

Supplementary Table S1.: CRISPR analysis of *S. thermophilus* STA and derived BIMs. All plasmid-containing and cured derivatives contained identical CRISPR spacer numbers and content to the parent strains (or relevant BIMs) from which they were derived (Supplementary Table S1).

Strain	CRISPR1 (bp)	#spacers	CRISPR2 (bp)	#spacers	CRISPR3 (bp)	#spacers	CRISPR4 (bp)	#spacers
STA	2409	36	107	1	1358	20	Not detected	N/A
STA BIM1	2475	37	107	1	1358	20	“	“
STA BIM2	2409	36	107	1	1358	20	“	“

Supplementary Table S2. CRISPR analysis of *S. thermophilus* STB and derived BIMs. All plasmid-containing derivatives contained identical CRISPR spacer numbers and content to the parent strains or BIMs from which they were derived (Supplementary Table S1).

Strain	CRISPR1 (bp)	#spacers	CRISPR2 (bp)	#spacers	CRISPR3 (bp)	#spacers	CRISPR4 (bp)	#spacers
STB	2146	32	258	3	827	12	762	12
STB BIM1	2146	32	258	3	893	13	762	12
STB BIM2	2212	33	258	3	893	13	762	12
STB BIM3	2146	32	258	3	827	12	762	12

Supplementary Table S3. Observed incidence of CRISPR spacer addition during BIM generation using STB and its CRISPR-Cas silenced derivatives.

BIMs origin	#BIMs analysed	#CRISPR1	#CRISPR3	#CRISPR4	#CRISPR1+3	#No alterations
STB	10	7 (70%)	1 (10%)	0 (0%)	2 (20%)	0 (0%)
STB::pNZ44	10	7 (70%)	2 (20%)	0 (0%)	1 (10%)	0 (0%)
STB::pNZ44+Csn2-1i	6	0 (0%)	4 (66%)	0 (0%)	0 (0%)	2 (33%)
STB::pNZ44+2Csn1	10	4 (40%)	1 (10%)	0 (0%)	0 (0%)	5 (50%)

Supplementary Table S4. Efficiencies of plaquing (EOPs) of phages 9851, 9853 and 9854 on STBWT and STB BIM3.

	9851	9853	9854
STB	1	1	1
STB BIM3	$9.68 (\pm 10.8) \times 10^{-6}$	0.27 ± 0.05	$3.20 (\pm 4.35) \times 10^{-5}$

Supplementary Table S5. Adsorption analysis of *S. thermophilus* STB and derived CRISPR and non-CRISPR mediated BIMs.

Strain/BIM	Adsorption of phage 9854 (%)	p-value
STB	90.4 ± 2.7	
STB BIM3	69.6 ± 10.9	0.059

Supplementary Table S6. CRISPR analysis of all derivatives of STA and STB, including plasmid controls and cured derivatives.

Plasmid-containing derivative	CRISPR1 (bp)	#spacers	CRISPR2 (bp)	#spacers	CRISPR3 (bp)	#spacers	CRISPR4 (bp)	#spacers
STA BIM1::pNZ44	2475	37	107	1	1358	20	Not detected	N/A
STA BIM1::Cas9i	2475	37	107	1	1358	20	“	“
STA BIM1::Cas9i (cured)	2475	37	107	1	1358	20	“	“
STA BIM2::Cas9i	2409	36	107	1	1358	20	“	“
STB::pNZ44	2146	32	258	3	827	12	762	12
STB::pNZ44+Cas7i	2146	32	258	3	827	12	762	12
STB::pNZ44+2CsnI	2146	32	258	3	827	12	762	12
STB BIM1::pNZ44	2146	32	258	3	893	13	762	12
STB BIM1::pNZ44+Csn1i	2146	32	258	3	893	13	762	12
STB BIM2::pNZ44	2212	33	258	3	893	13	762	12
STB BIM2::pNZ44+Cas9i	2212	33	258	3	893	13	762	12

Supplementary Table S7. Added spacer content of CRISPR1, 2, 3 and 4 of *S. thermophilus* STA BIM1.

Strain	CRISPR1	CRISPR2	CRISPR3	CRISPR4
STA BIM1	GGAAGACAAAGACATGACAAATCAACTATC	N/A	N/A	Not present

Supplementary Table S8. Added spacer content of CRISPR1, 2, 3 and 4 of *S. thermophilus* STB BIM1 and STB BIM2.

Strain	CRISPR1	CRISPR2	CRISPR3	CRISPR4
STB BIM2	TTATCGCAGCTTCTACACGTTGCTACCACG	N/A	TGAAATTATGGAAAATGATGATGACAGAGC	N/A
STB BIM1			TGAAATTATGGAAAATGATGATGACAGAGC	

Supplementary Table S9. CRISPR spacers added by *S. thermophilus* STB as well as CRISPR-Cas silenced variants STB::pNZ44 (plasmid control), STB::pNZ44+Csn2-1i and STB::pNZ44+2Csni. CRISPR2 is presumed to be inactive in this strain, and no added spacers were detected in the CRISPR4 repeat/spacer locus.

Parent	BIM #	Added spacers - CRISPR1	Added spacers - CRISPR3	Parent	BIM #	Added spacers - CRISPR1	Added spacers - CRISPR3
STB WT	1	TGCTAATGAAGTAGCAAACATGCTGAAGA	N/A	STB::pNZ44+Csn2-1i	1	N/A	CCAATGACTGAAAACGACATTCGGAGGGTG
	2	TCTGGAAAGCATATTGAGGGAGCTACTCTT	N/A		2	N/A	GTTTATTACCAACAAAAGTAAAAATATA
	3	GACGTTCTTAATAGTCTTCCGACATTTAT	GCTCAATCAAGAGTATCTAGCTATCAAAA		3	N/A	CCAATGACTGAAAACGACATTCGGAGGGTG
	4	ACATGCTTGACCTCATTTCCTTCTCCT	N/A		4	N/A	CCAAAAAATTTAGCCCTAAAGCTGACAAGT
	5	AAAAATCAAAGGTGAGCAGATTTACGAGCT	N/A		5	N/A	CTTAATCCCTCTCTGCTGCTCGGTTACC
	6	N/A	AGGTTATATTGTCGAAAATGGCAAAGCTTT		6	N/A	N/A
	7	AAATATCTACAGGTCACTACAAAGCTACGCT	AACAGCGAAAACCGTCAATTGAGTACCCTGT				N/A
	8	AAATCAGTTTTTTGTTTCAGAAACTTGTCT	TGCTCGACTTGTTAAAAAACTACTGAAGA				
	9	N/A	CTCCTTCGCTATTTTCAAACACTTTTG				
	10	AAATCAGTTTTTTGTTTCAGAAACTTGTCT	TCTAAATCCAAACAAGTCACAAAAACCTTT				
		N/A					
STB:pNZ44	1	AAAATCAATGGAAAAAGATTGTGGAATCAA	N/A	STB::pNZ44+2Csni	1	AAATCAGTTTTTTGTTTCAGAAACTTGTCT	N/A
	2	TTTGATTCACGTTTGATAGTTGCTAAGATT	N/A		2	N/A	N/A
	3	TCAACAGTCTAGCAGCTTATTGGTCGTTT	N/A		3	N/A	N/A
	4	AAATCAGTTTTTTGTTTCAGAAACTTGTCT	ATCAAGTTGTTAAATTCAAAAGCGACAGT		4	N/A	N/A
	5	AAAGATTGCATCATCTAAGAGGTGTTAAGT	N/A		5	N/A	N/A
	6	ATATTCATATCCCTGCTCATGTTTGATAG	N/A		6	N/A	N/A
	7	TAACTCACATGTATCTTGACCAACTGTTCT	GTTTATTACCAACAAAAGTAAAAATATA		7	N/A	TGCTCGACTTGTTAAAAAACTACTGAAGA
	8	N/A	TTATTGGGTGGTGAAGCGTTTGCTTATCGT		8	TCGTTAGAACTGGATCAACATCTAGTACA	N/A
	9	CATACATTGGTTCGTCAATACGACTATTG	N/A		9	AAATCAGTTTTTTGTTTCAGAAACTTGTCT	N/A
	10	TTACGAATAGAAGACCACATCTCGAACG	N/A		10	TTGACGATTGGGAACCGTGAAGGAATTT	N/A