

Title	Comparative genome and methylome analysis reveals restriction/modification system diversity in the gut commensal <i>Bifidobacterium breve</i>
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## SUPPLEMENTARY MATERIAL

### LEGENDS TO FIGURES

#### **Figure S1. Synteny conservation across *B. breve*.**

Dotplot alignments of the sequenced strains in this study showing the synteny conservation across this species.

#### **Figure S2. Comparison of synteny conservation between *B. breve* and *B. longum*.**

Dotplot alignments showing the conservation of genome synteny between representatives of *B. longum* species compared to the reference strain *B. breve* UCC2003. Chromosomal inversions are highlighted with green circles, while flanking genes are also indicated.

#### **Figure S3. Truncated R/M systems in *B. breve*.**

Locus maps showing gene organization and comparison of partially functional R/M systems belonging to RM7-COG and RM8-COG, as predicted within this study. Genes are indicated as arrows and are coloured based on their predicted function. Percentage of similarity in BLASTP alignment across homologous genes is indicated. A red star (\*) shows what is predicted to be the truncated RE-encoding gene in these systems.

**Figure S4. Sequence homology between RM10 and RM14.**

Locus map displaying the sequence homology observed between RM10 and RM14. Genes are indicated as arrows coloured based on the predicted function. BLASTP similarity is also indicated.

**Figure S5. Restriction of *B. breve* selected strains with commercially available enzymes for methylome assessment.**

Restriction of gDNA obtained from selected *B. breve* strains (*B. breve* NRBB01, *B. breve* NRBB02, *B. breve* NRBB57, *B. breve* NRBB04, *B. breve* 180W8-3 and *B. breve* NRBB52) with commercially available restriction enzymes as confirmation of the predicted methylome.

**Table S1.** Bifidobacteria used for Comparative Genomics Hybridization analysis.

	<b>Strain name</b>	<b>Source</b>	<b>16S similarity</b>	<b>CGH family</b>
1	<i>Bifidobacterium breve</i> UCC2003	Infant isolate, (Breast fed)	100%	1
2	<i>Bifidobacterium breve</i> NRBB39	Infant isolate, NCIMB 8807	99%	1
3	<i>Bifidobacterium breve</i> NRBB38	Infant isolate, LMG 11040	99%	1
4	<i>Bifidobacterium breve</i> B8815	Infant isolate, NCIMB8815	99%	2
5	<i>Bifidobacterium breve</i> NRBB56	Infant isolate, NIZO 658	99%	2
6	<i>Bifidobacterium bifidum</i> NRBB05	Infant isolate (Breast Fed)	99%	3
7	<i>Bifidobacterium bifidum</i> NRBB10	Infant isolate (Breast Fed)	99%	3
8	<i>Bifidobacterium pseudolongum</i> subsp. <i>pseudolongum</i> NRBB06	Unknown	100%	3
9	<i>Bifidobacterium animalis</i> subsp. <i>animalis</i> NRBB17	Human isolate	99%	3
10	<i>Bifidobacterium bifidum</i> NRBB16	Infant isolate (Breast Fed)	99%	3
11	<i>Bifidobacterium bifidum</i> 017W4-21	Infant isolate (Breast Fed)	99%	3
12	<i>Bifidobacterium breve</i> NRBB15	Infant isolate, ATCC 15701	99%	4
13	<i>Bifidobacterium breve</i> B7017	Human isolate, JCM 7017	99%	4
14	<i>Bifidobacterium breve</i> B7019	Infant isolate, JCM 7019	99%	5
15	<i>Bifidobacterium breve</i> NRBB42	Infant isolate	99%	5
16	<i>Bifidobacterium breve</i> BUCC2005	Infant isolate	99%	5
17	<i>Bifidobacterium breve</i> NRBB43	Infant Isolate	99%	6
18	<i>Bifidobacterium breve</i> NRBB52	Infant isolate (Breast Fed), subject 903	99%	6
19	<i>Bifidobacterium breve</i> NRBB44	Human milk isolate	99%	7
20	<i>Bifidobacterium breve</i> DRBB27	Infant Isolate	99%	7
21	<i>Bifidobacterium breve</i> DRBB29	Infant Isolate	99%	7
22	<i>Bifidobacterium breve</i> DRBB25	Adult Isolate	99%	8
23	<i>Bifidobacterium breve</i> DRBB30	Infant Isolate	99%	8
24	<i>Bifidobacterium breve</i> CNCM I-4321	Child isolate CNCM I-4321	99%	8
25	<i>Bifidobacterium breve</i> B12L	Human milk isolate	99%	8

26	<i>Bifidobacterium breve</i> 215W4-47a	Infant isolate	99%	9
27	<i>Bifidobacterium breve</i> NRBB07	Infant isolate (Breast Fed) Subject 3	99%	10
28	<i>Bifidobacterium breve</i> NRBB09	Infant isolate (Breast Fed) Subject 3	99%	10
29	<i>Bifidobacterium breve</i> NRBB12	Infant isolate (Breast Fed) Subject 6	99%	11
30	<i>Bifidobacterium breve</i> NRBB11	Infant isolate (Breast Fed) Subject 6	99%	11
31	<i>Bifidobacterium breve</i> NRBB13	Infant isolate (Breast Fed) Subject 6	99%	11
32	<i>Bifidobacterium breve</i> NRBB14	Infant isolate (Breast Fed) Subject 6	99%	11
33	<i>Bifidobacterium breve</i> NRBB57	Infant isolate, BbC50 (used in Infant Milk Formula)	99%	12
34	<i>Bifidobacterium breve</i> NRBB03	Infant isolate	99%	12
35	<i>Bifidobacterium breve</i> NRBB53	Infant isolate (Breast Fed)	99%	12
36	<i>Bifidobacterium breve</i> NRBB50	Infant isolate (Breast Fed) Subject 903	99%	13
37	<i>Bifidobacterium breve</i> NRBB35	Human Isolate	99%	13
38	<i>Bifidobacterium breve</i> NRBB51	Infant isolate (Breast Fed)	99%	13
39	<i>Bifidobacterium breve</i> NRBB55	Infant isolate (Breast Fed)	99%	13
40	<i>Bifidobacterium breve</i> 165W4-19	Infant isolate	99%	13
41	<i>Bifidobacterium breve</i> B461	Human isolate B461	99%	14
42	<i>Bifidobacterium breve</i> DRBB26	Child isolate	99%	15
43	<i>Bifidobacterium breve</i> NRBB36	Human Isolate	99%	16
44	<i>Bifidobacterium breve</i> NRBB48	Human Isolate	99%	16
45	<i>Bifidobacterium breve</i> BUCC2004	Human isolate	99%	16
46	<i>Bifidobacterium breve</i> NRBB46	Infant isolate	99%	17
47	<i>Bifidobacterium breve</i> NRBB01	Infant isolate	99%	17
48	<i>Bifidobacterium breve</i> B2257	Infant isolate, NCFB 2257	99%	17
49	<i>Bifidobacterium breve</i> NRBB41	Human isolate (CCUG 47591)	99%	18
50	<i>Bifidobacterium breve</i> NRBB04	Infant isolate, ATCC 15698	99%	18
51	<i>Bifidobacterium breve</i> B2258	Infant isolate, NCFB 2258	99%	18
52	<i>Bifidobacterium breve</i> B689b	Infant isolate	99%	19
53	<i>Bifidobacterium breve</i> NRBB25	Infant Isolate Subject 1 (Formula Fed)	99%	20

54	<i>Bifidobacterium breve</i> NRBB21	Infant Isolate Subject 1 (Formula Fed)	99%	20
55	<i>Bifidobacterium breve</i> NRBB20	Infant Isolate Subject 1 (Formula Fed)	99%	20
56	<i>Bifidobacterium breve</i> NRBB30	Infant Isolate Subject 1 (Formula Fed)	99%	20
57	<i>Bifidobacterium breve</i> NRBB24	Infant Isolate Subject 1 (Formula Fed)	99%	20
58	<i>Bifidobacterium breve</i> NRBB02	Infant Isolate Subject 1 (Formula Fed)	99%	20
59	<i>Bifidobacterium breve</i> NRBB08	Infant Isolate Subject 1 (Formula Fed)	99%	20
60	<i>Bifidobacterium breve</i> NRBB23	Infant Isolate Subject 1 (Formula Fed)	100%	20
61	<i>Bifidobacterium breve</i> NRBB26	Infant Isolate Subject 1 (Formula Fed)	99%	20
62	<i>Bifidobacterium breve</i> NRBB27	Infant Isolate Subject 1 (Formula Fed)	99%	20
63	<i>Bifidobacterium breve</i> NRBB29	Infant Isolate Subject 1 (Formula Fed)	99%	20
64	<i>Bifidobacterium breve</i> NRBB31	Infant Isolate Subject 1 (Formula Fed)	99%	20
65	<i>Bifidobacterium breve</i> NRBB19	Infant Isolate Subject 1 (Formula Fed)	99%	20
66	<i>Bifidobacterium breve</i> NRBB18	Infant Isolate Subject 1 (Formula Fed)	99%	20
67	<i>Bifidobacterium breve</i> NRBB28	Infant Isolate Subject 1 (Formula Fed)	99%	20
68	<i>Bifidobacterium breve</i> NRBB49	Infant Isolate Subject 1 (Formula Fed)	99%	20
69	<i>Bifidobacterium breve</i> 082W4-8	Infant isolate (Breast Fed)	99%	21
70	<i>Bifidobacterium breve</i> 139W4-23	Infant isolate	99%	22
71	<i>Bifidobacterium breve</i> 200W4-13	Infant isolate	99%	22
72	<i>Bifidobacterium breve</i> 144W4-15	Infant isolate	99%	23
73	<i>Bifidobacterium breve</i> 180W8-3	Infant isolate	99%	23
74	<i>Bifidobacterium breve</i> 017W4-39	Infant isolate	99%	23
75	<i>Bifidobacterium breve</i> DRBB28	Infant Isolate	99%	24
76	<i>Bifidobacterium breve</i> DRBB31	Child Isolate	99%	24
77	<i>Bifidobacterium breve</i> NRBB54	Infant isolate (Breast Fed)	99%	24

NCIMB: National Collection of Industrial and Marine Bacteria, Aberdeen, UK, NCFB, National Collection of Food Bacteria; NCTC, National Collection of Type Cultures; NCIMB, National Collection of Industrial and Marine Bacteria; JCM: Japanese Collection of Microorganisms; UCC, University College Cork culture collection; Nizo, Nizo food research.

**Table S2.** R/M systems in *B. breve* with assigned nomenclature and cluster of orthology.

Genome	R/M COG ID	Locus_tag	Size (aa)	Gene	Type	Name	Predicted recognition sequence
<b>NRBB01</b>	RM1a	NRBB01_1469	245	S	I	S1.Bbr01IIP	?
	RM1a	NRBB01_1471	365	S	I	S2.Bbr01IIP	?
	RM1a	NRBB01_1472	167	S	I	S3.Bbr01IIP	?
	RM1a	NRBB01_1473	502	M	I gamma	M.Bbr01II	GC <sup>m6</sup> ANNNNNNTGC
	RM1a	NRBB01_1474	1039	R	I	Bbr01ORF1473P	GCANNNNNNTGC
	RM3	NRBB01_0329	431	R	II	Bbr01IP	(GATC)
	RM3	NRBB01_0330	276	M	II alpha	M.Bbr01I	G <sup>m6</sup> ATC
	RM16	NRBB01_0727	910	RM	II G	Bbr01ORF727P	-
	RM9	NRBB01_1139	321	M	II alpha	M.Bbr01ORF1139P	(TGG <sup>m4</sup> CCA)
	RM7	NRBB01_1317	361	M	II	M1.Bbr01ORF1317P	-
MT1	NRBB01_1319	160	M	II gamma	M2.Bbr01ORF1317P	-	
<b>NRBB02</b>	RM8	NRBB02_0220	263	R	II	R1.Bbr02IIP	(GGCGCC)
	RM8	NRBB02_0224	305	R	II	R2.Bbr02IIP	(GGCGCC)
	RM8	NRBB02_0225	392	M	II	M.Bbr02II	GG <sup>m5</sup> CGCC
	RM3	NRBB02_0408	431	R	II	Bbr02I	GATC
	RM3	NRBB02_0409	276	M	II alpha	M.Bbr02I	G <sup>m6</sup> ATC
<b>NRBB04</b>	RM8	NRBB04_0189	263	R	II	R1.Bbr04ORF194P	(GGCGCC)
	RM8	NRBB04_0193	305	R	II	R2.Bbr04ORF194P	(GGCGCC)
	RM8	NRBB04_0194	392	M	II	M.Bbr04ORF194P	(GG <sup>m5</sup> CGCC)
	RM3	NRBB04_0355	431	R	II	Bbr04IP	(GATC)
	RM3	NRBB04_0356	276	M	II	M.Bbr04I	G <sup>m6</sup> ATC
<b>NRBB09</b>	RM4	NRBB09_0015	231	M	II	M.Bbr09I	RG <sup>m6</sup> ATCY
	RM4	NRBB09_0016	252	R	II	Bbr09I	RGATCY
<b>NRBB11</b>	RM10	NRBB11_0942	627	M	II alpha	M.Bbr11ORF942P	(GTCG <sup>m6</sup> AG)
	RM7	NRBB11_1113	480	R	II	Bbr11ORF1113P	(CCWGG)

	RM15	NRBB11_1481	1103	RM	II G,S,alpha	Bbr11I	GGRC <sup>m6</sup> AG
<b>NRBB50</b>	RM6	NRBB50_0937	910	RM	II G	Bbr50ORF937P	-
	RM6	NRBB50_1129	473	R	II	Bbr50IP	(CCWGG)
	RM16	NRBB50_1130	441	M	II	M.Bbr50I	C <sup>m5</sup> CWGG
<b>NRBB51</b>	RM2c	NRBB51_0178	1014	R	I	Bbr51ORF183P	-
	RM2c	NRBB51_0180	165	S	I	S1.Bbr51ORF183P	?
	RM2c	NRBB51_0181	215	S	I	S2.Bbr51ORF183P	?
	RM2c	NRBB51_0183	520	M	I gamma	M.Bbr51ORF183P	(CC <sup>m6</sup> ANNNNNNNNTGG)
	RM2c	NRBB51_1104	698	M	I gamma	M.Bbr51ORF1104P	(CC <sup>m6</sup> ANNNNNNNNTGG)
	RM2c	NRBB51_1105	397	S	I	S.Bbr51ORF1104P	?
	RM7	NRBB51_1083	422	R	II	Bbr51IIP	(CCWGG)
	RM7	NRBB51_1084	323	M	II	M.Bbr51II	C <sup>m5</sup> CWGG
	RM15	NRBB51_1584	1110	RM	II G,S,alpha	Bbr51I	(GGCG <sup>m6</sup> AG and perhaps GGRC <sup>m6</sup> AG)
<b>NRBB52</b>	RM4	NRBB52_0014	231	M	II	M.Bbr52I	RG <sup>m6</sup> ATCY
	RM4	NRBB52_0015	252	R	II	Bbr52I	RGATCY
	RM15	NRBB52_1542	1110	RM	II G,S,alpha	Bbr52II	GGCG <sup>m6</sup> AG
<b>NRBB56</b>	RM8	NRBB56_0222	263	R	II	R1.Bbr56IP	(GGCGCC)
	RM8	NRBB56_0226	305	R	II	R2.Bbr56IP	(GGCGCC)
	RM8	NRBB56_0227	392	M	II	M.Bbr56I	GG <sup>m5</sup> CGCC
	RM11	NRBB56_1180	315	R	II	Bbr56IIP	(CTGCAG)
	RM11	NRBB56_1181	467	M	II gamma	M.Bbr56II	CTGC <sup>m6</sup> AG
	RM12	NRBB56_1182	695	R	II	Bbr56IIP	(GTCGAC)
	RM12	NRBB56_1183	349	M	II	M.Bbr56III	GT <sup>m5</sup> CGAC
<b>NRBB57</b>	RM2a	NRBB57_1685	1096	R	I	Bbr57IP	(RAYCNNNNNCTG)
	RM2a	NRBB57_1687	419	S	I	S1.Bbr57I	RAYNNNNNCTG
	RM2a	NRBB57_1688	855	M	I gamma	M.Bbr57I	R <sup>m6</sup> AYCNNNNNCTG
	RM2a	NRBB57_1690	280	S	I	S2.Bbr57IP	-
	RM2a	NRBB57_1692	251	S	I	S3.Bbr57IP	-

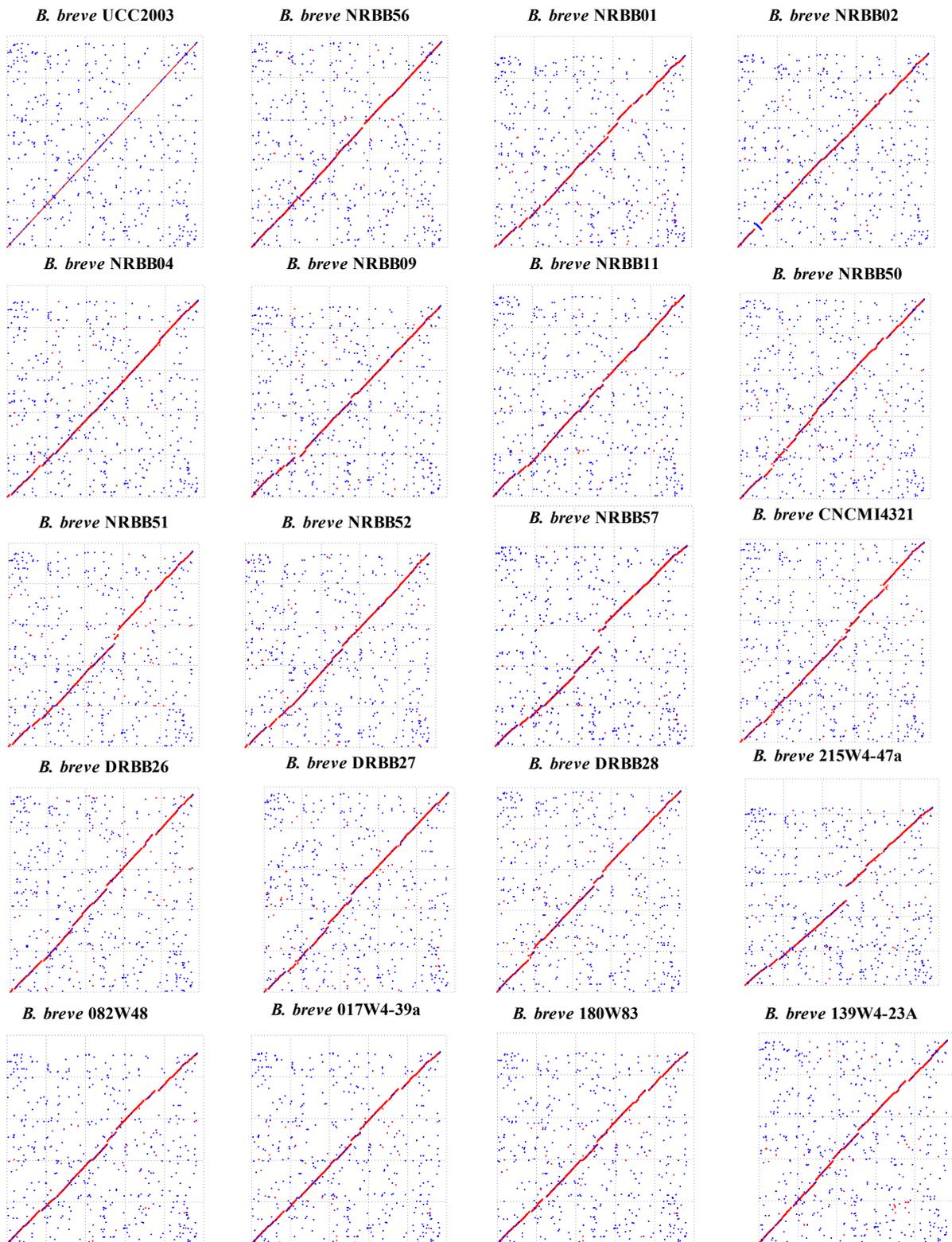
	RM6	NRBB57_0729	476	R	II	Bbr57ORF730P	-
	RM6	NRBB57_0730	448	M	II	M.Bbr57ORF730P	(CCWGG)
	MT7	NRBB57_0962	633	M	II gamma	M.Bbr57ORF962P	-
	RM14	NRBB57_0969	1206	RM	II G,S,alpha	Bbr57III	GTRA <sup>m6</sup> AYG
	RM13	NRBB57_1093	932	RM	II G,S,gamma	Bbr57II	GAGG <sup>m6</sup> AC
	MT2	NRBB57_1229	885	M	II	M.Bbr57ORF1229P	-
	MT5	NRBB57_1238	426	M	II beta	M.Bbr57ORF1238P	-
	MT3	NRBB57_1276	327	M	II	M.Bbr57ORF1276P	-
<b>CNCM I-4321</b>	RM4	CNCMI4321_0016	231	M	II	M.Bbr4321I	RG <sup>m6</sup> A <u>T</u> CY
	RM4	CNCMI4321_0017	252	R	II	Bbr4321IP	(RGATCY)
	RM9	CNCMI4321_1238	321	M	II alpha	M.Bbr4321ORF1238P	(TGG <sup>m4</sup> CCA)
	MT6	CNCMI4321_1398	152	M	II	M.Bbr4321ORF1398P	-
	MT1	CNCMI4321_1413	160	M	II gamma	M.Bbr4321ORF1413P	-
	RM1b	CNCMI4321_1557	265	S	I	S1.Bbr4321ORF1561P	?
	RM1b	CNCMI4321_1559	386	S	I	S2.Bbr4321ORF1561P	?
	RM1b	CNCMI4321_1560	181	S	I	S3.Bbr4321ORF1561P	?
	RM1b	CNCMI4321_1561	502	M	I gamma	M.Bbr4321ORF1561P	CC <sup>m6</sup> A <u>Y</u> NNNNNG <u>T</u> C
	RM1b	CNCMI4321_1562	1039	R	I	Bbr4321ORF1561P	-
<b>DRBB26</b>	RM8	DRBB26_0203	263	R	II	R1.Bbr26IP	(GGCGCC)
	RM8	DRBB26_0207	305	R	II	R2.Bbr26IP	(GGCGCC)
	RM8	DRBB26_0208	392	M	II	M.Bbr26I	GG <sup>m5</sup> C <u>G</u> CC
	RM12	DRBB26_1110	349	M	II	M.Bbr26II	RT <sup>m5</sup> C <u>G</u> AY
	RM12	DRBB26_1111	684	R	II	Bbr26IIP	(RTCGAY)
	RM2b	DRBB26_1520	1096	R	I	Bbr26ORF1523P	-
	RM2b	DRBB26_1522	406	S	I	S1.Bbr26ORF1523P	?
	RM2b	DRBB26_1523	855	M	I gamma	M.Bbr26ORF1523P	G <sup>m6</sup> ACNNNNNNNCAT <u>Y</u>
	RM2b	DRBB26_1524	280	S	I	S2.Bbr26ORF1523P	?
	RM2b	DRBB26_1528	232	S	I	S3.Bbr26ORF1523P	?
<b>DRBB27</b>	RM16	DRBB27_0893	910	RM	II G	BbrBB27ORF893P	-

<b>DRBB28</b>	RM4	DRBB28_0014	231	M	II	M.Bbr28II	RG <sup>m6</sup> ATCY
	RM4	DRBB28_0015	252	R	II	Bbr28IIP	(RGATCY)
	RM8	DRBB28_0217	263	R	II	R1.Bbr28ORF222P	(GGCGCC)
	RM8	DRBB28_0221	305	R	II	R2.Bbr28ORF222P	(GGCGCC)
	RM8	DRBB28_0222	392	M	II	M.Bbr28IV	GG <sup>m5</sup> CGCC
	RM12	DRBB28_1199	349	M	II	M.Bbr28III	RT <sup>m5</sup> CGAY
	RM12	DRBB28_1200	684	R	II	Bbr28IIIP	(RTCGAY)
	RM2g	DRBB28_1641	1096	R	I	Bbr28IP	(RAYCNNNNNNNTRCC)
	RM2g	DRBB28_1643	384	S	I	S1.Bbr28I	RAYCNNNNNNNTRCC
	RM2g	DRBB28_1644	855	M	I gamma	M.Bbr28I	R <sup>m6</sup> AYCNNNNNNNTRCC
	RM2g	DRBB28_1645	280	S	I	S2.Bbr28IP	-
RM2g	DRBB28_1648	232	S	I	S3.Bbr28IP	-	
<b>017W4-39</b>	RM8	BB017W439A_0210	263	R	II	R1.Bbr17IIP	(GGCGCC)
	RM8	BB017W439A_0214	305	R	II	R2.Bbr17IIP	(GGCGCC)
	RM8	BB017W439A_0215	392	M	II	M.Bbr17II	GG <sup>m5</sup> CGCC
	RM7	BB017W439A_1170	422	R	II	Bbr17IP	(CCWGG)
	RM7	BB017W439A_1171	323	M	II	M.Bbr17I	C <sup>m5</sup> CWGG
	RM2d	BB017W439A_1489	1096	R	I	Bbr17ORF1492P	-
	RM2d	BB017W439A_1491	392	S	I	S1.Bbr17ORF1492P	?
	RM2d	BB017W439A_1492	855	M	I gamma	M.Bbr17ORF1492P	<sup>m6</sup> AGCNNNNNGTC
	RM2d	BB017W439A_1493	280	S	I	S2.Bbr17ORF1492P	?
RM2d	BB017W439A_1494	169	S	I	S3.Bbr17ORF1492P	?	
<b>082W4-8</b>	RM8	BB082W48_0219	263	R	II	R1.Bbr82ORF224P	(GGCGCC)
	RM8	BB082W48_0223	305	R	II	R2.Bbr82ORF224P	(GGCGCC)
	RM8	BB082W48_0224	392	M	II	M.Bbr82ORF224P	(GG <sup>m5</sup> CGCC)
	RM3	BB082W48_0377	431	R	II	Bbr82ORF378P	(GATC)
	RM3	BB082W48_0378	276	M	II alpha	M.Bbr82II	G <sup>m6</sup> ATC
	RM7	BB082W48_1165	480	R	II	Bbr82ORF1165P	-
	RM2e	BB082W48_1475	1096	R	I	Bbr82IP	(GACNNNNNNNRTTG)

	RM2e	BB082W48_1477	399	S	I	S1.Bbr82I	GACNNNNNNRRTTG
	RM2e	BB082W48_1478	855	M	I gamma	M.Bbr82I	G <sup>m6</sup> ACNNNNNNR <u>T</u> TG
	RM2e	BB082W48_1479	280	S	I	S2.Bbr82IP	-
<b>139W4-23</b>	RM8	BB139W423_0233	263	R	II	R1.Bbr139ORF238P	(GGCGCC)
	RM8	BB139W423_0237	305	R	II	R2.Bbr139ORF238P	(GGCGCC)
	RM8	BB139W423_0238	392	M	II	M.Bbr139ORF238P	(GG <sup>m5</sup> CGCC)
<b>180W8-3</b>	RM8	BB180W83_0208	263	R	II	R1.Bbr180IIP	(GGCGCC)
	RM8	BB180W83_0212	305	R	II	R2.Bbr180IIP	(GGCGCC)
	RM8	BB180W83_0213	392	M	II	M.Bbr180II	GG <sup>m5</sup> CGCC
	RM7	BB180W83_1170	422	R	II	Bbr180IP	CCWGG
	RM7	BB180W83_1171	323	M	II	M.Bbr180I	C <sup>m5</sup> CWGG
	MT7	BB180W83_0927	767	M	I	M.Bbr180ORF927P	-
<b>215W4-47a</b>	MT4	BB215W447A_1044	288	M	II beta	M.Bbr215ORF1044P	-
	RM13	BB215W447A_1062	932	RM	II G,gamma	Bbr215II	GAGG <sup>m6</sup> AC
	MT3	BB215W447A_1258	327	M	II	M.Bbr215ORF1258P	-
	MT5	BB215W447A_1218	413	M	II beta	M.Bbr215ORF1218P	-
	MT2	BB215W447A_1210	913	M	II	M.Bbr215ORF1210P	-
	MT1	BB215W447A_1576	160	M	II gamma	M.Bbr215ORF1576P	-
	MT6	BB215W447A_1561	152	M	II	M.Bbr215ORF1561P	-
	RM2f	BB215W447A_1727	1096	R	I	Bbr215ORF1730P	-
	RM2f	BB215W447A_1729	413	S	I	S1.Bbr215ORF1730P	?
	RM2f	BB215W447A_1730	855	M	I gamma	M.Bbr215ORF1730P	G <sup>m6</sup> AGNNNNNR <u>T</u> TTC
	RM2f	BB215W447A_1731	280	S	I	S2.Bbr215ORF1730P	?
	RM2f	BB215W447A_1734	232	S	I	S3.Bbr215ORF1730P	?
	RM15	BB215W447A_1808	1110	RM	II G, S, alpha	Bbr215I	GGCG <sup>m6</sup> AG
<b>JCM7017</b>	MT9	B7017_0097	1068	R	IV	Bbr7017ORF97P	-
	RM5	B7017_0735	776	M	II	M.Bbr7017I	GG <sup>m6</sup> A <u>T</u> C
	RM5	B7017_0736	567	R	II	Bbr7017IP	(GGATC)
	RM15	B7017_1663	944	RM	IIG	Bbr7017ORF1663P	GGRC <sup>m6</sup> AG

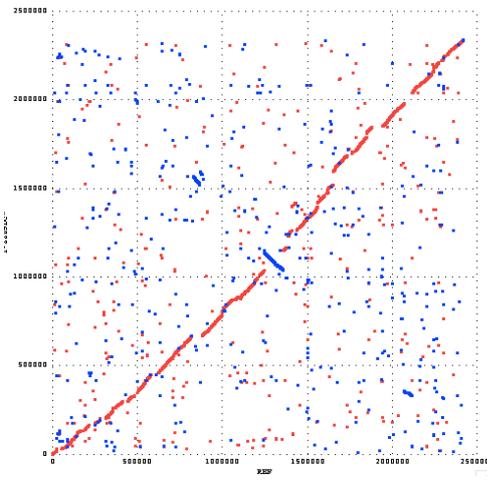
MT10	pl7017_0033	240	M	II	M.Bbr7017ORF33P	-
MT11	pl7017_0034	152	M	II	M.Bbr7017ORF34P	-
RM17	pl7017_0142	351	RM	II	Bbr7017ORF142P	-
RM17	pl7017_0143	383	RM	II	Bbr7017ORF142P	-
RM17	pl7017_0144	193	RM	II	Bbr7017ORF142P	-
RM13	pl7017_0174	931	RM	IIIG	Bbr7017ORF174P	CGGG <sup>m6</sup> AG
MT12	pl7017_0197	353	M	II	M.Bbr7017ORF197P	-

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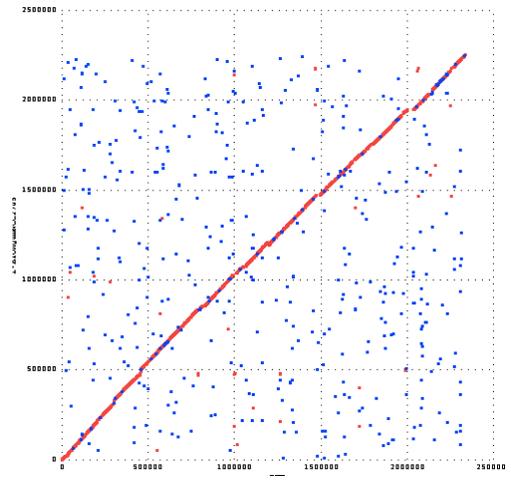


**Figure S1**

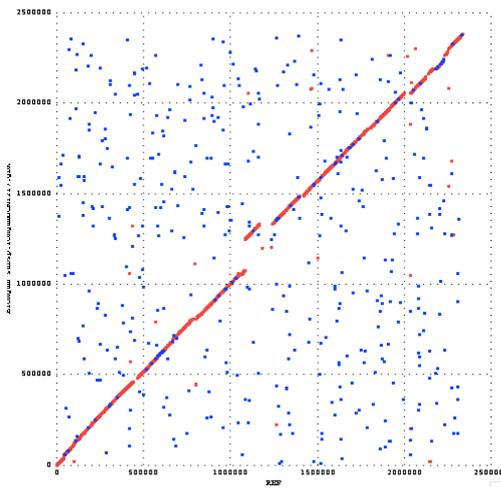
**UCC2003 vs NCIMB 8809**



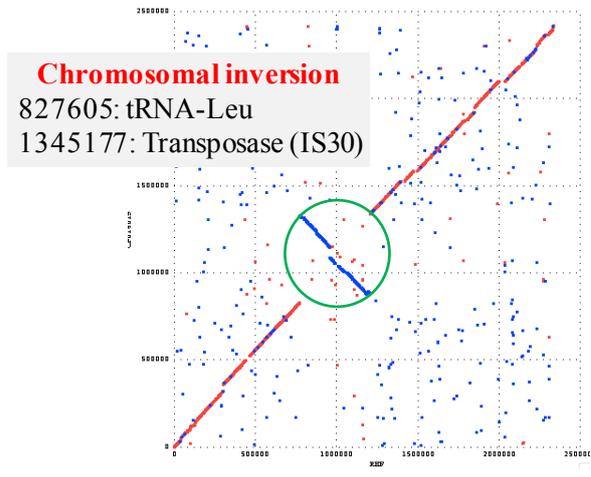
**NCIMB8809 vs NCC2705**



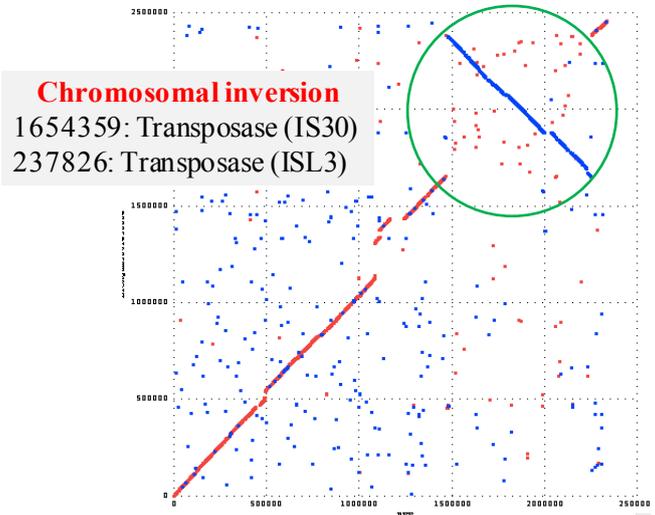
**NCIMB 8809 vs JCM1217**



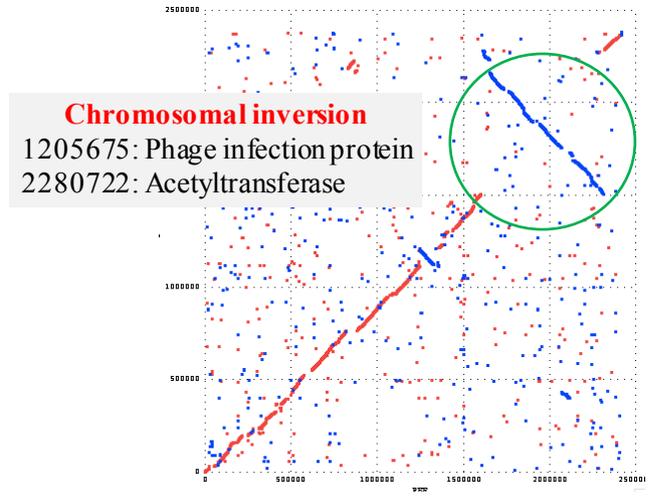
**NCIMB 8809 vs AH1206**



**NCIMB 8809 vs CCUG 30698**



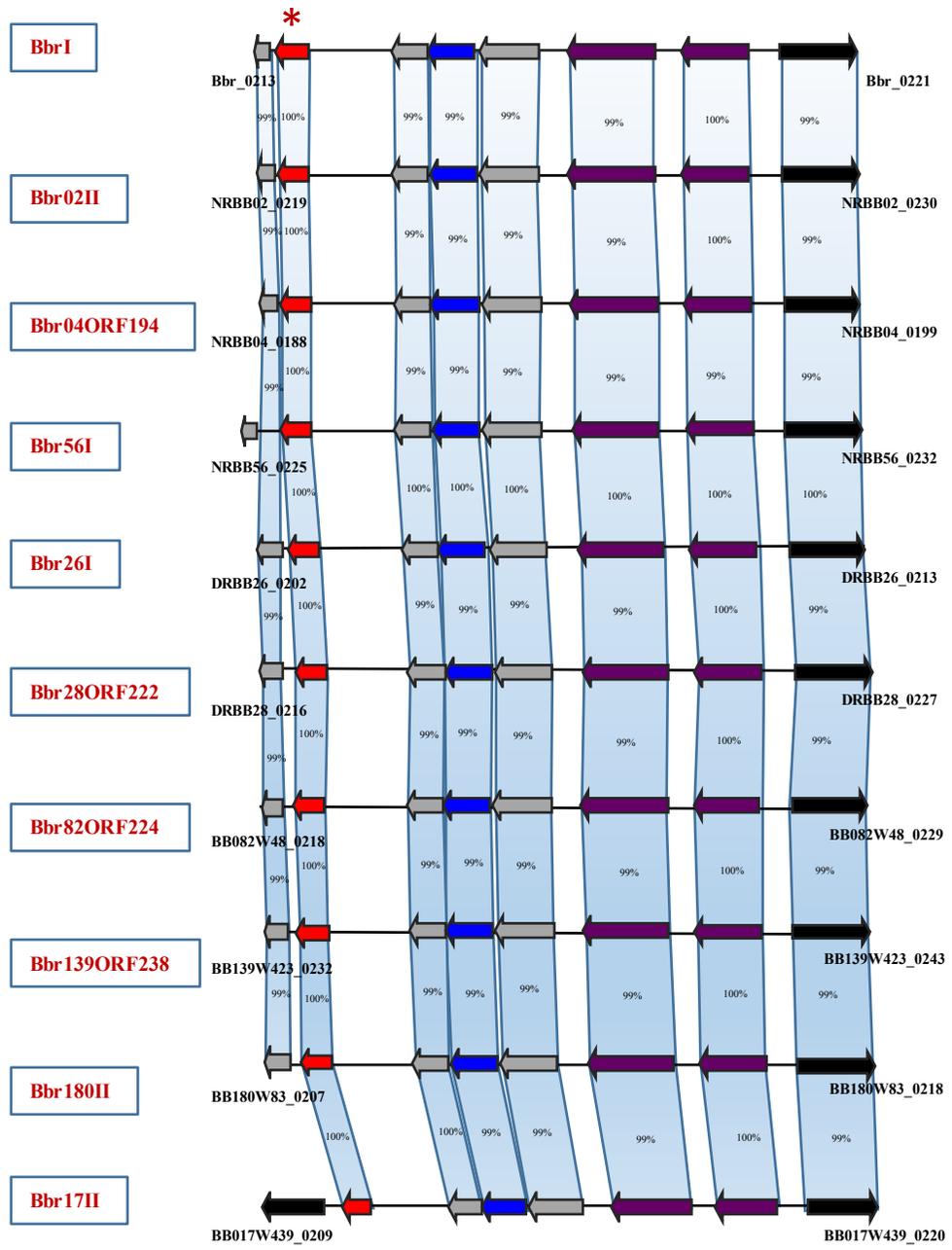
**NCIMB8809 vs F8**



**Figure S2**

a)

RM8-COG



b)

RM7-COG

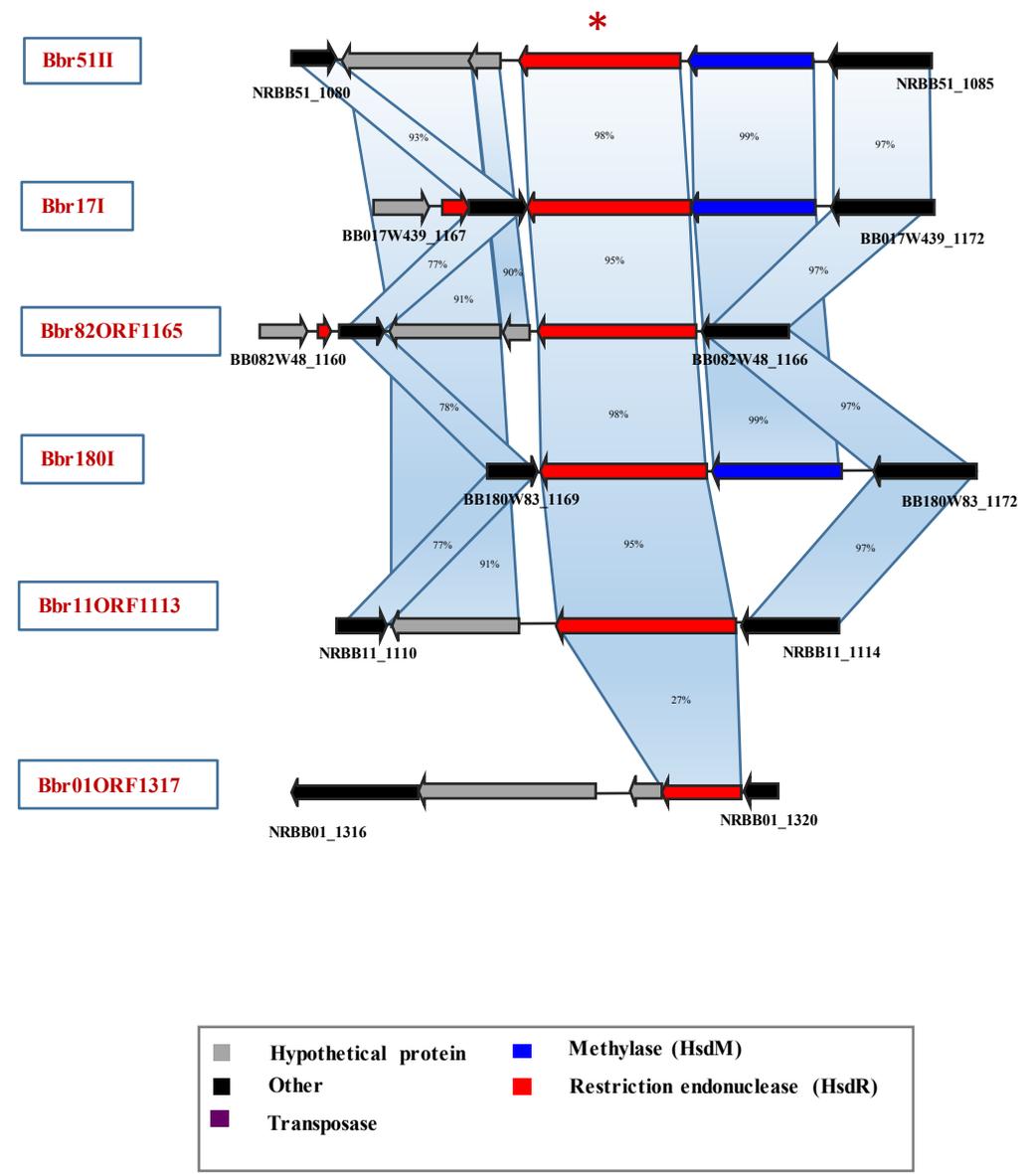
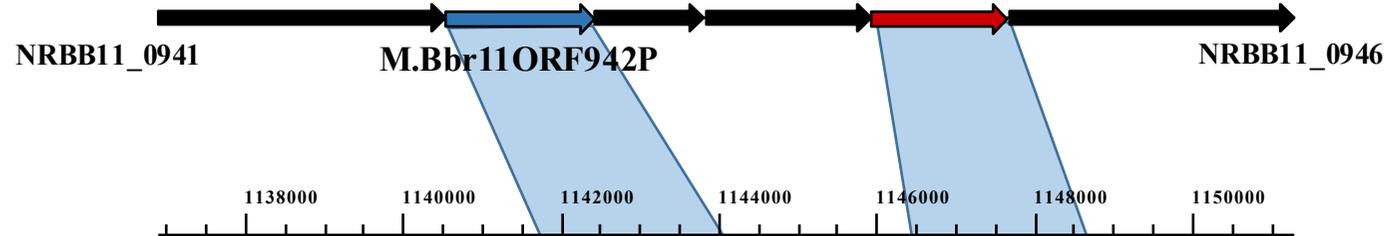


Figure S3

*B.breve* NRBB11



56 %

59 %

*B.breve* NRBB57



Figure S4

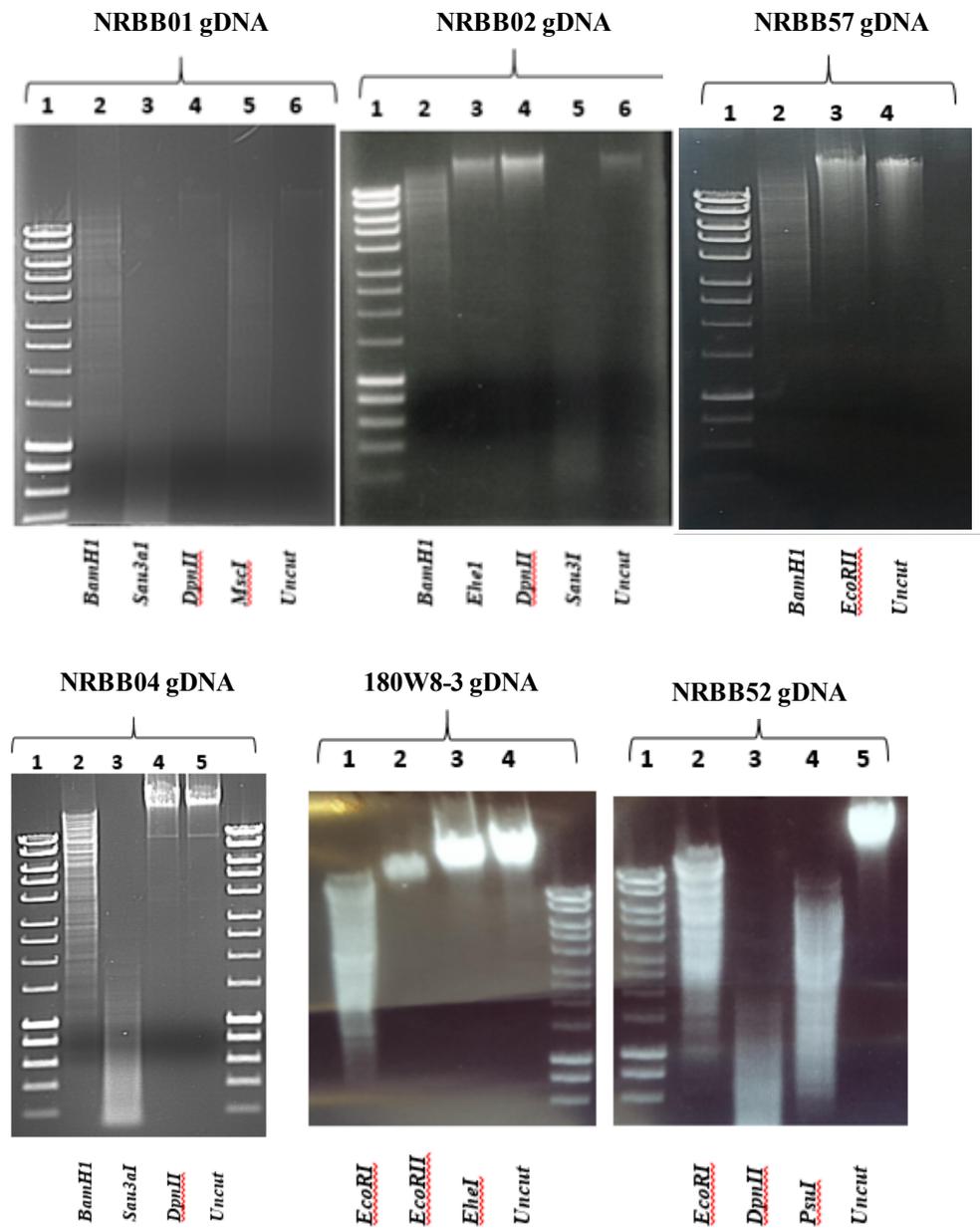


Figure S5