

Table 2. List of genes constitutively expressed in the CNS and heart of steroid-treated and untreated *Borrelia burgdorferi*-infected non-human primates (NHPs)

	Genetic element*	Paralogous family*	Functional group*	Gene description*	Dexa-treated medulla†	Dexa-treated heart†	Competent medulla‡	Competent heart‡
BB0006	Chromosome	None	HX	BB0006 conserved hypothetical integral membrane protein { <i>Haemophilus influenzae</i> }	3	3	0.5	0.5
BB0014	Chromosome	None	R	BB0014 primosomal protein N' (priA) { <i>Borrelia burgdorferi</i> }	2	2	2	2
BB0026	Chromosome	None	B	BB0026 methylenetetrahydrofolate dehydrogenase (folD) { <i>Bacillus subtilis</i> }	1	1	0.5	0.5
BB003	Chromosome	PF31	R	BB0035 DNA topoisomerase IV (parC) { <i>Borrelia burgdorferi</i> }	1	1	0.5	0.5
BB0169	Chromosome	None	TF	BB0169 translation initiation factor 1 (infA) { <i>Escherichia coli</i> }	2	2	2	2
BB0291	Chromosome	None	F	BB0291 flagellar basal-body rod protein (fliF) { <i>Borrelia burgdorferi</i> }	3	3	3	3
BB0299	Chromosome	None	D	BB0299 cell division protein (ftsZ) { <i>Bacillus subtilis</i> }	3	3	3	3
BB0301	Chromosome	None	D	BB0301 cell division protein (divIB) { <i>Borrelia burgdorferi</i> }	2	2	2	2
BB0305	Chromosome	None	U	BB0305 hypothetical protein	1	1	0.5	0.5
BB0309	Chromosome	None	HX	BB0309 hypothetical protein	1	1	1	1
BB0316	Chromosome	PF129	HX	BB0316 conserved hypothetical integral membrane protein { <i>Mycoplasma genitalium</i> }	1	1	0.5	0.5
BB0320	Chromosome	None	U	BB0320 hypothetical protein	1	1	0.5	0.5
BB0321	Chromosome	None	U	BB0321 hypothetical protein	1	1	0.5	0.5
BB0360	Chromosome	None	U	BB0360 hypothetical protein	1	1	1	1
BB0363	Chromosome	None	X	BB0363 periplasmic protein { <i>Borrelia burgdorferi</i> }	2	2	3	3
BB0365	Chromosome	None	HX	BB0365 lipoprotein LA7 { <i>Borrelia burgdorferi</i> }	3	3	1	1
BB0368	Chromosome	None	FM	BB0368 glycerol-3-phosphate dehydrogenase, NAD(P)+ (gpsA) { <i>Bacillus subtilis</i> }	3	3	2	2
BB0383	Chromosome	PF36	CE	BB0383 basic membrane protein A (bmpA) { <i>Borrelia burgdorferi</i> }	1	1	1	1
BB0389	Chromosome	None	TR	BB0389 DNA-directed RNA polymerase (rpoB) { <i>Borrelia burgdorferi</i> }	3	3	3	3
BB0390	Chromosome	None	RP	BB0390 ribosomal protein L7/L12 (rpL) { <i>Salmonella choleraesuis</i> }	3	3	0.5	0.5
BB0394	Chromosome	None	TR	BB0394 transcription antitermination factor (nusG) { <i>Escherichia coli</i> }	3	3	3	3
BB0396	Chromosome	None	RP	BB0396 ribosomal protein L33 (rpmG) { <i>Bacillus stearothermophilus</i> }	3	3	3	3
BB0404	Chromosome	None	U	BB0404 hypothetical protein	3	3	2	2
BB0435	Chromosome	PF31	R	BB0435 DNA gyrase, subunit A (gyrA) { <i>Bacillus subtilis</i> }	2	2	2	2
BB0436	Chromosome	PF30	R	BB0436 DNA gyrase, subunit B (gyrB) { <i>Borrelia burgdorferi</i> }	3	3	0.5	0.5
BB0446	Chromosome	None	ARS	BB0446 aspartyl-tRNA synthetase (aspS) { <i>Escherichia coli</i> }	0.5	0.5	0.5	0.5
BB0493	Chromosome	None	RP	BB0493 ribosomal protein L6 (rpL6) { <i>Streptomyces coelicolor</i> }	3	3	3	3
BB0498	Chromosome	None	PE	BB0498 preprotein translocase subunit (secY) { <i>Staphylococcus carnosus</i> }	1	1	1	1
BB0518	Chromosome	PF9	HS	BB0518 heat shock protein 70 (dnaK-2) { <i>Borrelia burgdorferi</i> }	3	3	2	2
BB0596	Chromosome	PF13	CH	BB0596 methyl-accepting chemotaxis protein (mcp-2) { <i>Treponema denticola</i> }	3	3	1	1
BB0597	Chromosome	PF13	CH	BB0597 methyl-accepting chemotaxis protein (mcp-3) { <i>Treponema denticola</i> }	1	1	1	1
BB0601	Chromosome	None	B	BB0601 serine hydroxymethyltransferase (glyA) { <i>Escherichia coli</i> }	1	1	1	1
BB0608	Chromosome	None	PD	BB0608 aminoacyl-histidine dipeptidase (pepD) { <i>Haemophilus influenzae</i> }	2	2	2	2
BB0613	Chromosome	PF22	PD	BB0613 ATP-dependent protease LA (lon-2) { <i>Haemophilus influenzae</i> }	3	3	3	3
BB0614	Chromosome	None	U	BB0614 hypothetical protein	2	2	1	1

	Genetic element*	Paralogous family*	Functional group*	Gene description*	Dexa-treated medulla†	Dexa-treated heart†	Competent medulla‡	Competent heart‡
BB0617	Chromosome	None	U	BB0617 hypothetical protein	3	3	1	1
BB0618	Chromosome	None	NM	BB0618 cytidine deaminase (cdd) {Mycoplasma pneumoniae}	1	1	1	1
BB0619	Chromosome	None	HX	BB0619 conserved hypothetical protein {Mycoplasma pneumoniae}	1	1	1	1
BB0623	Chromosome	PF20	R	BB0623 transcription-repair coupling factor (mfd) {Haemophilus influenzae}	2	2	2	2
BB0630	Chromosome	None	IM	BB0630 1-phosphofructokinase (fruK) {Haemophilus influenzae}	1	1	0.5	0.5
BB0632	Chromosome	None	R	BB0632 exodeoxyribonuclease V, alpha chain (recD) {Escherichia coli}	1	1	1	1
BB0633	Chromosome	None	R	BB0633 exodeoxyribonuclease V, beta chain (recB) {Haemophilus influenzae}	2	2	2	2
BB0637	Chromosome	PF135	TP	BB0637 Na ⁺ /H ⁺ antiporter (nhaC-1) {Bacillus firmus}	1	1	0.5	0.5
BB0641	Chromosome	PF41	TP	BB0641 spermidine/putrescine ABC transporter, permease protein (potB) {Escherichia coli}	1	1	1	1
BB0642	Chromosome	PF4	TP	BB0642 spermidine/putrescine ABC transporter, ATP-binding protein (potA) {Escherichia coli}	1	1	1	1
BB0646	Chromosome	None	U	BB0646 hypothetical protein	1	1	1	1
BB0654	Chromosome	None	U	BB0654 hypothetical protein	2	2	2	2
BB0655	Chromosome	PF15	HS	BB0655 heat shock protein (dnaJ-2) {Clostridium acetobutylicum}	2	2	2	2
BB0658	Chromosome	None	IM	BB0658 phosphoglycerate mutase (gpmA) {Escherichia coli}	1	1	1	1
BB0660	Chromosome	None	CH	BB0660 GTP-binding protein (era) {Escherichia coli}	1	1	1	1
BB0667	Chromosome	None	HX	BB0667 conserved hypothetical protein {Borrelia burgdorferi}	1	1	1	1
BB0668	Chromosome	None	F	BB0668 flagellar filament outer layer protein (flaA) {Borrelia burgdorferi}	1	1	0.5	0.5
BB0670	Chromosome	PF33	CH	BB0670 purine-binding chemotaxis protein (cheW-3) {Borrelia burgdorferi}	3	3	3	3
BB0672	Chromosome	PF14	CH	BB0672 chemotaxis response regulator (cheY-3) {Borrelia burgdorferi}	1	1	1	1
BB0673	Chromosome	None	HX	BB0673 conserved hypothetical protein {Borrelia burgdorferi}	2	2	2	2
BB0675	Chromosome	None	U	BB0675 hypothetical protein	1	1	1	1
BB0676	Chromosome	None	IM	BB0676 phosphoglycolate phosphatase (gph) {Haemophilus influenzae}	1	1	1	1
BB0679	Chromosome	PF130	FM	BB0679 ribose/galactose ABC transporter, permease protein (rbsC-2) {Mycoplasma pneumoniae}	1	1	1	1
BB0682	Chromosome	None	HX	BB0682 conserved hypothetical protein {Haemophilus influenzae}	3	3	2	2
BB0683	Chromosome	None	FM	BB0683 3-hydroxy-3-methylglutaryl-CoA synthase {Arabidopsis thaliana}	3	3	3	3
BB0684	Chromosome	None	X	BB0684 carotenoid biosynthesis protein, putative {Sulfolobus solfataricus}	1	1	0.5	0.5
BB0685	Chromosome	None	FM	BB0685 3-hydroxy-3-methylglutaryl-CoA reductase (mvaA) {Pseudomonas mevalonii}	1	1	1	1
BB0686	Chromosome	None	FM	BB0686 mevalonate pyrophosphate decarboxylase {Saccharomyces cerevisiae}	1	1	1	1
BB0687	Chromosome	None	FM	BB0687 ribose/galactose ABC transporters, permease protein (rbsC-1)	2	2	1	1
BB0691	Chromosome	PF11	TF	BB0691 translation elongation factor G (fus-2) {Thermotoga maritima}	3	3	3	3
BB0693	Chromosome	None	GM	BB0693 xylose operon regulatory protein (xylR-1) {Thermophilic bacterium RT8.B4.}	3	3	2	2
BB0694	Chromosome	PF10	PE	BB0694 signal recognition particle protein (ffh) {Bacillus subtilis}	3	3	3	3
BB0695	Chromosome	None	RP	BB0695 ribosomal protein S16 (rpsP) {Bacillus subtilis}	3	3	0.5	0.5
BB0698	Chromosome	None	ARS	BB0698 tRNA (guanine-N1)-methyltransferase (trmD) {Mycoplasma genitalium}	3	3	1	1
BB0699	Chromosome	None	RP	BB0699 ribosomal protein L19 (rplS) {Escherichia coli}	1	1	1	1
BB0705	Chromosome	None	TR	BB0705 ribonuclease III (rnc) {Bacillus subtilis}	1	1	1	1

	Genetic element*	Paralogous family*	Functional group*	Gene description*	Dexa-treated medulla†	Dexa-treated heart†	Competent medulla‡	Competent heart‡
BB0706	Chromosome	None	TR	BB0706 polynucleotide adenylyltransferase (papS) {Bacillus subtilis}	3	3	2	2
BB0709	Chromosome	None	HX	BB0709 conserved hypothetical protein {Escherichia coli}	3	3	2	2
BB0710	Chromosome	None	R	BB0710 DNA primase (dnaG) {Bacillus subtilis}	2	2	2	2
BB0718	Chromosome	PF119	CE	BB0718 penicillin-binding protein (pbp-2) {Haemophilus influenzae}	1	1	1	1
BB0730	Chromosome	None	IM	BB0730 glucose-6-phosphate isomerase (pgi) {Plasmodium falciparum}	1	1	1	1
BB0755	Chromosome	None	HX	BB0755 conserved hypothetical protein {Treponema pallidum}	1	1	1	1
BB0756	Chromosome	None	U	BB0756 hypothetical protein	1	1	1	1
BB0776	Chromosome	None	U	BB0776 hypothetical protein	3	3	2	2
BB0784	Chromosome	None	HX	BB0784 conserved hypothetical protein {Haemophilus influenzae}	1	1	0.5	0.5
BB0795	Chromosome	None	CE	BB0795 outer membrane protein {Neisseria gonorrhoeae}	3	3	2	2
BB0800	Chromosome	None	TR	BB0800 N-utilization substance protein A (nusA) {Bacillus subtilis}	1	1	0.5	0.5
BB0801	Chromosome	None	TF	BB0801 translation initiation factor 2 (infB) {Bacillus stearothermophilus}	3	3	2	2
BB0803	Chromosome	None	ARS	BB0803 tRNA pseudouridine 55 synthase (truB) {Escherichia coli}	3	3	2	2
BB0809	Chromosome	None	ARS	BB0809 tRNA-guanine transglycosylase (tgt) {Zymomonas mobilis}	3	3	1	1
BB0818	Chromosome	None	HX	BB0818 conserved hypothetical protein {Escherichia coli}	3	3	1	1
BB0835	Chromosome	None	IM	BB0835 phosphomannomutase (cpsG) {Haemophilus influenzae}	1	1	0.5	0.5
BBA05	lp54	None	CE	BBA05 antigen S1	1	1	0.5	0.5
BBA14	lp54	None	HX	BBA14 conserved hypothetical protein	0.5	0.5	0.5	0.5
BBA25	lp54	PF74	CE	BBA25 decorin binding protein B (dbpB)	2	2	1	1
BBA31	lp54	PF145	HX	BBA31 conserved hypothetical protein {Streptococcus thermophilus}	1	1	1	1
BBG08	lp28-2	PF32	D	BBG08 plasmid partition protein, putative {Bacillus subtilis}	3	3	1	1
BBG18	lp28-2	None	U	BBG18 hypothetical protein	1	1	1	1
BBG22	lp28-2	PF86	U	BBG22 hypothetical protein	1	1	1	1
BBG23	lp28-2	PF86	U	BBG23 hypothetical protein	1	1	1	1
BBH07	lp28-3	PF50	HX	BBH07 conserved hypothetical protein, authentic frameshift {Borrelia burgdorferi}	1	1	1	1
BBH17	lp28-3	None	U	BBH17 hypothetical protein	3	3	2	2
BBH24.1	lp28-3	PF86	HX	BBH24.1 conserved hypothetical protein, pseudogene {Borrelia burgdorferi}	0.5	0.5	0.5	0.5
BBH27	lp28-2	PF50	HX	BBH27 conserved hypothetical protein {Borrelia burgdorferi}	3	3	2	2
BBH31	lp28-3	None	U	BBH31 hypothetical protein	3	3	1	1
BBH37	lp28-3	PF12	U	BBH37 hypothetical protein	3	3	2	2
BBI02.1	lp28-4	None	HX	BBI02.1 conserved hypothetical protein, pseudogene {Borrelia burgdorferi}	3	3	1	1
BBI02.2	lp28-4	PF57	U	BBI02.2 Brute Force ORF	1	1	0.5	0.5
BBI11	lp28-4	None	U	BBI11 hypothetical protein	3	3	2	2
BBI13	lp28-4	None	HX	BBI13 conserved hypothetical protein {Haemophilus influenzae}	3	3	1	1
BBI14	lp28-4	PF60	U	BBI14 hypothetical protein	3	3	1	1
BBI18	lp28-4	None	U	BBI18 hypothetical protein	3	3	3	3

	Genetic element*	Paralogous family*	Functional group*	Gene description*	Dexa-treated medulla†	Dexa-treated heart†	Competent medulla‡	Competent heart‡
BBJ29	lp38	PF90	U	BBJ29 hypothetical protein	1	1	1	1
BBK02.1	lp36	PF1	HX	BBK02.1 conserved hypothetical protein, pseudogene {Borrelia burgdorferi}	3	3	1	1
BBK23	lp36	PF62	U	BBK23 hypothetical protein	1	1	0.5	0.5
BBK35	lp36	PF68	U	BBK35 hypothetical protein	3	3	1	1
BBK36	lp36	PF66	U	BBK36 hypothetical protein	3	3	1	1
BBK47	lp36	PF69	U	BBK47 hypothetical protein	2	2	1	1
BBL19	cp32-8	PF139	HX	BBL19 conserved hypothetical protein {Borrelia burgdorferi}	1	1	0.5	0.5
BBM07	cp32-6	PF150	HX	BBM07 conserved hypothetical protein {Borrelia burgdorferi}	3	3	1	1
BBM41	cp32-6	PF115	U	BBM41 hypothetical protein	3	3	1	1
BBN06	cp32-9	PF149	U	BBN06 hypothetical protein, paralogous family 149, authentic frameshift	1	1	1	1
BBN16	cp32-9	PF157	U	BBN16 hypothetical protein, paralogous family 157, authentic frameshift	1	1	1	1
BBN17	cp32-9	PF159	U	BBN17 hypothetical protein	2	2	2	2
BBN18	cp32-9	PF160	U	BBN18 hypothetical protein, paralogous family 160, authentic point mutation	3	3	2	2
BBN19	cp32-9	PF139	HX	BBN19 conserved hypothetical protein {Borrelia burgdorferi}	3	3	2	2
BBN22	cp32-9	PF142	HX	BBN22 conserved hypothetical protein, authentic frameshift {Borrelia burgdorferi}	2	2	1	1
BBN23	cp32-9	PF109	HE	BBN23 pore-forming hemolysin (blyA) {Borrelia burgdorferi}	2	2	2	2
BBN27	cp32-9	PF80	HX	BBN27 conserved hypothetical protein {Borrelia burgdorferi}	2	2	1	1
BBN28	cp32-9	PF113	CE	BBN28 lipoprotein (lp) {Borrelia burgdorferi}	2	2	1	1
BBN29	cp32-9	PF161	U	BBN29 hypothetical protein, paralogous family 161, authentic point mutation {Borrelia burgdorferi}	2	2	2	2
BBN30	cp32-9	PF57	HX	BBN30 conserved hypothetical protein {Borrelia burgdorferi}	1	1	1	1
BBN31	cp32-9	PF50	HX	BBN31 conserved hypothetical protein {Borrelia burgdorferi}	1	1	1	1
BBN32	cp32-9	PF32	HX	BBN32 plasmid partition protein, putative {Bacillus subtilis}	1	1	1	1
BBN33	cp32-9	PF49	HX	BBN33 conserved hypothetical protein {Borrelia burgdorferi}	1	1	1	1
BBN34	cp32-9	PF80	HX	BBN34 conserved hypothetical protein {Borrelia burgdorferi}	1	1	1	1
BBN36	cp32-9	PF144	HX	BBN36 conserved hypothetical protein {Borrelia burgdorferi}	2	2	2	2
BBN37	cp32-9	PF96	U	BBN37 hypothetical protein, paralogous family 96, authentic point mutation {Borrelia burgdorferi}	1	1	1	1
BBN38	cp32-9	PF162	CE	BBN38 erpA protein (erpA) {Borrelia burgdorferi}	1	1	1	1
BBN39	cp32-9	PF163	CE	BBN39 erpB2 protein (erpB2) {Borrelia burgdorferi}	0.5	0.5	0.5	0.5
BBN41	cp32-9	PF114	U	BBN41 hypothetical protein	1	1	1	1
BBN42	cp32-9	PF115	U	BBN42 hypothetical protein	1	1	1	1
BBO04	cp32-7	PF148	U	BBO04 hypothetical protein	1	1	1	1
BBO08	cp32-7	PF107	HX	BBO08 conserved hypothetical protein {Borrelia burgdorferi}	3	3	1	1
BBO09	cp32-7	PF108	HX	BBO09 conserved hypothetical protein {Borrelia burgdorferi}	3	3	1	1
BBO10	cp32-7	PF151	HX	BBO10 conserved hypothetical protein {Borrelia burgdorferi}	3	3	1	1
BBO11	cp32-7	PF152	U	BBO11 hypothetical protein	3	3	1	1
BBO15	cp32-7	PF156	U	BBO15 hypothetical protein	3	3	1	1

	Genetic element*	Paralogous family*	Functional group*	Gene description*	Dexa-treated medulla†	Dexa-treated heart†	Competent medulla‡	Competent heart‡
BBO18	cp32-7	None	U	BBO18 hypothetical protein	1	1	1	1
BBO20	cp32-7	PF140	HX	BBO20 conserved hypothetical protein {Borrelia burgdorferi}	3	3	1	1
BBO22	cp32-7	PF142	HX	BBO22 conserved hypothetical protein {Borrelia burgdorferi}	3	3	2	2
BBO27	cp32-7	PF80	HX	BBO27 conserved hypothetical protein {Borrelia burgdorferi}	3	3	3	3
BBO31	cp32-7	PF50	HX	BBO31 conserved hypothetical protein {Borrelia burgdorferi}	3	3	1	1
BBO32	cp32-7	PF32	HX	BBO32 plasmid partition protein, putative {Bacillus subtilis}	3	3	1	1
BBO33	cp32-7	PF49	HX	BBO33 conserved hypothetical protein {Borrelia burgdorferi}	3	3	1	1
BBO36	cp32-7	PF165	HX	BBO36 conserved hypothetical protein {Borrelia burgdorferi}	2	2	1	1
BBO37	cp32-7	PF144	HX	BBO37 conserved hypothetical protein {Borrelia burgdorferi}	1	1	1	1
BBO38	cp32-7	PF96	HX	BBO38 conserved hypothetical protein {Borrelia burgdorferi}	1	1	1	1
BBO43	cp32-7	PF115	U	BBO43 hypothetical protein	0.5	0.5	0.5	0.5
BBP01	cp32-1	PF146	U	BBP01 hypothetical protein	3	3	1	1
BBP02	cp32-1	PF147	U	BBP02 hypothetical protein	1	1	1	1
BBP04	cp32-1	PF148	U	BBP04 hypothetical protein	1	1	1	1
BBP05	cp32-1	PF148	U	BBP05 hypothetical protein	3	3	1	1
BBP09	cp32-1	PF108	HX	BBP09 conserved hypothetical protein {Borrelia burgdorferi}	3	3	1	1
BBP21	cp32-1	PF141	HX	BBP21 conserved hypothetical protein {Borrelia burgdorferi}	3	3	1	1
BBQ40	lp56	PF32	HX	BBQ40 plasmid partition protein, putative {Bacillus subtilis}	2	2	1	1
BBQ49	lp56	PF115	U	BBQ49 hypothetical protein	1	1	0.5	0.5
BBQ51	lp56	PF146	U	BBQ51 hypothetical protein, paralogous family 146, authentic frameshift	1	1	1	1
BBR08	cp32-4	PF107	HX	BBR08 conserved hypothetical protein {Borrelia burgdorferi}	3	3	1	1
BBS17	cp32-3	PF159	U	BBS17 hypothetical protein	0.5	0.5	0.5	0.5
BBT01	lp5	PF57	U	BBT01 hypothetical protein	3	3	1	1
BBU11	lp21	PF137	HX	BBU11 conserved hypothetical protein {Mycobacterium tuberculosis}	3	3	1	1

Dexa, dexamethasone. The functional categories are: ARS, amino acid biosynthesis; B, biosynthesis; CE, cell envelope; CH, chemotaxis proteins, D, cell division; F, flagellar biosynthesis; FM, fatty acid metabolism; GM, general metabolism; HE, hemolysins; HS, heat-shock proteins; HX, conserved hypothetical proteins; IM, intermediary metabolism; NM, nucleotide metabolism; PD, protein degradation; PE, protein export; R, replication; RP, ribosomal proteins; TF, translation factors; TP, transport proteins; TR, transcription; U, hypothetical proteins; X, other.

* All designations used are according to *B. burgdorferi* genome database (<http://www.tigr.org/tigr-scripts/CMR2/GenomePage3.spl?database=gbb>)

† Differential expression analysis using a custom-amplified library (DECAL) performed on medulla and heart tissue samples taken from dexamethasone-treated NHPs.

‡ DECAL performed on medulla and heart tissue samples taken from immunocompetent NHPs.