

Table S3. CRISPR spacer homology analysis in comparison with phage sensitivity

Siphoviridae phages: [phiCD111](#), [phiCD38-2](#), [phiCD146](#), [phiCD24-1](#), [phiCD6356](#)

Myoviridae phages: [phiCD27](#), [phiC2](#), [phiCD119](#), [phiMMP01](#), [phiMMP03](#), [phiCD52](#), [phiCD481-1](#), [phiCD505](#), [phiCD506](#), [phiMMP02](#), [phiMMP04](#), [phiCDMH1](#)

Similar Myoviridae phage groups: [phiCD481-1/phiCD506/phiMMP04](#); [phiMMP02/phiCD505](#); [phiMMP01/phiMMP03](#)

Analysis of spacer targets

	Phage homology	Target gene product	PAM(CCA/T consensus)
CRISPR spacers of strain 630			
CRISPR 3 4 (6+3 spacers)			
CRISPR3 spacer 2	phiCD211	conserved protein of unknown function	CCT
CRISPR3 spacer 5 (4 mismatches, 1 in seed insertion position 3)	phiCD111	tail protein/endopeptidase	CTT
CRISPR4 spacer 1 (6 mismatches, 3 in seed position 2,5,6)			
	phiCD119	xkdK xkdK protein	CCA
CRISPR4 spacer 2 (3 mismatches, 1 in seed position 5)	phiCD505	conserved protein of unknown function (right end-skin element, yqzN)	CCT
CRISPR4 spacer 2 (2 mismatches, no in seed)	phiMMP02	conserved protein of unknown function (right end-skin element, yqzN)	CCT
CRISPR4 spacer 2 (2 mismatches, no in seed)	phiCD27	hypothetical protein	CCT
CRISPR4 spacer 3 (1 mismatch, no in seed)	phiC2	putative tail tape measure protein	CCA
CRISPR4 spacer 3 (1 mismatch, no in seed)	phiMMP01	putative tail tape measure protein	CCA
CRISPR4 spacer 3 (1 mismatch, no in seed)	phiMMP03	putative tail tape measure protein	CCA
CRISPR4 spacer 3 (1 mismatch, no in seed)	phiCDMH1	putative tail tape measure protein	CCA
CRISPR 6 (13 spacers)			
CRISPR6 spacer 1(6 mismatches, 3 in seed positions 4,7,8)	phiCD111	conserved protein of unknown function	CTA
CRISPR6 spacer 8 (1 mismatch in seed position 1)	phiCD481-1	Intergenic region	CGA
CRISPR6 spacer 8 (3 mismatches, no in seed)	phiCD111	Intergenic region	CCA
CRISPR6 spacer 8 (1 mismatch, no in seed)	phiCD506	Intergenic region	CCA
CRISPR6 spacer 8	phiCD146	Intergenic region	CCA
CRISPR6 spacer 8	phiCD38-2	Intergenic region	CCA
CRISPR6 spacer 13 (3 mismatches, 2 in seed positions 2 and 3)	phiCD119	int putative integrase	CCA
CRISPR 7 (12 spacers)			
CRISPR7 spacer 3	C. difficile B11 putative phage or plasmid sequence		CCA
CRISPR7 spacer 6 (3 mismatches, no in seed)	phiCD481-1	Site-specific recombinase, phage integrase family	TCG
CRISPR7 spacer 6 (3 mismatches, no in seed)	phiCD506	Site-specific recombinase, phage integrase family	CCG
CRISPR7 spacer 6 (4 mismatches, 1 in seed position 3)	phiMMP04	Site-specific recombinase, phage integrase family	CCG
CRISPR7 spacer 11 (8 mismatches, 2 in seed position 3,5)	phiCD119	hypothetical protein	CCT
CRISPR 8 (8 spacers)			
CRISPR8 spacer 2	phiCD119	hypothetical protein	ACA
CRISPR8 spacer 2 (2 mismatches, no in seed)	phiC2	putative cytosine-C5 specific DNA methylase	ACA
CRISPR8 spacer 2	phiMMP03	putative phage DNA modification methylase	ACA
CRISPR8 spacer 2	phiMMP02	putative phage DNA modification methylase	ACA
CRISPR8 spacer 2 (2 mismatches, no in seed)	phiCD505	putative phage DNA modification methylase	CCA
CRISPR8 spacer 2	phiCDMH1	putative DNA methylase protein	CTA
CRISPR8 spacer 4	phiCD38-2	hypothetical protein	CCA
CRISPR8 spacer 4 (1 mismatch, no in seed)	phiCD146	conserved protein of unknown function	CCA
CRISPR8 spacer 4 (3 mismatches, no in seed)	phiCD111	conserved protein of unknown function	CCA
CRISPR8 spacer 8 (2 mismatches, 1 in seed position 6)	phiCD27	putative phage tail tape measure protein	CCA
CRISPR8 spacer 8 (1 mismatch, no in seed)	phiCD505	putative phage tail tape measure protein	CCA
CRISPR 9 (15 spacers)			
CRISPR9 spacer 1	phiCD27	putative portal protein	CCA
CRISPR9 spacer 1	phiCD505	putative portal protein	CCA
CRISPR9 spacer 1	phiMMP02	putative portal protein	CCA
CRISPR9 spacer 2	phiCD6356	putative tail fiber protein H	CCA
CRISPR9 spacer 3 (4 mismatches, 2 in seed positions 5 and 6)	phiCD38-2	putative DNase/helicase protein	CCT
CRISPR9 spacer 3 (4 mismatches, 2 in seed positions 5 and 6)	phiCD111	putative DNase/helicase protein	CCT
CRISPR9 spacer 3 (4 mismatches, 2 in seed positions 5 and 6)	phiCD146	putative DNase/helicase protein	CCT
CRISPR9 spacer 3 (4 mismatches, 2 in seed positions 5 and 6)	phiCD506	putative DNase/helicase protein	CCT
CRISPR9 spacer 3 (6 mismatches, 2 in seed positions 5 and 6)	phiMMP04	putative DNase/helicase protein	CCT
CRISPR9 spacer 3 (6 mismatches, 3 in seed positions 5,7 and 8)	phiCD481-1	putative DNase/helicase protein	CCT

CRISPR9 spacer 4				
CRISPR9 spacer 4 (1 mismatch in seed position 6)	phiCD38-2	putative DNase/helicase protein		TCC
CRISPR9 spacer 4	phiCD111	putative DNase/helicase protein		TCC
CRISPR9 spacer 4	phiCD146	putative DNase/helicase protein		TCC
CRISPR9 spacer 4 (6 mismatches, 2 in seed position 1,3)	phiMMP04	putative DNase/helicase protein		ACC
CRISPR9 spacer 4 (8 mismatches, 3 in seed position 1,3,7)	phiCD481-1	putative DNase/helicase protein		ACC
CRISPR9 spacer 4 (8 mismatches, 3 in seed position 1,3,7)	phiCD506	putative DNase/helicase protein		ACC
CRISPR9 spacer 6	pCDB1	hypothetical protein		CCA
CRISPR9 spacer 8 (8 mismatches, 3 in seed, position 1,3,6)	phiCD119	int putative integrase		AGA
CRISPR9 spacer 11 (2 mismatches, no in seed)	phiCD38-2	hypothetical protein		CCA
CRISPR9 spacer 11 (2 mismatches, no in seed)	phiCD146	conserved protein of unknown function		CCA
CRISPR9 spacer 11 (3 mismatches, no in seed)	phiCD111	conserved protein of unknown function		CCA
CRISPR 10 (2 spacers)				
CRISPR10 spacer 2 (2 mismatches, 1 in seed position 5)	phiCD146	Minor capsid protein		CTA
CRISPR10 spacer 2 (2 mismatches, 1 in seed position 5)	phiCD111	Minor capsid protein		CTA
CRISPR10 spacer 2 (8 mismatches, 1 in seed position 8)	phiCD38-2	Minor capsid protein		CAA
CRISPR 11 (14 spacers)				
CRISPR11 spacer 1	phiCD27	hypothetical protein		CCT
CRISPR11 spacer 1	phiCD505	conserved protein of unknown function (left hand-head morphogenesis prote		CCT
CRISPR11 spacer 1	phiMMP02	conserved protein of unknown function (left hand-head morphogenesis prote		CCT
CRISPR11 spacer 2	phiCD27	putative phage tail tape measure protein		CCA
CRISPR11 spacer 4 (6 mismatches, 4 in seed positions 3, 5, 7, 8)	phiCD119	hypothetical protein		CCA
CRISPR11 spacer 10 (3 mismatches, 1 in seed position 3)	phiCD146	Tail tape measure		CCA
CRISPR11 spacer 10 (4 mismatches, 1 in seed position 3)	phiCD38-2	Tail tape measure		CCA
CRISPR 12 (6 spacers)				
CRISPR12 spacer 6 (5 mismatches, 2 in seed position 1,2)	phiCD146	Terminase large subunit		CCT
CRISPR12 spacer 6 (8 mismatches, 3 in seed position 1,2,8)	phiCD38-2	Terminase large subunit		CCT
CRISPR12 spacer 6 (10 mismatches, 3 in seed position 1,2,8)	phiCD111	Terminase large subunit		CCT
CRISPR 15 16 (3+6 spacers)				
CRISPR15 spacer 1 (6 mismatches, 3 in seed position 2, 5, 6)	phiCD119	xkdK XkdK protein		CCA
CRISPR15 spacer 2 (2 mismatches, no in seed)	phiCD27	hypothetical protein		CCT
CRISPR15 spacer 2 (5 mismatches, 1 in seed position 5)	phiCD505	conserved protein of unknown function (right end-skin element, yqzN)		CCT
CRISPR15 spacer 2 (2 mismatches, no in seed)	phiMMP02	conserved protein of unknown function (right end-skin element, yqzN)		CCT
CRISPR15 spacer 3 (1 mismatch, no in seed)	phiC2	putative tail tape measure protein		CCA
CRISPR15 spacer 3 (1 mismatch, no in seed)	phiMMP01	putative tail tape measure protein		CCA
CRISPR15 spacer 3 (1 mismatch, no in seed)	phiMMP03	putative tail tape measure protein		CCA
CRISPR15 spacer 3 (1 mismatch, no in seed)	phiCDMH1	putative tail tape measure protein		CCA
CRISPR16 spacer 2	phiCD211	conserved protein of unknown function		CCT
CRISPR16 spacer 5 (4 mismatches, 1 in seed position 3)	phiCD111	tail protein/endopeptidase		CTT
CRISPR 17 (19 spacers)				
CRISPR17 spacer 1	phiCD27	hypothetical protein		CCT
CRISPR17 spacer 1	phiCD505	conserved protein of unknown function (right hand-head morphogenesis prot		CCT
CRISPR17 spacer 1	phiMMP02	conserved protein of unknown function (right hand-head morphogenesis prot		CCT
CRISPR17 spacer 2	phiCD6356	putative phage tail tape measure protein		CCT
CRISPR17 spacer 3 (7 mismatches, 3 in seed position 4,7,8)	phiCD6356	hypothetical protein		CCA
CRISPR17 spacer 4 (5 mismatches, 3 in seed position 3,6,8)	phiCD6356	hypothetical protein		CCT
CRISPR17 spacer 4 (9 mismatches, 5 in seed position 1,2,3,6,8)	phiMMP02	conserved protein of unknown function		CCT
CRISPR17 spacer 4 (6 mismatches, 3 in seed position 3,6,8)	phiCD27	hypothetical protein		CCT
CRISPR17 spacer 4 (6 mismatches, 3 in seed position 3,6,8)	phiCD505	conserved protein of unknown function		CCT
CRISPR17 spacer 4 (7 mismatches, 4 in seed position 1,3,6,8)	phiCD506	conserved protein of unknown function		TCT
CRISPR17 spacer 4 (6 mismatches, 3 in seed position 1,3,6,8)	phiMMP03	conserved protein of unknown function		CCT
CRISPR17 spacer 11	phiCD211	conserved protein of unknown function		CCT
CRISPR17 spacer 12	phiCD211	protein of unknown function		CCA
CRISPR17 spacer 15	phiMMP01	conserved protein of unknown function		CCT
CRISPR17 spacer 15 (1 mismatch, no in seed)	phiCD27	hypothetical protein		CCT

CRISPR spacers of R20291 strain**CRISPR10 (14 spacers)**

CRISPR10 spacer 1 (8 mismatches, position 3,4,5,6 in seed , 10,14,21,33)	phiMMP04	putative phage terminase, large subunit	CCT
CRISPR10 spacer 1 (6 mismatches, position 3,4,5,6 in seed , 10,33)	phiCD506	putative phage terminase, large subunit	CCT
CRISPR10 spacer 1 (6 mismatches, position 3,4,5,6 in seed , 10,33)	phiCD481-1	putative phage terminase, large subunit	CCT
CRISPR10 spacer 3 (2 mismatches, position 2 in seed , 9)	phiCD27	hypothetical protein	CCA
CRISPR10 spacer 4 (6 mismatches, position 10,14,15,16,31,34)	phiCD38-2	endolysine	CCA
CRISPR10 spacer 4 (4 mismatches, position 4,7 in seed , 11, 28)	phiCD111	endolysine	CCA
CRISPR10 spacer 4 (6 mismatches, position 10,14,15,16,31,34)	phiCD146	endolysine	CCA
CRISPR10 spacer 4 (9 mismatches, position 1,4,7,8 in seed , 10,14,15,16,34,37)	phiCD6356	probable phage N-acetylmuramoyl-L-alanine amidase	TAA
CRISPR10 spacer 5 (2 mismatches in positions 24, 33, no in seed)	phiCD38-2	hypothetical protein	CCA
CRISPR10 spacer 5 (1 mismatch in position 33, no in seed)	phiCD146	conserved protein of unknown function	CCA
CRISPR10 spacer 7 (9 mismatches, position 1,3,4,8 in seed , 9,10,12,13,35)	phiCD38-2	Intergenic region	AGT
CRISPR10 spacer 7 (12 mismatches, position 1,3,4,5,6,7 in seed , 9,10,11,12,13,14)	phiCD111	Intergenic region	TCA
CRISPR10 spacer 7 (6 mismatches, position 1,3,4,8 in seed , 9,35)	phiCD146	Intergenic region	AGT
CRISPR10 spacer 8	phiCD6356	hypothetical protein	CCA
CRISPR10 spacer 9 (8 mismatches, position 2,6,7,8 in seed , 9,12,15,36)	phiCD38-2	recombinase/resolvase	CCT
CRISPR10 spacer 9 (8 mismatches, position 2,6,7,8 in seed , 9,12,15,36)	phiCD111	recombinase/resolvase	CCT
CRISPR10 spacer 10 (3 mismatches, positions 3,4,7 in seed)	phiCD6356	putative terminase large subunit	CCA
CRISPR10 spacer 13 (7 mismatches, position 4,6,7 in seed , 16,17,18,28)	phiCD119	putative portal protein	CCA
CRISPR10 spacer 14	phiCD27	putative antirepressor	CCT
CRISPR10 spacer 14	phiCD52	conserved protein of unknown function	CCT
CRISPR10 spacer 14	phiCD505	putative antirepressor	CCT
CRISPR10 spacer 14 (1 mismatch position 27, no in seed)	phiC2	hypothetical protein	CCT
CRISPR10 spacer 14 (1 mismatch, no in seed)	phiMMP03	conserved protein of unknown function	CCT

CRISPR11 (11 spacers)

CRISPR11 spacer 3 (4 mismatches, position 3, 7 in seed , 9, 12)	phiCD38-2	putative DNase/helicase protein	CCA
CRISPR11 spacer 3 (4 mismatches, position 2,3 in seed , 12, 21)	phiMMP04	putative DNase/helicase protein	CCA
CRISPR11 spacer 3 (2 mismatches, position 7 in seed , 12)	phiCD506	putative DNase/helicase protein	CCA
CRISPR11 spacer 3 (3 mismatches, position 3,7 in seed , 12)	phiCD481-1	putative DNase/helicase protein	CCA
CRISPR11 spacer 3 (3 mismatches, position 3,7 in seed , 12)	phiCD111	putative DNase/helicase protein	CCA
CRISPR11 spacer 3 (3 mismatches, position 3,7 in seed , 12)	phiCD146	putative DNase/helicase protein	CCA
CRISPR11 spacer 5 (1 mismatch seed in position 8)	phiCD38-2	hypothetical protein	CCT
CRISPR11 spacer 7	phiCD38-2	minor capsid protein	CCA
CRISPR11 spacer 7 (1 mismatch in seed position 6)	phiCD111	minor capsid protein	CCC
CRISPR11 spacer 7 (3 mismatches 13-15, no in seed)	phiCD146	minor capsid protein	CCA
CRISPR11 spacer 10 (7 mismatches, position 3,6 in seed , 9,15,30,32,37)	pCDB11	hypothetical protein	CTT

CRISPR12 (4 spacers)

CRISPR12 spacer 1 (8 mismatches, position 1,3,4,5 in seed , 13,19,21,36)	phiCD6356	ParA-like protein	CCG
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CRISPR13 (5 spacers)

CRISPR13 spacer 4 (5 mismatches, position 2,6 in seed , 15,30,36)	phiCD119	XkdK protein	CCT
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CRISPR15 (14 spacers)

CRISPR15 spacer 2 (5 mismatches, position 4,7 in seed , 10,13,16)	phiCD38-2	minor capsid protein	AAA
CRISPR15 spacer 2 (3 mismatches, position 7 in seed , 13,31)	phiCD111	minor capsid protein	CCT
CRISPR15 spacer 2 (4 mismatches, position 10,31,33,34)	phiCD146	minor capsid protein	CTT
CRISPR15 spacer 3	phiCD6356	putative major capsid protein A	CCT
CRISPR15 spacer 7 (5 mismatches, position 5 in seed , 11,25,31,33)	phiCD27	hypothetical protein	CCA
CRISPR15 spacer 9 (1 mismatch in position 9, no in seed)	PhiCD6356	putative site-specific recombinase	CCA
CRISPR15 spacer 9 (5 mismatches, position 3,6 in seed , 27,29,36)	Streptococcus phage PH10	integrase/recombinases subgroup 3	CCG
CRISPR15 spacer 10	phiMMP04	Intergenic region	CCG
CRISPR15 spacer 10	phiCD481-1	Intergenic region	CCG
CRISPR15 spacer 10	phiCD506	Intergenic region	CCG
CRISPR15 spacer 10 (2 mismatches in position 26, 37, no in seed)	pCD630		CCG

CRISPR16 (9 spacers)			
CRISPR16 spacer 4 (4 mismatches, position 8 in seed , 26,29,34)	phiMMP04	Phage portal protein	CAA
CRISPR16 spacer 4 (6 mismatches, position 2,8 in seed , 11,26,29,34)	phiCD481-1	Phage portal protein	CAA
CRISPR16 spacer 4 (6 mismatches, position 2,8 in seed , 11,26,29,34)	phiCD506	Phage portal protein	CAA
CRISPR16 spacer 5 (1 mismatch position 23 , no in seed)	phiMMP02	conserved protein of unknown function	CCA
CRISPR16 spacer 5 (1 mismatch position 23 , no in seed)	phiCD505	conserved protein of unknown function	CCA
CRISPR16 spacer 5 (2 mismatches position 23,31 , no in seed)	phiCD27	hypothetical protein	CCA
CRISPR16 spacer 6	phiCD38-2	terminase large subunit	CCA
CRISPR16 spacer 6 (2 mismatches, 2 in seed position 4,5)	phiCD111	terminase large subunit	CCA
CRISPR16 spacer 6 (2 mismatches, 2 in seed position 4,5)	phiCD146	terminase large subunit	CCA
CRISPR16 spacer 9 (6 mismatches, position 13,15,18,19,31,37)	Bacillus thuringiensis phage GIL16c	hypothetical protein	CCA
CRISPR16 spacer 9 (7 mismatches, position 3,7 in seed , 10,16,18,19,37)	Bacillus thuringiensis phage Bam35c	putative protein 14	CCA
CRISPR16 spacer 9 (7 mismatches, position 3,7 in seed , 10,16,18,19,37)	Bacillus thuringiensis HD-789 plasmid p04	putative cytoplasmic protein	CCA
CRISPR16 spacer 9 (7 mismatches, position 3,7 in seed , 10,16,18,19,37)	Bacillus phage pGIL01	putative DNA-packaging protein	CCA
CRISPR19 (26 spacers)			
CRISPR19 spacer 1	pCDBI1	hypothetical protein	CCA
CRISPR19 spacer 2	pCDBI1		CCT
CRISPR19 spacer 6 (2 mismatches in seed position 6,8)	phiCD6356	putative phage tail tape measure protein	CCT
CRISPR19 spacer 7 (4 mismatches, position 8 in seed , 11, 17, 26)	phiCD6356	putative phage tail protein	CCA
CRISPR19 spacer 9 (10 mismatches, position 3,4,5,6 in seed , 15,35,37,39,40,41)	phiCD6356	putative phage tail tape measure protein	CCA
CRISPR19 spacer 10	phiMMP02	putative phage protein	CCA
CRISPR19 spacer 12 (3 mismatches, position 12,15,36, no in seed)	phiC2	Gp157-like protein	CCA
CRISPR19 spacer 12 (3 mismatches, position 12,15,36, no in seed)	PhiCD52	putative phage protein involved in bacteriophage resistance	CCA
CRISPR19 spacer 12 (4 mismatches, position 12,15,36,37, no in seed)	phiMMP02	conserved protein of unknown function	TCA
CRISPR19 spacer 12 (3 mismatches, position 12,15,36, no in seed)	phiCD119	hypothetical protein	CCA
CRISPR19 spacer 12 (3 mismatches, position 12,15,36, no in seed)	phiCD24-2	conserved protein of unknown function	CCA
CRISPR19 spacer 12 (3 mismatches, position 12,15,36, no in seed)	phiCD505	conserved protein of unknown function	CCA
CRISPR19 spacer 12 (3 mismatches, position 12,15,36, no in seed)	phiMMP01	conserved protein of unknown function	CCA
CRISPR19 spacer 12 (3 mismatches, position 12,15,36, no in seed)	phiMMP03	conserved protein of unknown function	CCA
CRISPR19 spacer 12 (8 mismatches, position 3,5 in seed , 12,15,18,24,27,36)	phiCD27	hypothetical protein	CCA
CRISPR19 spacer 12 (3 mismatches, position 12,15,36, no in seed)	phiCDMH1	conserved hypothetical protein (Gp157-like)	CCA
CRISPR19 spacer 16 (1 mismatch in seed position 1)	phiCD211	protein of unknown function	CTT
CRISPR19 spacer 17	phiCD211	protein of unknown function	GCT
CRISPR19 spacer 23 (6 mismatches, position 3 in seed , 9,15,18,24,25)	phiCD38-2	Minor capsid protein	CCA
CRISPR19 spacer 23 (5 mismatches, position 3 in seed , 9,23,24,25)	phiCD111	Minor capsid protein	CCA
CRISPR19 spacer 23 (6 mismatches, position 1,3 in seed , 9,18,24,25)	phiCD146	Minor capsid protein	CCA
CRISPR20 (9 spacers)			
CRISPR20 spacer 3 (7 mismatches, position 6 in seed, 18,19,21,29,31,33)	phiMMP02	putative phage protein	CCA
CRISPR20 spacer 3 (7 mismatches, position 6 in seed, 18,19,21,29,31,33)	phiC2	hypothetical protein	CCA
CRISPR20 spacer 3 (7 mismatches, position 6 in seed, 18,19,21,29,31,33)	phiCD119	protein of unknown function	CCA
CRISPR20 spacer 5 (2 mismatches, position 18,33, no in seed)	phiCD6356	putative phage tail tape measure protein	CCT
CRISPR20 spacer 7 (4 mismatches, position 1, 6 in seed ; pos 33, 36)	phiMMP04	conserved protein of unknown function	CCA
CRISPR20 spacer 7 (6 mismatches, position 1,3, 6 in seed ; pos 22, 33, 36)	phiCD481-1	conserved protein of unknown function	CCA
CRISPR20 spacer 7 (6 mismatches, position 1,3, 6 in seed ; pos 22, 33, 36)	phiCD506	conserved protein of unknown function	CCA

Analysis by phage targeting

Phage (total of 19) and plasmids	Strain	CRISPR spacer	PAM(CCA/T consensus)	Expected phage sensitivity	Experimental phage sensitivity
phiCD27	630	CRISPR4 spacer 2 (2 mismatches, seed OK)	cct	Expected resistant	Resistant
		CRISPR8 spacer 8 (2 mismatches, 1 in seed position 6)	cca		
		CRISPR9 spacer 1	cca		
		CRISPR11 spacer 1	cct		
		CRISPR11 spacer 2	cca		
		CRISPR15 spacer 2 (2 mismatches, no in seed)	cct		
		CRISPR17 spacer 1	cct		
		CRISPR17 spacer 15 (1 mismatch, no in seed)	cct		
		CRISPR17 spacer 4 (6 mismatches, 3 in seed position 3,6,8)	cct		

	R20291	CRISPR10 spacer 3 (2 mismatches, 1 in seed position 3) CRISPR10 spacer 14 CRISPR15 spacer 7 (5 mismatches, 1 in seed position 5) CRISPR16 spacer 5 (2 mismatches, no in seed) CRISPR19 spacer 12 (8 mismatches, 2 in seed position 3,5)	cca cct cca cca cca	Expected resistant	Resistant
phiC2	630	CRISPR4 spacer 3 (1 mismatch, no in seed) CRISPR8 spacer 2 (2 mismatches, no in seed) CRISPR15 spacer 3 (1 mismatch, no in seed)	cca ACA cca	Expected resistant	ND
	R20291	CRISPR10 spacer 14 (1 mismatch, no in seed) CRISPR19 spacer 12 (3 mismatches, no in seed) CRISPR20 spacer 3 (7 mismatches, 1 in seed position 6)	cct cca cca	Expected resistant	
phiCD38-2	630	CRISPR6 spacer 8 CRISPR8 spacer 4 CRISPR9 spacer 3 (4 mismatches, 2 in seed positions 5 and 6) CRISPR9 spacer 4 CRISPR9 spacer 11 (2 mismatches, no in seed) CRISPR10 spacer 2 (8 mismatches, 1 in seed position 8) CRISPR11 spacer 10 (4 mismatches, 1 in seed position 3) CRISPR12 spacer 6 (8 mismatches, 3 in seed position 1,2,8)	cca cca cct TCC cca CAA cca cct	Expected resistant	Resistant
	R20291	CRISPR10 spacer 4 (6 mismatches, no in seed) CRISPR10 spacer 5 (2 mismatches, no in seed) CRISPR10 spacer 7 (9 mismatches, 4 in seed position 1,3,4,8) CRISPR10 spacer 9 (8 mismatches, 4 in seed position 2,6,7,8) CRISPR11 spacer 3 (4 mismatches, 2 in seed positions 3 and 7) CRISPR11 spacer 5 (2 mismatches, 1 in seed position 8) CRISPR11 spacer 7 CRISPR15 spacer 2 (5 mismatches, 2 in seed position 4,7) CRISPR16 spacer 6 CRISPR19 spacer 23 (6 mismatches, 1 in seed position 3)	cca cca AGT cct cca cct cca AAA cca cca	Possible sensitive (only leader-distal spacers less expressed, less efficient)	Sensitive (Sekulovic et al, 2014)
phiCD119	630	CRISPR4 spacer 1 (6 mismatches, 3 in seed position 2,5,6) CRISPR6 spacer 13 (3 mismatches, 2 in seed positions 2 and 3) CRISPR7 spacer 11 (8 mismatches, 2 in seed position 3,5) CRISPR8 spacer 2 CRISPR9 spacer 8 (8 mismatches, 3 in seed, position 1,3,6) CRISPR11 spacer 4 (6 mismatches, 4 in seed positions 3, 5, 7, 8) CRISPR15 spacer 1 (6 mismatches, 3 in seed position 2, 5, 6)	cca cca cct ACA AGA cca cca	Expected sensitive	ND
	R20291	CRISPR10 spacer 13 (7 mismatches, 3 in seed position 4,6,7) CRISPR13 spacer 4 (5 mismatches, 2 in seed position 2,6) CRISPR19 spacer 12 (3 mismatches, no in seed) CRISPR20 spacer 3 (7 mismatches, 1 in seed position 6)	cca cct cca cca	Expected resistant	
phiCD6356	630	CRISPR9 spacer 2 CRISPR17 spacer 2 CRISPR17 spacer 3 (7 mismatches, 3 in seed position 4,7,8) CRISPR17 spacer 4 (5 mismatches, 3 in seed position 3,6,8)	cca cct cca cct	Expected resistant	ND
	R20291	CRISPR10 spacer 4 (9 mismatches, 4 in seed position 1,4,7,8) CRISPR10 spacer 8 CRISPR10 spacer 10 (3 mismatches in seed positions 3, 4, 7) CRISPR12 spacer 1 (8 mismatches, 4 in seed position 1,3,4,5) CRISPR15 spacer 3 CRISPR15 spacer 9 (1 mismatch, no in seed) CRISPR19 spacer 6 (2 mismatches in seed position 6,8) CRISPR19 spacer 7 (4 mismatches, 1 in seed position 8) CRISPR19 spacer 9 (6 mismatches, no in seed) CRISPR20 spacer 5 (2 mismatches, no in seed)	TAA cca cca CCG cct cca cct cca cca cct	Expected resistant	
phiIMMP01	630	CRISPR4 spacer 3 (1 mismatch, no in seed) CRISPR15 spacer 3 (1 mismatch, no in seed) CRISPR17 spacer 15	cca cca cct	Expected resistant	Resistant
	R20291	CRISPR19 spacer 12 (3 mismatches, no in seed)	cca	Expected resistant	Resistant (Sekulovic et al, 2014)
phiIMMP03	630	CRISPR4 spacer 3 (1 mismatch, no in seed) CRISPR8 spacer 2 CRISPR15 spacer 3 (1 mismatch, no in seed) CRISPR17 spacer 4 (6 mismatches, 4 in seed position 1,3,6,8)	cca ACA cca cct	Expected resistant	Resistant
	R20291	CRISPR10 spacer 14 (1 mismatch, no in seed) CRISPR19 spacer 12 (3 mismatches, no in seed)	cct cca	Expected resistant	Resistant (Sekulovic, AEM, 2014)
phiCD24-1	630			Expected sensitive	Resistant by other mechanisms
	R20291			Expected sensitive	Resistant by other mechanisms

phiCD52	630			Expected sensitive	Resistant by other mechanisms
	R20291	CRISPR10 spacer 14 CRISPR19 spacer 12 (3 mismatches, no in seed)	cct cca	Expected resistant	Resistant (Sekulovic et al, 2014)
phiCD111	630	CRISPR3 spacer 5 (4 mismatches, 1 in seed insertion position 3)	CTT	Expected resistant	Resistant
		CRISPR6 spacer 1 (6 mismatches, 3 in seed positions 4,7,8)	CTA		
		CRISPR6 spacer 8 (3 mismatches, no in seed)	cca		
		CRISPR8 spacer 4 (3 mismatches, no in seed)	cca		
		CRISPR9 spacer 3 (4 mismatches, 2 in seed positions 5 and 6)	cct		
		CRISPR9 spacer 4 (1 mismatch, seed position 6)	TCC		
	R20291	CRISPR9 spacer 11 (3 mismatches, no in seed)	cca	Expected sensitive	Resistant by other mechanisms (Sekulovic et al, 2014)
		CRISPR10 spacer 2 (2 mismatches, 1 in seed position 5)	CTA		
		CRISPR12 spacer 6 (10 mismatches, 3 in seed position 1,2,8)	cct		
		CRISPR16 spacer 5 (4 mismatches, 1 in seed position 3)	cct		
phiCD146	630	CRISPR10 spacer 4 (4 mismatches, 2 in seed position 4,7)	cca	Expected resistant	Resistant
		CRISPR10 spacer 7 (12 mismatches, 6 in seed position 1,3,4,5,6,7)	TCA		
		CRISPR10 spacer 9 (8 mismatches, 4 in seed position 2,6,7,8)	cct		
		CRISPR11 spacer 3 (3 mismatches, 2 in seed position 3,7)	cca		
		CRISPR11 spacer 7 (1 mismatch in seed position 6)	CCC		
		CRISPR15 spacer 2 (3 mismatches, 1 in seed position 7)	cct		
	R20291	CRISPR16 spacer 6 (2 mismatches, 2 in seed position 4,5)	cca	Possible sensitive (only leader-distal spacers less expressed, less efficient)	Sensitive (Sekulovic et al, 2014)
		CRISPR19 spacer 23 (5 mismatches, 1 in seed position 3)	cca		
		CRISPR6 spacer 8	cca		
		CRISPR8 spacer 4 (1 mismatch, no in seed)	cca		
		CRISPR9 spacer 3 (4 mismatches, 2 in seed positions 5 and 6)	cct		
		CRISPR9 spacer 4	TCC		
		CRISPR9 spacer 11 (2 mismatches, no in seed)	cca		
phiCD211	630	CRISPR10 spacer 2 (2 mismatches, 1 in seed position 5)	CTA	Expected resistant	Resistant
		CRISPR11 spacer 10 (3 mismatches, 1 in seed position 3)	cca		
		CRISPR12 spacer 6 (5 mismatches, 2 in seed position 1,2)	cct		
		CRISPR10 spacer 4 (6 mismatches, no in seed)	cca		
		CRISPR10 spacer 5 (1 mismatch, no in seed)	cca		
		CRISPR10 spacer 7 (6 mismatches, 4 in seed position 1,3,4,8)	AGT		
	R20291	CRISPR11 spacer 3 (3 mismatches, 2 in seed position 3,7)	cca	Expected sensitive	
		CRISPR11 spacer 7 (3 mismatches, no in seed)	cca		
		CRISPR15 spacer 2 (4 mismatches, no in seed)	CTT		
		CRISPR16 spacer 6 (2 mismatches, 2 in seed position 4,5)	cca		
phiCD481-1	630	CRISPR19 spacer 23 (6 mismatches, 2 in seed position 1,3)	cca	Expected resistant	Resistant
		CRISPR3 spacer 2	cct		
		CRISPR16 spacer 2	cct		
phiCD481-1	630	CRISPR17 spacer 11	cct	Expected sensitive	Resistant by other mechanisms
		CRISPR17 spacer 12	cca		
		CRISPR19 spacer 16 (1 mismatch in seed position 1)	CTT		
phiCD505	630	CRISPR19 spacer 17	GCT	Expected sensitive	Resistant by other mechanisms
		CRISPR6 spacer 8 (1 mismatch in seed position 1)	CGA		
		CRISPR7 spacer 6 (3 mismatches, no in seed)	TCG		
	R20291	CRISPR9 spacer 3 (6 mismatches, 3 in seed positions 5,7 and 8)	cct	Expected sensitive	Sensitive (Sekulovic et al, 2014)
		CRISPR9 spacer 4 (8 mismatches, 3 in seed position 1,3,7)	ACC		
phiCD505	630	CRISPR10 spacer 1 (6 mismatches, 4 in seed position 3,4,5,6)	cct	Expected resistant	Resistant
		CRISPR11 spacer 3 (3 mismatches, 2 in seed position 3,7)	cca		
		CRISPR15 spacer 10	CCG		
		CRISPR16 spacer 4 (6 mismatches, 2 in seed position 2,8)	CAA		
		CRISPR20 spacer 7 (6 mismatches, 3 in seed position 1,3,6)	cca		
		CRISPR4 spacer 2 (3 mismatches, 1 in seed position 5)	cct		
	R20291	CRISPR8 spacer 2 (2 mismatches, no in seed)	cca	Expected resistant	Resistant (Sekulovic et al, 2014)
		CRISPR8 spacer 8 (1 mismatch, no in seed)	cca		
		CRISPR9 spacer 1	cca		
		CRISPR11 spacer 1	cct		
phiCD506	630	CRISPR15 spacer 2 (5 mismatches, 1 in seed position 5)	cct	Expected resistant	Resistant
		CRISPR17 spacer 1	cct		
		CRISPR17 spacer 4 (6 mismatches, 3 in seed position 3,6,8)	cct		
phiCD506	630	CRISPR10 spacer 14	cct	Expected resistant	Resistant
		CRISPR16 spacer 5 (1 mismatch, no in seed)	cca		
		CRISPR19 spacer 12 (3 mismatches, no in seed)	cca		
		CRISPR6 spacer 8 (1 mismatch, no in seed)	cca		
		CRISPR7 spacer 6 (3 mismatches, no in seed)	CCG		
		CRISPR9 spacer 3 (4 mismatches, 2 in seed positions 5 and 6)	cct		
		CRISPR9 spacer 4 (8 mismatches, 3 in seed position 1,3,7)	ACC		
CRISPR17 spacer 4 (7 mismatches, 4 in seed position 1,3,6,8)	TCT				

	R20291	CRISPR10 spacer 1 (6 mismatches, 4 in seed position 3,4,5,6) CRISPR11 spacer 3 (2 mismatches, 1 in seed position 7) CRISPR15 spacer 10 CRISPR16 spacer 4 (6 mismatches, 2 in seed position 2,8) CRISPR20 spacer 7 (6 mismatches, 2 in seed position 1,3, 6)	cct cca CCG CAA cca	Expected sensitive	Resistant (Sekulovic et al, 2014)
phiIMMP02	630	CRISPR4 spacer 2 (2 mismatches, no in seed) CRISPR8 spacer 2 CRISPR9 spacer 1 CRISPR11 spacer 1 CRISPR15 spacer 2 (2 mismatches, no in seed) CRISPR17 spacer 1 CRISPR17 spacer 4 (9 mismatches, 5 in seed position 1,2,3,6,8)	cct ACA cca cct cct cct cct	Expected resistant	Resistant
	R20291	CRISPR16 spacer 5 (1 mismatch, no in seed) CRISPR19 spacer 10 CRISPR19 spacer 12 (4 mismatches, no in seed) CRISPR20 spacer 3 (7 mismatches, 1 in seed position 6)	cca cca TCA cca	Expected resistant	Resistant (Sekulovic et al, 2014)
phiIMMP04	630	CRISPR7 spacer 6 (4 mismatches, 1 in seed position 3) CRISPR9 spacer 3 (6 mismatches, 2 in seed positions 5 and 6) CRISPR9 spacer 4 (6 mismatches, 2 in seed position 1,3)	CCG cct ACC	Expected sensitive	Resistant by other mechanisms
	R20291	CRISPR10 spacer 1 (8 mismatches, 4 in seed position 3,4,5,6) CRISPR11 spacer 3 (4 mismatches, 2 in seed position 2,3) CRISPR15 spacer 10 CRISPR16 spacer 4 (4 mismatches, position 8 in seed, 26,29,34) CRISPR20 spacer 7 (4 mismatches, 2 in seed position 1, 6)	cct cca CCG CAA cca	Expected sensitive	Resistant (Sekulovic et al, 2014)
phiCDMH1	630	CRISPR4 spacer 3 (1 mismatch, no in seed) CRISPR8 spacer 2 CRISPR15 spacer 3 (1 mismatch, no in seed)	cca CTA cca	Expected resistant	ND
	R20291	CRISPR19 spacer 12 (3 mismatches, no in seed)	cca	Expected resistant	
pCDBI1	630	CRISPR9 spacer 6	cca	Expected resistant	ND
	R20291	CRISPR11 spacer 10 (7 mismatches, position 3,6 in seed, 9,15,30,32,37) CRISPR19 spacer 1 CRISPR19 spacer 2	CTT cca cct	Expected resistant	
pCD630	630				ND
	R20291	CRISPR15 spacer 10 (2 mismatches, no in seed)	CCG	Expected sensitive	