Supporting information

Antimicrobial activity of small synthesized synthetic peptides based on the marine peptide turgencin A: prediction of antimicrobial peptide sequences in a natural peptide and strategy for optimization of potency

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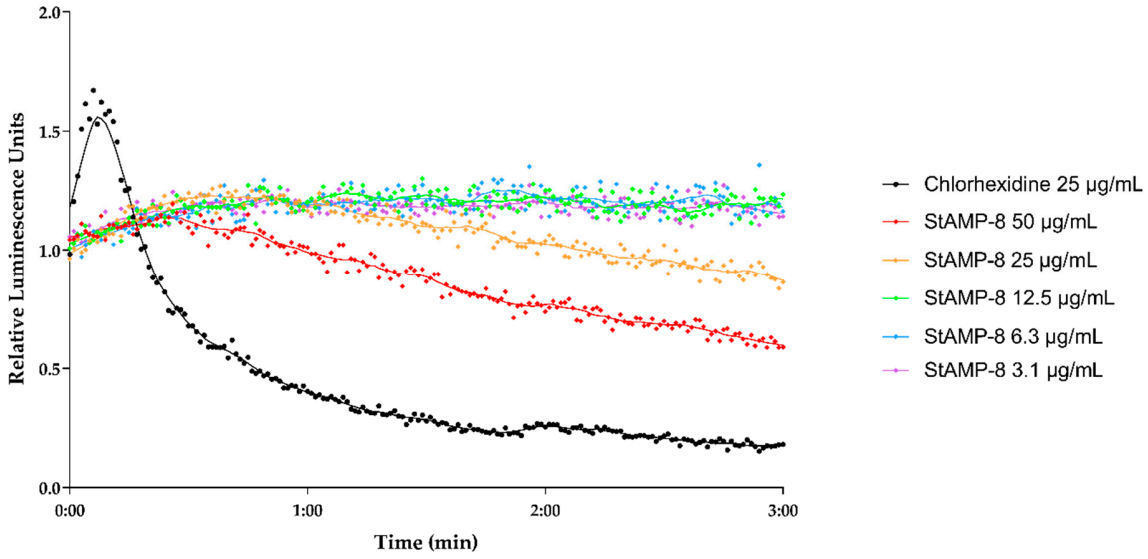

Figure S1. Kinetic of the antimicrobial effect on membrane integrity as measured by relative luminescence in *B. subtilis* (pCSS962) treated with chlorhexidine and different concentration of **StAMP-8**.

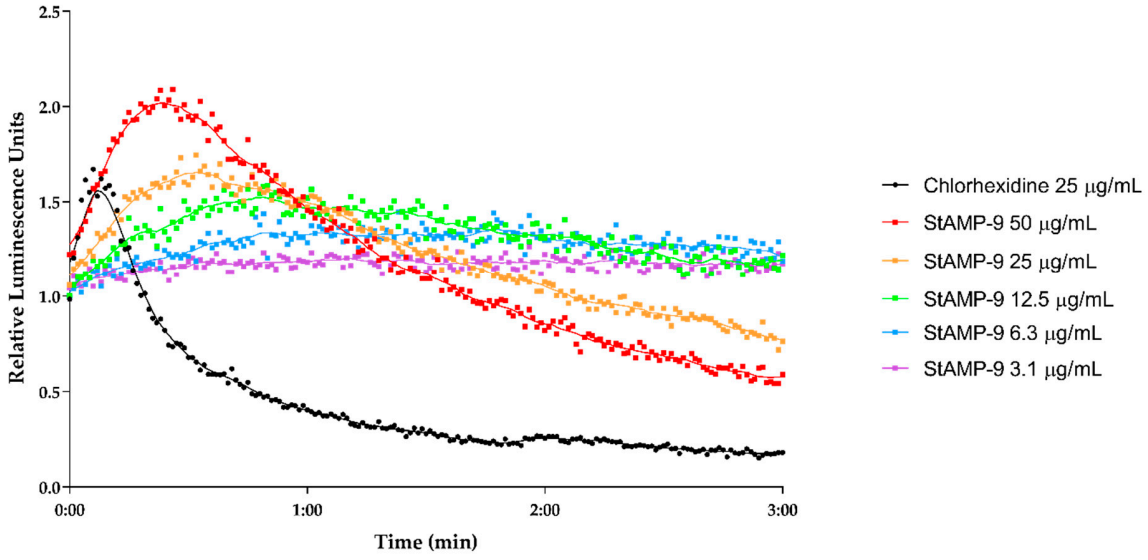

Figure S2. Kinetic of the antimicrobial effect on membrane integrity as measured by relative luminescence in *B. subtilis* (pCSS962) treated with chlorhexidine and different concentration of **StAMP-9**.

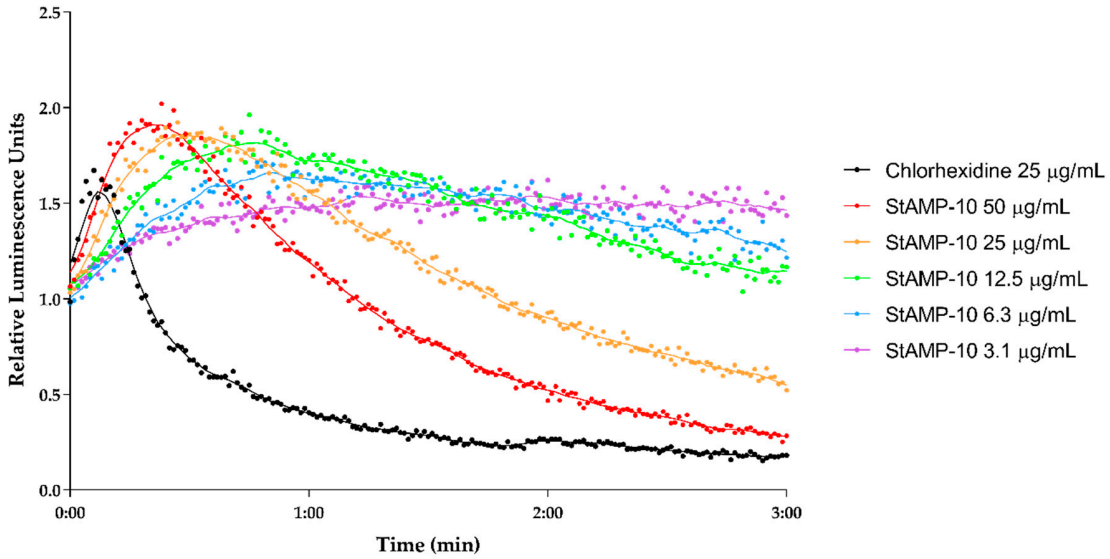

Figure S3. Kinetic of the antimicrobial effect on membrane integrity as measured by relative luminescence in *B. subtilis* (pCSS962) treated with chlorhexidine and different concentration of **StAMP-10**.

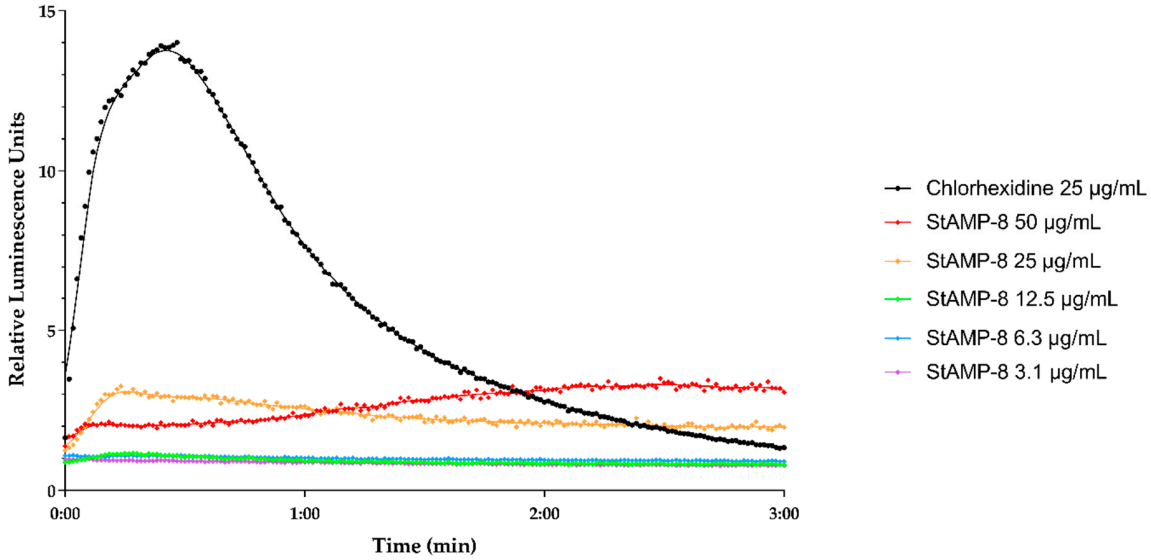

Figure S4. Kinetic of the antimicrobial effect on membrane integrity as measured by relative luminescence in *E. coli* (pCSS962) treated with chlorhexidine and different concentration of **StAMP-8**.

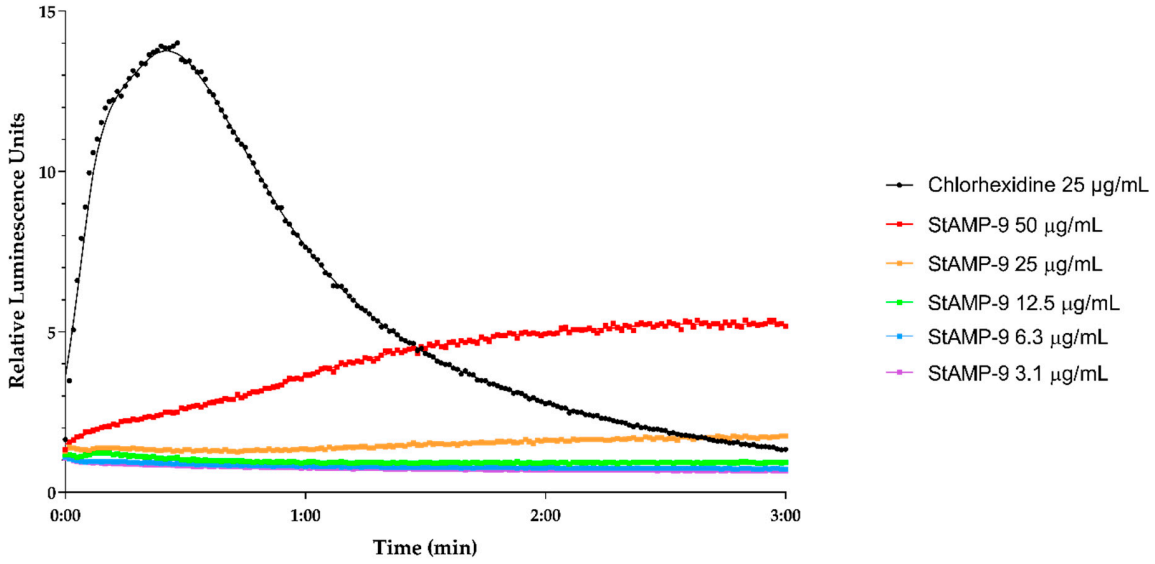

Figure S5. Kinetic of the antimicrobial effect on membrane integrity as measured by relative luminescence in *E. coli* (pCSS962) treated with chlorhexidine and different concentration of **StAMP-9**.

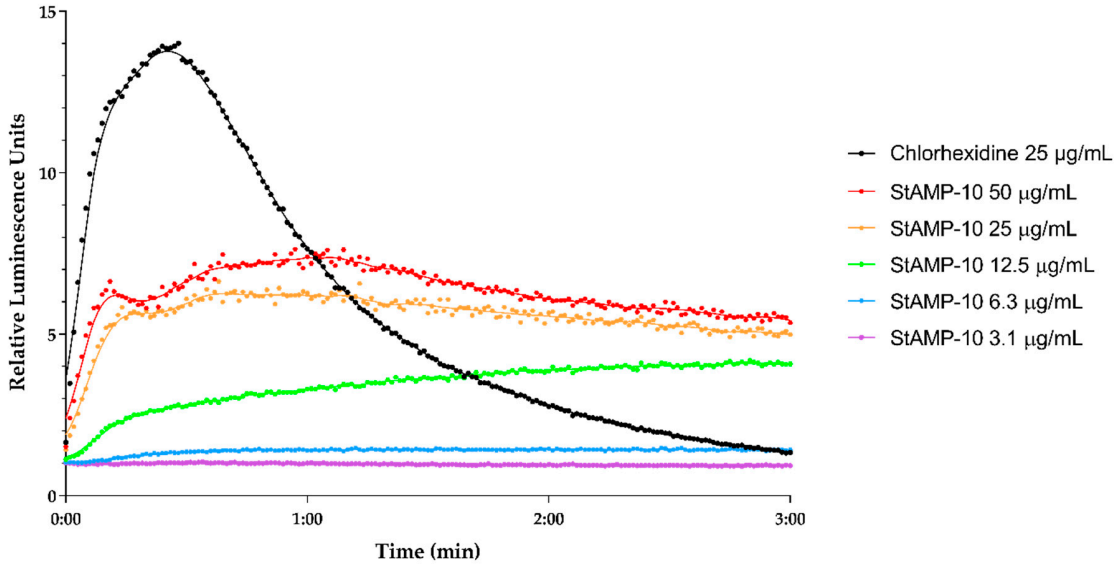

Figure S6. Kinetic of the antimicrobial effect on membrane integrity as measured by relative luminescence in *E. coli* (pCSS962) treated with chlorhexidine and different concentration of **StAMP-10**.

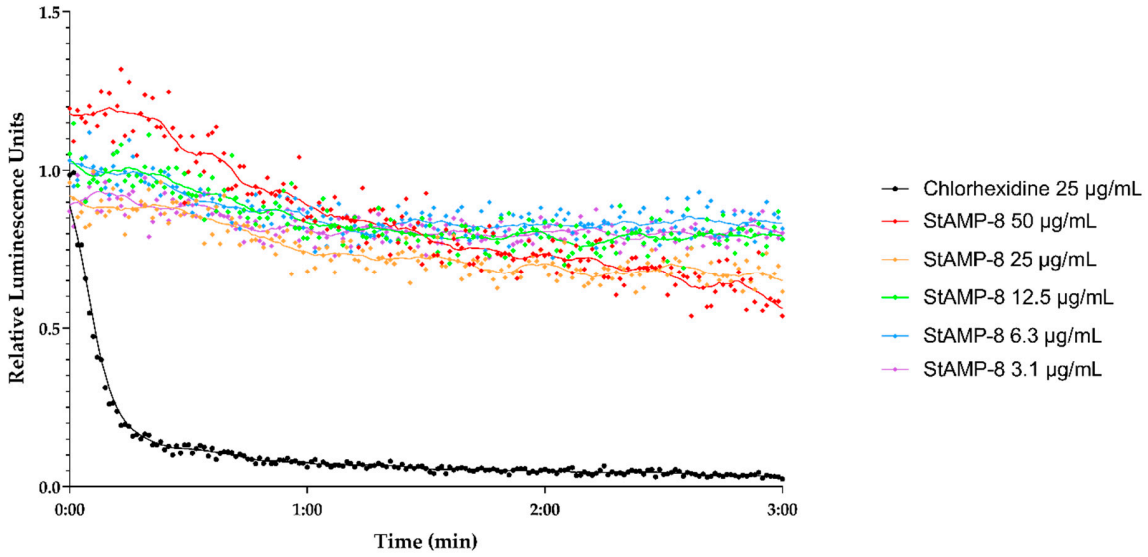

Figure S7. Kinetic of the antimicrobial effect on viability as measured by relative luminescence in *B. subtilis* (pCGLS-11) treated with chlorhexidine and different concentration of **StAMP-8**.

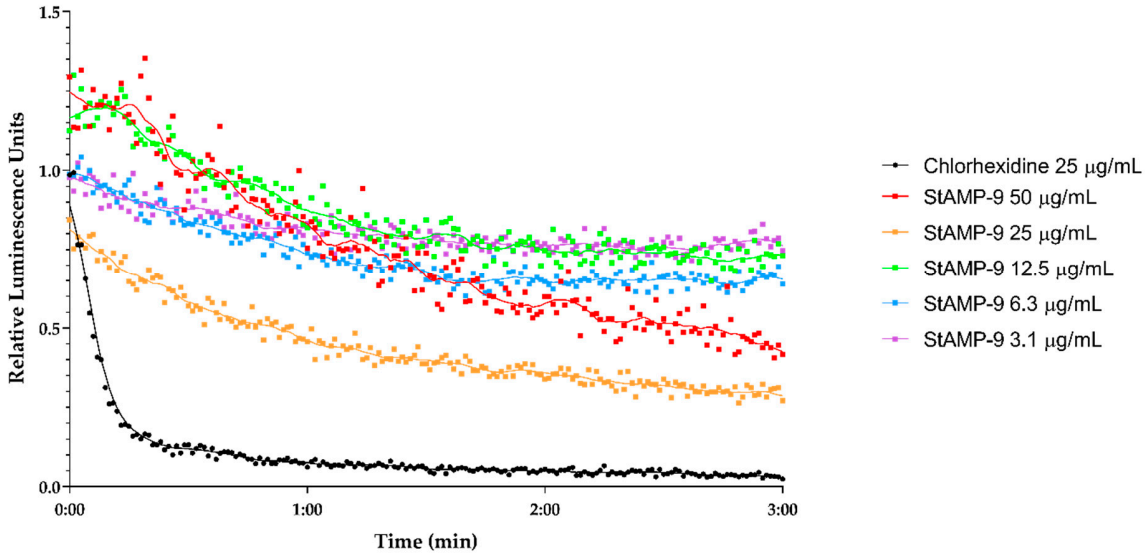

Figure S8. Kinetic of the antimicrobial effect on viability as measured by relative luminescence in *B. subtilis* (pCGLS-11) treated with chlorhexidine and different concentration of **StAMP-9**.

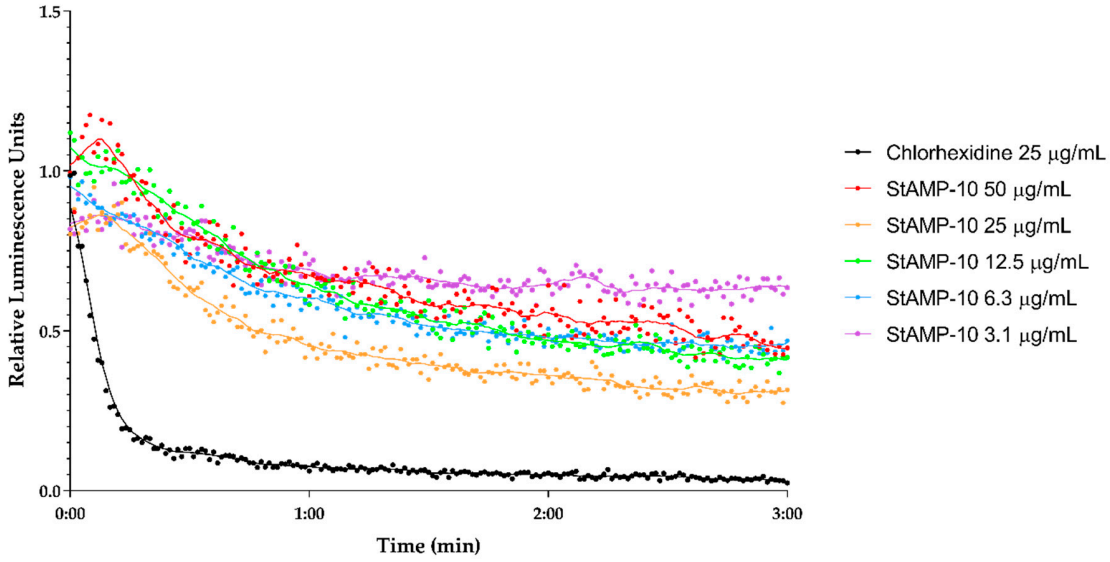

Figure S9. Kinetic of the antimicrobial effect on viability as measured by relative luminescence in *B. subtilis* (pCGLS-11) treated with chlorhexidine and different concentration of **StAMP-10**.

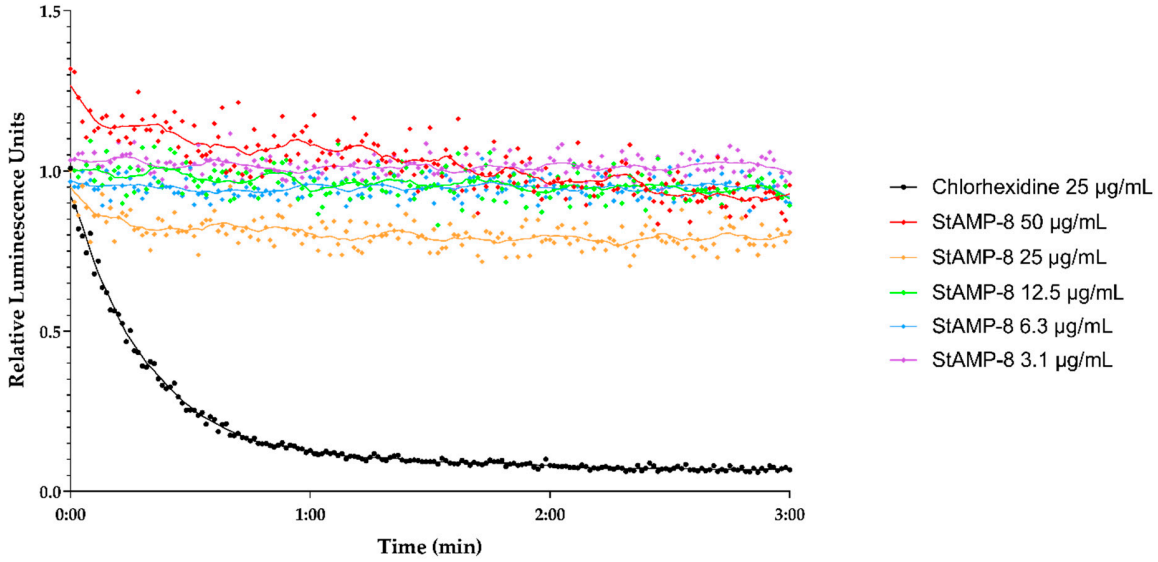

Figure S10. Kinetic of the antimicrobial effect on viability as measured by relative luminescence in *E. coli* (pCGLS-11) treated with chlorhexidine and different concentration of **StAMP-8**.

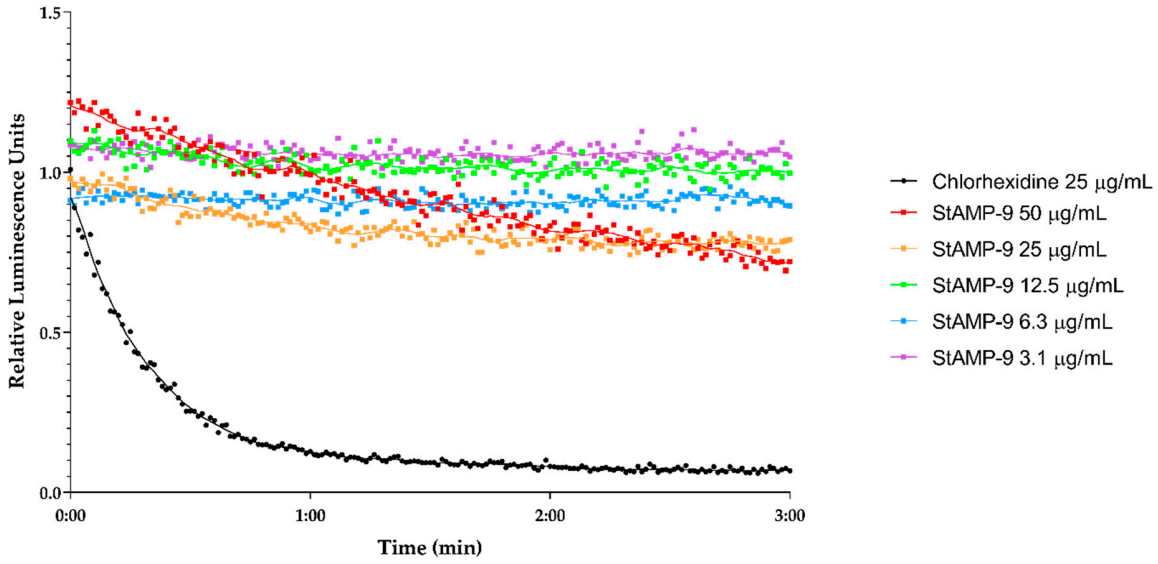

Figure S11. Kinetic of the antimicrobial effect on viability as measured by relative luminescence in *E. coli* (pCGLS-11) treated with chlorhexidine and different concentration of **StAMP-9**.

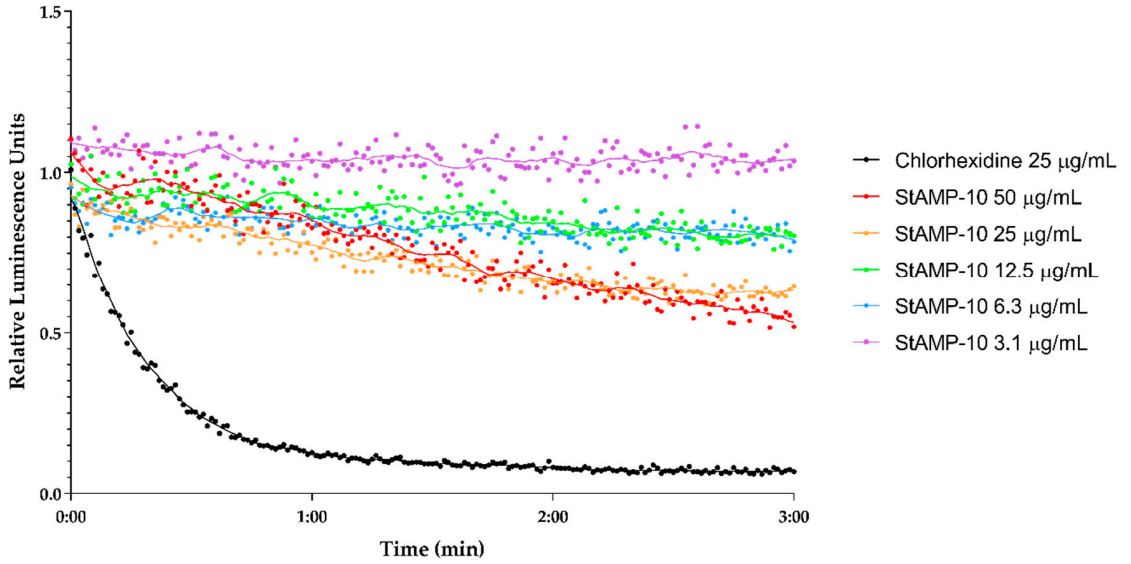

Figure S12. Kinetic of the antimicrobial effect on viability as measured by relative luminescence in *E. coli* (pCGLS-11) treated with chlorhexidine and different concentration of **StAMP-10**.

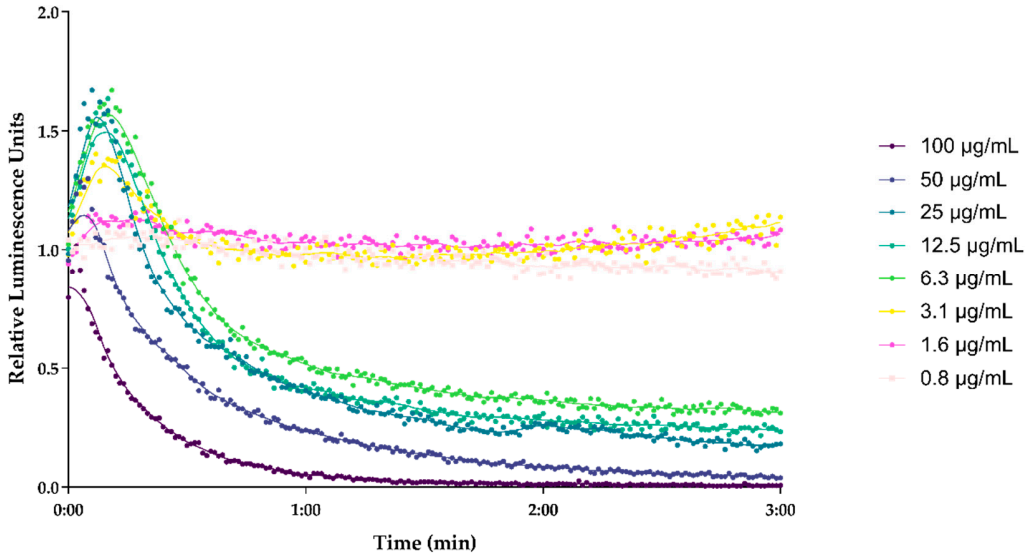

Figure S13. Kinetic of the antimicrobial effect on membrane integrity as measured by relative luminescence in *B. subtilis* (pCSS962) treated with different concentration of chlorhexidine.

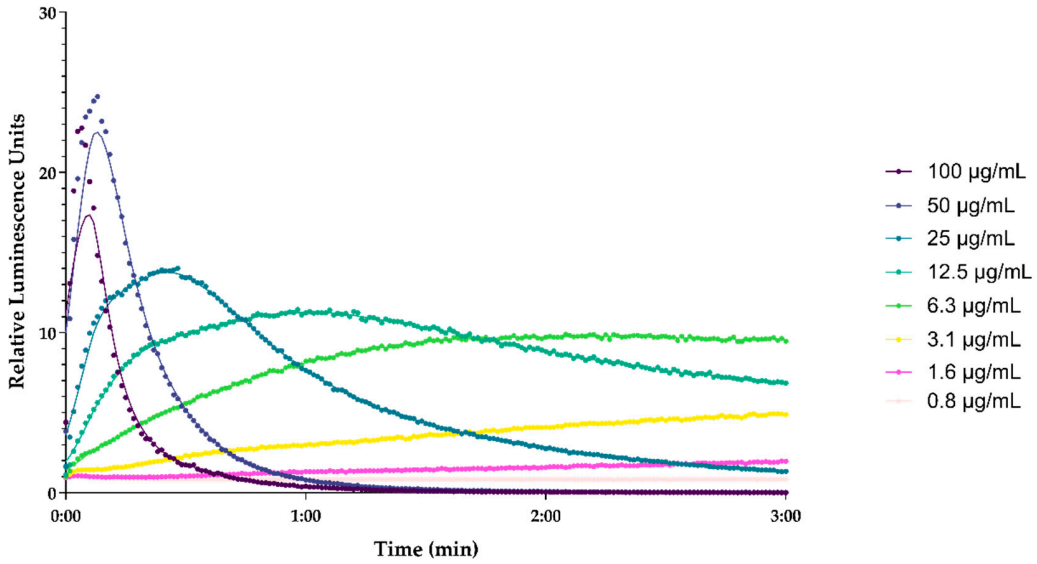

Figure S14. Kinetic of the antimicrobial effect on membrane integrity as measured by relative luminescence in *E. coli* (pCSS962) treated with different concentration of chlorhexidine.

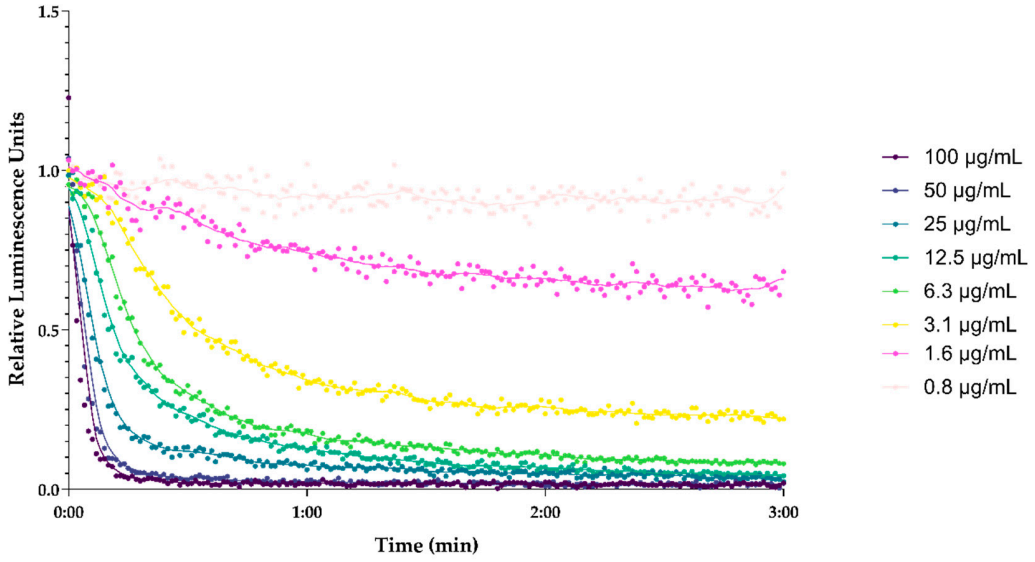

Figure S15. Kinetic of the antimicrobial effect on viability as measured by relative luminescence in *B. subtilis* (pCGLS-11) treated different concentration of chlorhexidine.

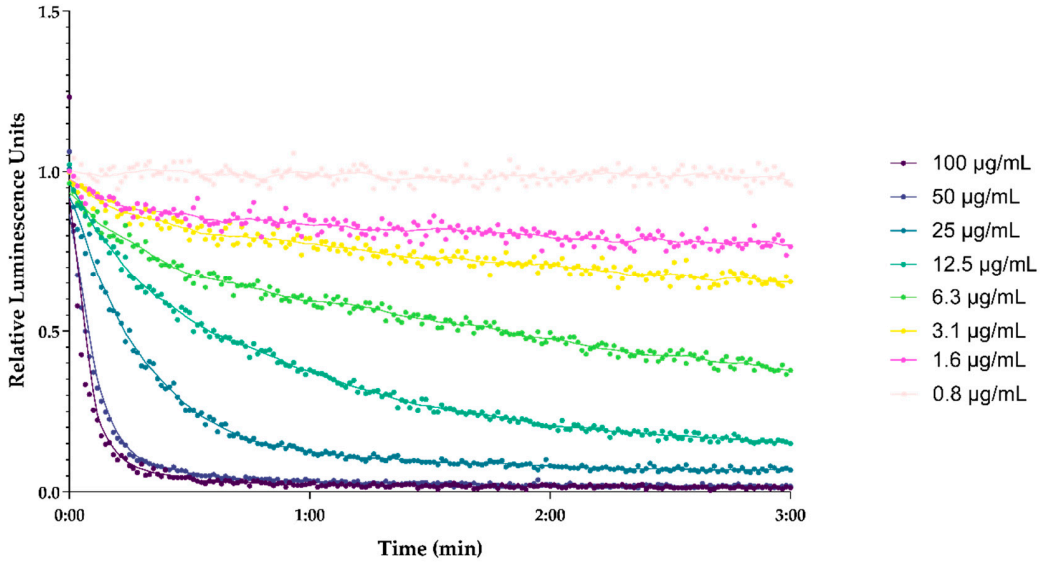

Figure S16. Kinetic of the antimicrobial effect on viability as measured by relative luminescence in *E. coli* (pCGLS-11) treated different concentration of chlorhexidine.

Table S1. Antimicrobial activity prediction of the designed StAMPs. SVM: support vector machines; RF: random forests; ANN: artificial neural networks; and DA: discriminant analysis.

Peptide	Sequence	CAMP$_{R3}$				ADAM
		SVM	RF	ANN	DA	SVM
StAMP-1	GKKPGGWKAK	0.968	0.559	AMP	0.884	2.85
StAMP-2	GKK**W**GGWKAK	0.998	0.533	AMP	0.887	3.23
StAMP-3	GKKP**W**GWKAK	0.999	0.625	AMP	0.979	2.85
StAMP-4	GKKPG**W**WKAK	0.997	0.623	AMP	0.979	2.85
StAMP-5	GKK**WW**GWKAK	1.000	0.605	AMP	0.980	3.14
StAMP-6	GKK**W**G**W**WKAK	1.000	0.605	AMP	0.980	3.14
StAMP-7	GKKP**WW**WKAK	1.000	0.724	AMP	0.997	2.79
StAMP-8	GKK**WWW**WKAK	1.000	0.830	AMP	0.998	2.90
StAMP-9	G**RR**P**WW**W**R**A**R**	0.999	0.634	AMP	0.993	1.36
StAMP-10	G**RRWWW**W**R**A**R**	1.000	0.649	AMP	0.995	1.97
StAMP-11	G**RR**P**LLLR**A**R**	0.918	0.583	AMP	0.907	1.82

Table S2. Molecular weight and purity of the StAMPs.

Peptide	Molecular weight (g/mol)	Purity (%)
StAMP-1	1055.28	97
StAMP-2	1144.37	98
StAMP-3	1184.44	98
StAMP-4	1184.44	98
StAMP-5	1273.53	95
StAMP-6	1273.53	98
StAMP-7	1313.59	99
StAMP-8	1402.69	100
StAMP-9	1425.65	100
StAMP-10	1514.74	100
StAMP-11	1206.49	97