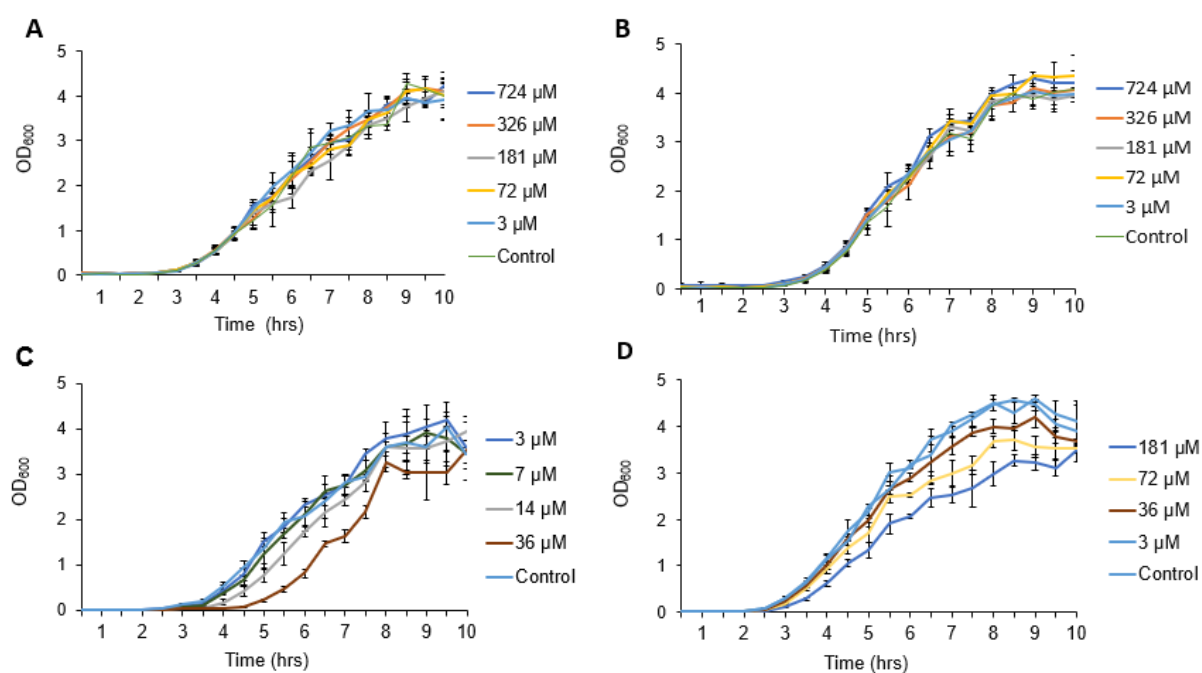
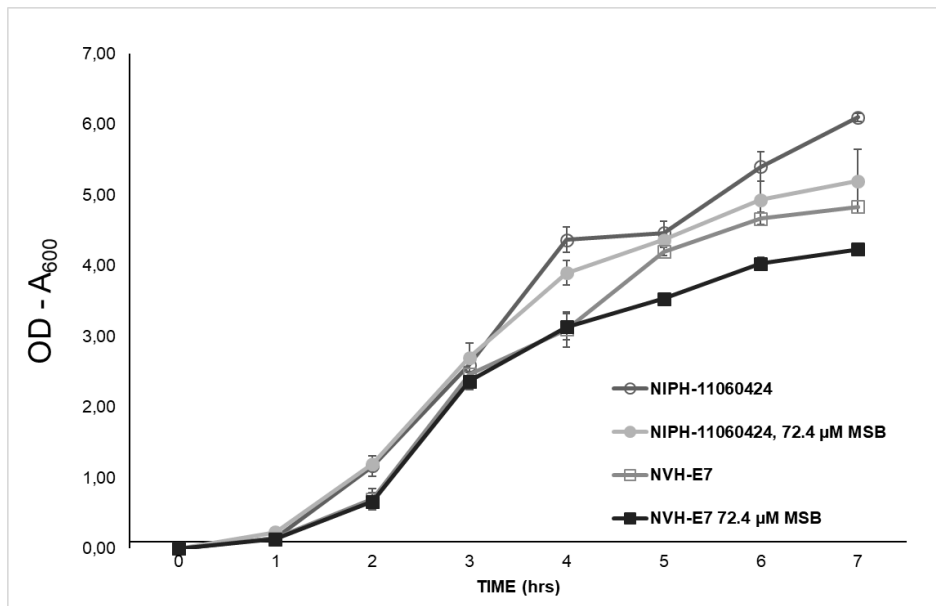


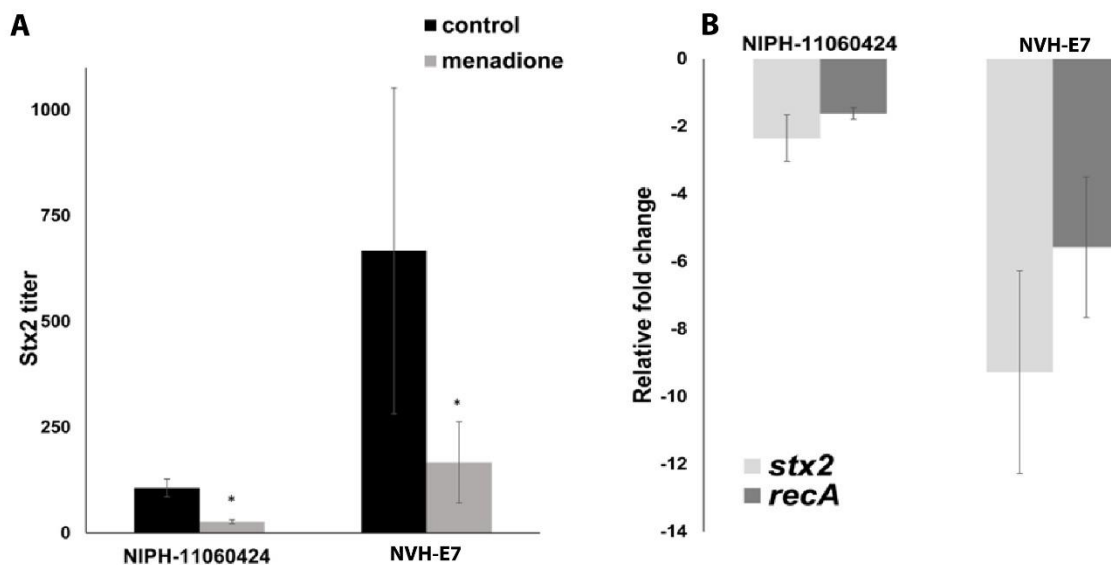
Supplementary material



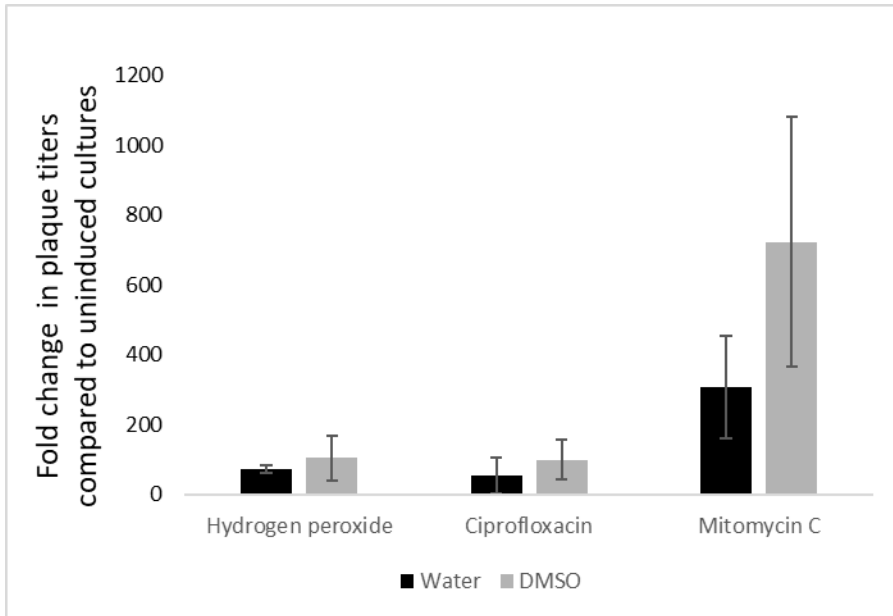
Supplementary Figure 1. The effect of vitamin K analogs on the growth/ increase in cell mass of EDL933. A) phylloquinone, B) menaquinone C) menadione, D) MSB. The solvents used for solubilization of the different vitamin K analogs were used as negative controls. DMSO was used at a concentration of 0.05%. Results are given as means of three independent experiments, with bars showing \pm standard deviation (SD). The statistics are shown in Table S2.



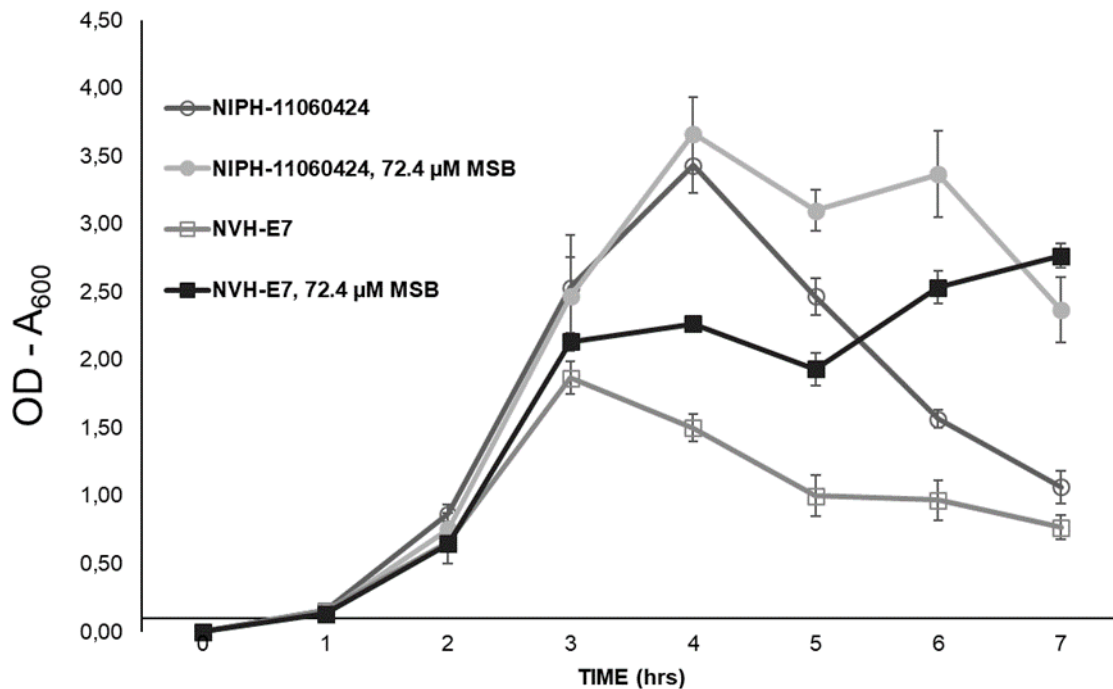
Supplementary Figure 2. The effect of 72 μ M MSB on growth of NIPH-11060424 and NVH-E7. Results are given as means of three independent experiments with bars showing \pm standard deviation (SD).



Supplementary Figure 3. (A) Stx2 titer produced by NIPH-11060424 and NVH-E7 in the presence or absence of 72 μ M MSB under induction with MMC. The error bars represent the standard error of the mean (SEM) of three independent experiments. An asterisk indicates statistically significant difference ($p < 0.05$) in Stx levels (student's t -test). (B) Relative fold change in transcript levels of *stx2* and *recA* in MSB treated NIPH-11060424 and NVH-E7 cultures compared to untreated cultures under induction with MMC. The concentrations of MSB used was 72 μ M. Data represent mean of three individual experiments. The error bars represent the standard error of the mean (SEM) of three independent experiments.



Supplementary Figure 4. Plaque production efficiency of BP933W when EDL933 was induced with either H₂O₂, ciprofloxacin or MMC. The columns represent fold change in plaque production relative to uninduced cultures (i.e., only water or DMSO added).



Supplementary Figure 5. The effect of 72 μM MSB on the survival of NIPH-11060424 and NVH-E7 after treatment with 0.5 μg/mL MMC at OD₆₀₀ = 0.5. Results are given as means of three independent experiments, with bars showing ± standard deviation (SD).

Supplementary Table 1. The maximum velocity (V_{max}), the average, SD and P-values of EDL933 growth (as measured by counting CFU/mL) in the presence of different concentrations of phyloquinone, menaquinone, menadione and MSB. The V_{max} calculations were done with the Baranyi and Roberts model (1), with the Combase – DMFit software. The P-values were calculated with a paired student's *t*-test.

	DMSO control			DMSO control			DMSO control			Water control		
Time (hrs)	Average	SD	P-value	Average	SD	P-value	Average	SD	P-value	Average	SD	P-value
2	1.53E+07	1.12E+07		1.12E+07	2.16E+06		3.57E+07	8.73E+06		1.29E+07	4.84E+06	
4	7.70E+08	1.22E+08		9.61E+08	5.73E+08		2.40E+09	9.66E+08		1.53E+09	1.29E+09	
6	2.74E+09	4.49E+08		5.80E+09	4.64E+09		1.28E+10	1.79E+09		9.43E+09	3.68E+09	
8	1.38E+09	9.35E+08		2.00E+09	4.90E+08		1.54E+09	5.09E+08		2.50E+09	5.52E+08	
10	1.56E+09	1.02E+09		2.80E+09	7.12E+08		7.88E+09	7.47E+09		3.24E+09	2.05E+09	
Vmax	9.96E+08	1.79E+08		2.48E+09	2.26E+09		5.41E+09	1.36E+09		4.15E+09	1.41E+09	
	Phylloquinone 3.62 μ M			Menaquinone 3.62 μ M			Menadione 3.62 μ M			MSB 3.62 μ M		
Time (hrs)	Average	SD	P-value	Average	SD	P-value	Average	SD	P-value	Average	SD	P-value
2	1.05E+07	3.02E+06	0.466	7.99E+06	3.80E+06	0.391	1.14E+07	2.03E+06	0.053	1.25E+07	3.59E+06	0.873
4	8.39E+08	6.55E+07	0.450	6.00E+08	2.87E+08	0.688	8.19E+08	1.30E+08	0.159	1.11E+09	6.66E+08	0.469
6	1.85E+09	6.46E+08	0.213	2.17E+09	1.24E+09	0.483	6.81E+09	3.22E+09	0.283	4.36E+09	2.30E+09	0.023
8	2.21E+09	1.61E+09	0.561	2.01E+09	4.96E+08	0.838	1.47E+09	4.56E+08	0.591	2.07E+09	4.32E+08	0.412
10	1.53E+09	3.25E+08	0.942	3.68E+09	5.86E+08	0.345	1.59E+09	2.89E+08	0.397	4.55E+09	2.56E+09	0.825
Vmax	1.04E+09	4.46E+08	0.807	1.33E+09	8.89E+07	0.815	3.47E+09	1.15E+09	0.886	2.43E+09	9.44E+08	0.253
	Phylloquinone 72.4 μ M			Menaquinone 72.4 μ M			Menadione 7.24 μ M			MSB 36.2 μ M		
Time (hrs)	Average	SD	P-value	Average	SD	P-value	Average	SD	P-value	Average	SD	P-value
2	1.03E+07	5.02E+06	0.61	8.83E+06	4.04E+06	0.275	2.01E+07	2.08E+07	0.498	7.12E+06	2.79E+06	0.051
4	8.33E+08	1.03E+08	0.28	6.36E+08	3.02E+08	0.675	8.53E+08	5.86E+07	0.224	4.94E+08	3.50E+08	0.173
6	2.82E+09	1.80E+09	0.92	2.19E+09	1.22E+09	0.324	3.71E+09	1.03E+09	0.059	2.78E+09	1.62E+09	0.014
8	1.63E+09	6.24E+08	0.64	1.78E+09	4.20E+08	0.143	1.43E+09	7.94E+08	0.528	1.78E+09	5.95E+08	0.427
10	1.61E+09	7.32E+08	0.79	2.32E+09	8.29E+08	0.307	3.30E+09	4.28E+09	0.679	1.29E+09	1.62E+08	0.197
Vmax	1.84E+09	8.28E+08	0.23	1.02E+09	5.08E+08	0.365	1.14E+09	5.41E+08	0.247	1.84E+09	5.85E+08	0.036
	Phylloquinone 181 μ M			Menaquinone 181 μ M			Menadione 14.4 μ M			MSB 72.4 μ M		
Time (hrs)	Average	SD	P-value	Average	SD	P-value	Average	SD	P-value	Average	SD	P-value
2	1.60E+07	1.08E+07	0.489	8.53E+06	4.15E+06	0.225	1.06E+07	5.84E+06	0.022	5.82E+06	4.56E+06	0.017
4	5.70E+08	1.66E+08	0.129	6.76E+08	3.62E+08	0.844	7.14E+08	2.30E+08	0.138	3.49E+08	2.67E+08	0.147
6	2.61E+09	1.02E+09	0.888	1.93E+09	1.37E+09	0.266	4.73E+09	2.77E+09	0.438	1.88E+09	1.22E+09	0.016
8	1.52E+09	6.51E+08	0.851	4.96E+09	4.49E+09	0.438	1.25E+09	6.28E+08	0.953	1.58E+09	5.25E+08	0.034
10	4.88E+09	6.00E+09	0.451	1.94E+09	4.43E+08	0.083	1.17E+09	7.38E+08	0.387	1.70E+09	1.05E+09	0.086
Vmax	1.06E+09	6.15E+08	0.898	2.28E+09	2.12E+09	0.605	2.13E+09	1.57E+09	0.519	1.03E+09	4.92E+08	0.032
	Phylloquinone 362 μ M			Menaquinone 362 μ M			Menadione 36.2 μ M			MSB 181. μ M		
Time (hrs)	Average	SD	P-value	Average	SD	P-value	Average	SD	P-value	Average	SD	P-value
2	1.75E+07	7.30E+06	0.427	1.14E+07	5.49E+05	0.911	5.19E+06	2.50E+06	0.026	3.42E+06	2.72E+06	0.013
4	7.70E+08	1.68E+08	1.000	6.61E+08	3.30E+08	0.206	1.93E+08	1.37E+08	0.072	1.84E+08	2.03E+08	0.186
6	1.92E+09	1.03E+09	0.135	3.31E+09	2.61E+09	0.197	1.53E+09	6.34E+08	0.021	1.17E+09	3.54E+08	0.101
8	1.87E+09	1.11E+09	0.242	2.04E+09	2.49E+08	0.653	1.00E+09	6.84E+08	0.643	7.82E+08	6.59E+08	0.006
10	1.66E+09	4.71E+08	0.831	5.25E+09	4.23E+09	0.326	7.85E+08	5.78E+08	0.350	2.08E+09	2.07E+09	0.028
Vmax	1.14E+09	8.51E+08	0.797	1.45E+09	1.11E+09	0.268	7.49E+08	2.70E+08	0.189	8.52E+08	8.48E+08	0.031
	Phylloquinone 724 μ M			Menaquinone 724 μ M								
Time (hrs)	Average	SD	P-value	Average	SD	P-value						
2	1.97E+07	1.64E+07	0.398	9.02E+06	2.87E+05	0.414						
4	6.00E+08	1.10E+08	0.117	5.67E+08	1.29E+08	0.640						
6	2.07E+09	9.35E+08	0.803	1.86E+09	1.07E+09	0.357						
8	1.44E+09	7.65E+08	0.523	2.18E+09	5.84E+08	0.541						
10	2.00E+09	8.20E+08	0.259	2.05E+09	4.44E+08	0.288						
Vmax	7.47E+08	4.23E+08	0.040	1.68E+09	5.68E+08	0.607						

Supplementary Table 2. The maximum velocity (V_{\max}), the average, SD and P-values of EDL933 cell mass (as measured by OD_{600}) during growth in the presence of different concentrations of phylloquinone, menaquinone, menadione and MSB. The V_{\max} calculations were done with the Baranyi and Roberts model (1), with the Combase – DMFit software. The P-values were calculated with a paired student's t -test.

Phylloquinone						
Concentration (μM)	724	362	181	72.4	3.62	DMSO
V_{\max} (mean)	0.85	0.82	0.73	0.76	0.93	0.77
SD	0.10	0.06	0.08	0.03	0.14	0.03
P-value	0.23	0.10	0.48	0.73	0.26	
Menaquinone						
Concentration (μM)	724	362	181	72.4	3.62	DMSO
V_{\max} (mean)	1.01	0.91	0.95	0.99	0.93	0.96
SD	0.04	0.09	0.01	0.03	0.06	0.00
P-value	0.18	0.57	0.80	0.18	0.62	
Menadione						
Concentration (μM)		36.2	14.4	7.24	3.62	DMSO
V_{\max} (mean)		1.10	0.95	0.91	0.87	0.80
SD		0.05	0.04	0.03	0.05	0.07
P-value		0.06	0.06	0.06	0.33	
MSB						
Concentration (μM)		181	72.4	36.2	3.62	Water
V_{\max} (mean)		0.78	0.80	0.98	1.09	1.12
SD		0.07	0.05	0.04	0.03	0.05
P-value		0.00	0.01	0.10	0.37	

Supplementary Table 3. The average, SD and P-values of EDL933 Stx2 production (ng/mL), measured by LC/MS technology, during inoculation with different concentrations of phylloquinone, menaquinone, menadione and MSB. The P-values were calculated with a paired student's t-test.

	Stx produced (ng/mL)									
	Time (hrs)	Hydrogen peroxide			Ciprofloxacin			Mitomycin C		
		Average	SD	P-value	Average	SD	P-value	Average	SD	P-value
Water control	6	50.82	8.65		164.06	42.45		125.71	19.10	
	8	76.26	2.48		202.36	15.17		167.18	26.34	
	20	120.94	2.17		329.05	50.76		297.71	87.46	
DMSO control	6	30.31	11.21		91.35	27.87		72.98	14.05	
	8	56.06	10.86		173.83	51.97		117.97	28.78	
	20	88.11	18.14		308.28	59.31		200.04	37.06	
Phylloquinone, 72 μ M	6	45.91	0.70	0.203	142.58	12.17	0.109	51.46	7.99	0.273
	8	64.70	2.98	0.401	234.32	23.01	0.122	76.97	4.42	0.210
	20	82.12	18.63	0.823	386.74	20.74	0.111	128.47	2.74	0.107
Phylloquinone, 181 μ M	6	20.80	10.52	0.257	68.30	3.32	0.339	56.98	5.75	0.367
	8	34.33	13.47	0.220	107.52	8.09	0.254	83.88	4.72	0.257
	20	43.21	14.79	0.189	188.75	5.34	0.100	169.21	33.05	0.597
Menaquinone, 72 μ M	6	21.17	13.76	0.290	36.15	6.02	0.147	49.44	4.29	0.076
	8	42.84	20.65	0.200	89.95	13.49	0.212	88.30	4.87	0.225
	20	51.98	19.13	0.213	210.58	7.09	0.124	131.60	3.97	0.137
Menaquinone, 181 μ M	6	7.92	0.82	0.095	102.14	10.19	0.588	97.16	3.23	0.180
	8	31.78	2.32	0.070	160.01	15.15	0.683	137.05	20.29	0.612
	20	45.25	25.66	0.298	295.57	17.68	0.730	215.33	3.26	0.633
Menadione, 7 μ M	6	13.99	1.52	0.202	81.44	20.17	0.555	73.85	4.17	0.936
	8	21.89	7.13	0.104	127.22	9.48	0.341	101.04	2.21	0.520
	20	33.71	2.58	0.039	235.18	23.02	0.105	152.95	4.19	0.243
MSB, 36 μ M	6	8.18	1.38	0.019	57.99	12.61	0.042	73.69	7.62	0.109
	8	9.09	3.01	0.000	78.71	8.42	0.008	83.32	21.42	0.024
	20	15.85	2.14	0.000	171.22	11.54	0.057	175.79	46.09	0.285

Supplementary Table 4. The average, SD and P-values of EDL933 Stx production (ng/mL), measured by LC/MS technology, during inoculation with two different concentrations of phyloquinone and menaquinone. The P-values were calculated with a paired student's t-test.

	Time (hrs)	Inducing agent	72 μ M		181 μ M		P-value
			Average	SD	Average	SD	
Phylloquinone	6	H2O2	45.91	0.70	20.80	10.52	0.087
	8		64.70	2.98	34.33	13.47	0.055
	20		82.12	18.63	43.21	14.79	0.026
	6	Ciprofloxacin	142.58	12.17	68.30	3.32	0.007
	8		234.32	23.01	107.52	8.09	0.024
	20		386.74	20.74	188.75	5.34	0.006
	6	MMC	51.46	7.99	56.98	5.75	0.421
	8		76.97	4.42	83.88	4.72	0.342
	20		128.47	2.74	169.21	33.05	0.234
Menaquinone	6	H2O2	21.17	13.76	7.92	0.82	0.300
	8		42.84	20.65	31.78	2.32	0.499
	20		51.98	19.13	45.25	25.66	0.802
	6	Ciprofloxacin	36.15	6.02	102.14	10.19	0.026
	8		89.95	13.49	160.01	15.15	0.066
	20		210.58	7.09	295.57	17.68	0.008
	6	MMC	49.44	4.29	97.16	3.23	0.011
	8		88.30	4.87	137.05	20.29	0.095
	20		131.60	3.97	215.33	3.26	0.000

Supplementary Table 5. The average, the SD and P-values of EDL933 growth, measured by plating and enumeration of CFU/mL, while inoculated with different concentrations of phyloquinone, menaquinone, menadione and MSB and induced with H₂O₂. The P-values were calculated with the paired student's *t*-test. Water is the control for MSB, and DMSO is the control for phyloquinone, menaquinone and menadione.

Time (hrs)	Water control			DMSO control			Menaquinone		
	Average	SD	P-value	average	SD	P-value	Average	SD	P-value
0	5.76E+05	0		5.76E+05	0		5.76E+05	0	
3	2.91E+08	1.09E+08		9.95E+07	6.18E+07		1.10E+08	6.35E+07	0.644
5	3.36E+07	2.68E+07		5.75E+06	2.74E+06		1.57E+06	1.51E+06	0.192
7	2.65E+08	1.81E+08		1.24E+08	7.25E+07		1.45E+07	1.29E+07	0.205
9	1.47E+09	1.37E+09		1.39E+09	5.31E+08		6.10E+07	8.21E+07	0.056
11	2.79E+09	7.53E+08		2.86E+09	5.62E+08		1.97E+09	1.10E+09	0.273
	Menaquinone			Menadione			MSB		
	Average	SD	P-value	average	SD	p-value	average	Sd	P-value
0	575765.2	0		5.76E+05	0		5.76E+05	0	
3	1.10E+08	6.35E+07	0.644	1.14E+08	4.97E+07	0.764	3.02E+08	1.18E+08	0.684
5	1.57E+06	1.51E+06	0.192	1.21E+09	9.15E+08	0.203	2.23E+09	1.80E+08	0.004
7	1.45E+07	1.29E+07	0.205	7.07E+08	4.49E+08	0.245	5.67E+09	1.02E+09	0.019
9	6.10E+07	8.21E+07	0.056	2.19E+09	2.15E+08	0.216	2.65E+09	1.24E+09	0.561
11	1.97E+09	1.10E+09	0.273	3.09E+09	5.92E+08	0.727	5.07E+10	4.55E+10	0.279

Supplementary Table 6. The maximum velocity (V_{max}), the SD and P-values of EDL933 growth in the presence different concentrations of phylloquinone, menaquinone, menadione and MSB under induction with H_2O_2 , MMC and Ciprofloxacin. V_{max} was calculated, for both the growth and the death phase for Ciprofloxacin and MMC, and for the growth phase for H_2O_2 , using the Baranyi and Roberts model (1), with the Combase – DMFit software. The P-values were calculated with the paired student's *t*-test. Water is the control for DMSO an MSB, and DMSO is the control for phylloquinone, menaquinone and menadione.

		Water	DMSO	Phylloquinone	Menaquinone	Menadione	MSB
Hydrogen peroxide	V_{max} (mean)	0.15	0.20	0.23	0.29	0.38	0.63
	SD	0.09	0.13	0.16	0.17	0.10	0.05
	P-value		0.62	0.63	0.19	0.20	0.04
MMC, growth phase	V_{max} (mean)	0.91	0.88	0.89	0.90	0.92	0.91
	SD	0.02	0.09	0.04	0.05	0.07	0.06
	P- value		0.57	0.87	0.51	0.48	0.97
MMC, death phase	V_{max} (mean)	-1.29	-1.38	-1.29	-1.17	-1.27	-0.95
	SD	0.31	0.12	0.07	0.18	0.24	0.12
			0.63	0.20	0.24	0.70	0.20
Ciprofloxacin, growth phase	V_{max} (mean)	1.31	1.17	1.20	1.38	1.23	0.92
	SD	0.08	0.05	0.07	0.21	0.27	0.05
	P- value		0.26	0.09	0.36	0.82	0.01
Ciprofloxacin, death phase	V_{max} (mean)	-1.39	-1.97	-1.18	-1.13	-1.54	-1.67
	SD	0.21	0.32	0.22	0.03	0.16	0.20
	P- value		0.25	0.17	0.07	0.30	0.34

References:

1. Baranyi J, Roberts TA. 1994. A dynamic approach to predicting bacterial growth in food. Int J Food Microbiol 23:277-94.