG00000146263	MMS22L	0.11719
ENSG00000146416	AIG1	0.0089726
ENSG00000146592	CREB5	0.91418
ENSG00000148120	C9orf3	0.034313
ENSG00000148814	LRRC27	0.011419
ENSG00000150048	CLEC1A	- 0.16776
ENSG00000151413	NUBPL	0.17137
ENSG00000152284	TCF7L1	0.20074
ENSG00000153885	KCTD15	0.36897
ENSG00000153982	GDPD1	0.24338
ENSG00000154065	ANKRD29	0.84293
ENSG00000154309	DISP1	0.19502
ENSG00000155760	FZD7	0.14864
ENSG00000156113	KCNMA1	0.084301
ENSG00000156162	DPY19L4	- 0.11274
ENSG00000156239	N6AMT1	- 0.018545
ENSG00000158104	HPD	0.20188
ENSG00000158270	COLEC12	- 1.4516
ENSG00000158473	CD1D	0.23006
ENSG00000159214	CCDC24	0.11604
ENSG00000159714	ZDHHC1	0.27063
ENSG00000159761	C16orf86	-0.031507
ENSG00000159871	LYPD5	0.10941
ENSG00000160352	ZNF714	0.058659
ENSG00000161265	U2AF1L4	-0.0068711
ENSG00000161888	SPC24	-0.14978
ENSG00000162062	C16orf59	-0.073814
ENSG00000162444	RBP7	0.098186
ENSG00000162692	VCAM1	-0.41148
ENSG00000162746	FCRLB	0.28339
ENSG00000162881	OXER1	-0.42458
ENSG00000163016	ALMS1P	0.07774
ENSG00000163453	IGFBP7	0.054579
ENSG00000163462	TRIM46	0.082218
ENSG00000163507	KIAA1524	-0.20295
ENSG00000163993	S100P	0.62309
ENSG00000165060	FXN	-0.054318
ENSG00000165480	SKA3	-0.37056
ENSG00000165490	C11orf82	-0.21113

ENSG00000165935	SMCO2	0.098664
ENSG00000166352	C11orf74	0.063953
ENSG00000166578	IQCD	0.10317
ENSG00000166664	CHRFAM7A	0.20286
ENSG00000166762	CATSPER2	0.33854
ENSG00000166793	YPEL4	0.64765
ENSG00000166816	LDHD	-0.057058
ENSG00000166866	MYO1A	0.22612
ENSG00000167711	SERPINF2	-0.19116
ENSG00000168000	BSCL2	0.11629
ENSG00000168078	PBK	-0.1776
ENSG00000168765	GSTM4	-0.57571
ENSG00000169570	DTWD2	-0.39848
ENSG00000169627	BOLA2B	0.19443
ENSG00000169862	CTNND2	0.66863
ENSG00000170049	KCNAB3	0.23283
ENSG00000170522	ELOVL6	0.22234
ENSG00000170667	RASA4B	-0.14417
ENSG00000172731	LRRC20	-0.14856
ENSG00000172748	ZNF596	0.19969
ENSG00000172927	MYEOV	0.93618
ENSG00000173436	MINOS1	0.39027
ENSG00000173535	TNFRSF10C	0.23882
ENSG00000173928	SWSAP1	0.37303
ENSG00000173930	SLCO4C1	0.54249
ENSG00000174370	C11orf45	-0.033869
ENSG00000175513	TSGA10IP	0.80364
ENSG00000175544	CABP4	0.063864
ENSG00000176834	VSIG10	0.058013
ENSG00000176919	C8G	0.25315
ENSG00000177374	HIC1	0.20722
ENSG00000177432	NAP1L5	0.18804
ENSG00000178226	PRSS36	-0.18124
ENSG00000179299	NSUN7	1.377
ENSG00000179406	LINC00174	0.028459
ENSG00000179761	PIPOX	0.25058
ENSG00000179840	C1orf200	-0.098279
ENSG00000182057	Z83851.3	0.10851
ENSG00000182502	ABHD17AP5	0.2201
ENSG00000182557	SPNS3	0.045134
ENSG00000182742	HOXB4	0.19588
ENSG00000183628	DGCR6	0.23223
ENSG00000183765	CHEK2	-0.069556
ENSG00000183773	AIFM3	-0.24825
ENSG00000183784	C9orf66	0.28658

ENSG00000183814	LIN9	0.21037
ENSG00000183971	NPW	-0.057645
ENSG00000184005	ST6GALNAC3	0.99062
ENSG00000184227	ACOT1	0.26797
ENSG00000184343	SRPK3	0.56492
ENSG00000184661	CDCA2	0.22096
ENSG00000185010	F8	0.42179
ENSG00000185513	L3MBTL1	0.27043
ENSG00000185633	NDUFA4L2	0.1954
ENSG00000185838	GNB1L	0.062339
ENSG00000186017	ZNF566	0.25628
ENSG00000186193	SAPCD2	0.28003
ENSG00000186230	ZNF749	0.29852
ENSG00000186364	NUDT17	-0.14551
ENSG00000186446	ZNF501	-0.052572
ENSG00000186567	CEACAM19	0.23517
ENSG00000186603	HPDL	0.15851
ENSG00000186787	SPIN2B	-0.22988
ENSG00000187566	NHLRC1	0.15264
ENSG00000187990	HIST1H2BG	0.14423
ENSG00000188026	RILPL1	0.20906
ENSG00000188343	FAM92A1	-0.024163
ENSG00000188542	DUSP28	0.17324
ENSG00000188825	CTD-3014M21.4	0.13945
ENSG00000188868	ZNF563	-0.072237
ENSG00000189134	NKAPL	0.26118
ENSG00000189171	S100A13	0.25821
ENSG00000189227	C15orf61	-0.0015464
ENSG00000189376	C8orf76	0.14819
ENSG00000196114	RP3-391O22.3	0.14904
ENSG00000196437	ZNF569	0.23016
ENSG00000196741	CXorf24	0.16756
ENSG00000196787	HIST1H2AG	0.77047
ENSG00000196967	ZNF585A	0.012095
ENSG00000197182	FLJ27365	0.3975
ENSG00000197409	HIST1H3D	0.40523
ENSG00000197459	HIST1H2BH	0.032829
ENSG00000197561	ELANE	-0.20895
ENSG00000197723	HSPB9	0.17344
ENSG00000197933	ZNF823	-0.078955
ENSG00000198105	ZNF248	0.4495
ENSG00000198270	TMEM116	0.30259
ENSG00000198680	TUSC1	0.094036
ENSG00000198721	ECI2	0.075664
ENSG00000203666	EFCAB2	0.72324

ENSG00000203797	DDO	-0.20835
ENSG00000204271	SPIN3	0.1093
ENSG00000204366	ZBTB12	0.18179
ENSG00000204872	AC092653.5	0.1023
ENSG00000204894	RP11-208G20.2	0.030348
ENSG00000205300	RP11-352D3.2	0.0089726
ENSG00000205309	NT5M	0.36145
ENSG00000205464	ATP6AP1L	0.47116
ENSG00000205544	TMEM256	0.17189
ENSG00000211650	IGLV5-45	0.089428
ENSG00000211836	TRAJ54	0.080579
ENSG00000211912	IGHD2-21	0.013376
ENSG00000212719	C17orf51	0.21297
ENSG00000213551	DNAJC9	0.11017
ENSG00000213707	HMGB1P10	0.089433
ENSG00000214174	AMZ2P1	0.2879
ENSG00000214199	EEF1A1P12	0.1393
ENSG00000214756	METTL12	0.24663
ENSG00000218153	KRT18P22	-0.20358
ENSG00000221883	ARIH2OS	0.28161
ENSG00000221886	C5orf54	0.2785
ENSG00000221990	C5orf55	0.32931
ENSG00000221994	ZNF630	0.38287
ENSG00000221995	TIAF1	-0.35239
ENSG00000222011	FAM185A	-0.039576
ENSG00000223612	RP11-289I10.2	0.22752
ENSG00000223797	ENTPD3-AS1	0.19015
ENSG00000224086	LL22NC03-86G7.1	0.30801
ENSG00000224152	AC009506.1	0.22843
ENSG00000224307	RP11-344B5.2	0.073107
ENSG00000224389	C4B	0.37362
ENSG00000224536	RP11-134G8.7	0.27654
ENSG00000224831	RP11-651P23.4	0.21759
ENSG00000225177	RP11-390P2.4	0.33964
ENSG00000225195	RP11-338E21.2	0.071552
ENSG00000225240	AC117490.2	0.033142
ENSG00000225450	RP3-508I15.14	0.10039
ENSG00000225793	RP1-234P15.4	0.1819
ENSG00000225969	LINC00035	0.018082
ENSG00000226025	LGALS17A	0.63038
ENSG00000226036	RP11-338C15.2	0.080422
ENSG00000226393	IFNA20P	0.11253
ENSG00000226415	TPI1P1	0.18896
ENSG00000226505	AC016700.3	0.25166
ENSG00000227008	RP3-417G15.1	0.087641

ENSG00000227017	AC007036.6	0.18651
ENSG00000227124	ZNF717	0.25507
ENSG00000227486	RP13-188A5.1	0.24008
ENSG00000227492	RP11-316M21.6	0.16724
ENSG00000227673	RP11-243J18.2	0.058603
ENSG00000227765	RP11-162O12.2	0.073049
ENSG00000227875	RP11-426M1.2	-0.055172
ENSG00000228302	RP11-186N15.3	0.23788
ENSG00000228341	CTB-20D2.1	0.092695
ENSG00000228655	AC096558.1	-0.076713
ENSG00000228686	RP11-492I21.1	0.096345
ENSG00000228852	RP11-57H12.5	0.15076
ENSG00000228878	AC007551.3	0.31756
ENSG00000228932	RP11-88G17.2	0.14401
ENSG00000229196	RP11-775D22.2	0.30125
ENSG00000229659	RP11-345K20.2	0.020172
ENSG00000229780	UBE2Q1-AS1	0.10007
ENSG00000230074	RP11-195F19.9	0.18454
ENSG00000230189	GS1-124K5.2	0.14066
ENSG00000230322	RP3-323N1.2	-0.05963
ENSG00000230521	HCG4P7	0.22333
ENSG00000231125	AF129075.5	0.1639
ENSG00000231234	SKP1P1	0.17125
ENSG00000231346	RP5-836N10.1	0.2815
ENSG00000231517	RP11-7G23.5	0.080579
ENSG00000231528	FAM225A	0.24372
ENSG00000231613	RP5-943J3.1	0.15125
ENSG00000231663	RP5-827C21.4	0.11935
ENSG00000231982	RP11-573D15.1	0.065657
ENSG00000232160	RP5-842K24.2	0.42266
ENSG00000232445	RP11-132A1.4	-0.00072158
ENSG00000232646	RP11-344N10.4	0.062521
ENSG00000232818	RPS2P32	0.12029
ENSG00000233030	RP11-196G18.3	0.71196
ENSG00000233695	GAS6-AS1	0.19598
ENSG00000233822	HIST1H2BN	0.097527
ENSG00000233901	RP11-65J3.1	0.21578
ENSG00000233954	RP11-169K16.7	0.058703
ENSG00000234009	AL049757.3	-0.015639
ENSG00000234072	AC074117.10	0.04101
ENSG00000234147	RP3-460G2.2	0.045372
ENSG00000234184	RP5-887A10.1	0.1179
ENSG00000234231	AC093616.4	0.12291
ENSG00000234237	AL162431.1	-0.033635
ENSG00000234362	AC104654.2	0.098095

ENSG00000234409	AC006547.14	0.25087
ENSG00000234506	RP11-274B18.2	0.24318
ENSG00000234523	NDUFB1P2	0.00135
ENSG00000234546	RP3-510D11.2	0.096345
ENSG00000234571	RP5-998N21.4	0.71603
ENSG00000234630	LL22NC03-2H8.4	0.028033
ENSG00000234912	LINC00338	0.47516
ENSG00000234965	SHISA8	0.098971
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