		S. epidermidis ATCC12228			S. aureus ATCC25923			S. aureus DSMZ11729			C. difficile NCTC11209			E. faecium ATCC19434			E. faecalis ATCC29212			S. aureus PLD64 (MRSA)		
NP	Sequence	MIC100	MIC90	MIC50	MIC100	MIC90	MIC50	MIC100	MIC90	MIC50	MIC100	MIC90	MIC50	MIC100	MIC90	MIC50	MIC100	MIC90	MIC50	MIC100	MIC90	MIC50
NP432	RRRFRFFFFRFRRR	4	4	2	31.25	31.25	<7.8	62.5	62.5	<7.8	<31.25	<31.25	<31.25	7.8	7.8	7.8	15.6	15.6	7.8	250	125	7.8
NP438	HHHFRFFFRFRRR	<7.8	<7.8	<7.8	>500	>500	250	>500	>500	<7.8												
NP445	KKFPWRLRLRYGRR	<7.8	31.25	7.8	500	500	125	500	500	125												
NP465	RRRRRFFFRFRRR	<7.8	<7.8	<7.8	31.25	31.25	31.25	125	125	62.5												
NP466	RRRFRFRFRFRRR	<7.8	<7.8	<7.8	15.6	15.6	7.8	125	125	7.8												
NP467	RRRFRFPFRFRRR	<7.8	<7.8	<7.8	62.5	62.5	31.25	125	125	62.5												
NP468	RRFRRFFFRRFRR	15.6	15.6	7.8	62.5	62.5	15.6	125	125	62.5												
NP469	RRRRFFFRRRR	15.6	15.6	7.8	500	500	125	500	500	250												
NP470	RRRRFRFRRRR	125	125	15.6	500	500	250	500	500	62.5												
NP471	RRRRFPFRRRR	62.5	62.5	31.25	500	500	250	>500	>500	125												
NP472	RRFRRRFRRFR	31.25	31.25	15.6	250	250	125	500	500	125												
NP473	RRFRRRFRRFG	125	125	31.25	500	500	250	500	500	500												
NP474	RRFGRRFRRFG	125	125	31.25	500	500	125	500	500	500												
NP475	RRFRRFRRRFG	125	31.25	15.6	500	500	500	500	500	125												
NP476	RRFRRFRRRFR	62.5	62.5	15.6	500	500	250	500	500	250												
NP490	FRRRRFFFRFRRR				31.25	31.25	15.625	62.5	62.5	7.8												
NP491	RRRRRFFFRRRRF				125	125	62.5	250	125	31.25												
NP492	FFFFRRRRRFRRR				62.5	15.625	7.8	125	62.5	7.8												
NP493	RRRRFFFFFRRRR				250	31.25	15.625	31.25	31.25	7.8												
NP494	FRRRRFFFRRRRF				125	62.5	31.25	125	125	31.25												
NP495	RRRYRYYYRYRRR				250	250	125	250	250	31.25												
NP496	RRRARAAARARRR				500	500	500	500	500	250												
NP497	RRRFRRRRRFFFF				31.25	15.625	15.625	31.25	31.25	7.8												
NP498	RRRFFFFFFFRRR				>500	>500	500	>500	>500	125												
NP432C	RRRFRFFFRFRRR-Cysteamine	15.6	15.6	7.8	62.5	62.5	7.8	62.5	62.5	7.8												
NM001	Cysteamine	500	500	250	500	500	500	500	500	500	1000	1000	1000							512	512	512

Figure 1

Figure 1a

		P. aeruginosa DSMZ1128			P. aeruginosa DSMZ1299			P. aeruginosa ATCCBAA-47			P. aeruginosa 57388A			P. aeruginosa 57388B			P. aeruginosa 57388C			P. aeruginosa 57388D			P. aeruginosa 50071			P. aeruginosa PA14			P. aeruginosa Pa058		
NP	Sequence	MIC 100	MI C90	MI C50	MIC 100	MI C90	MI C50	MIC 100	MI C90	MI C50	MIC 100	MI C90	MI C50	MIC 100	MI C90	MI C50	MIC 100	MI C90	MI C50	MIC 100	MI C90	MI C50	MIC 100	MI C90	MI C50	MIC 100	MI C90	MI C50	MIC 100	MI C90	MI C50
NP432	RRRFRFFFR FRRR	62.5	46.9	15.6	15.6	15.6	15.6	15.6	15.6	15.6	31.25	31.25	31.25	15.6	15.6	15.6	31.25	31.25	7.8	31.25	31.25	19.5	62.5	62.5	31.25	15.6	15.6	7.8	15.6	15.6	7.8
NP438	HHHFRFFFR FRRR	>500	>500	500	500	>500	500	>500	>500	500																					
NP445	KKFPWRLRL RYGRR	62.5	62.5	62.5	31.25	31.25	31.25	31.25	31.25	31.25																					
NP465	RRRRRFFFR FRRR	125	125	125	31.25	31.25	31.25	125	125	15.6	62.5	62.5	62.5	125	125	31.25	250	125	31.25	62.5	62.5	31.25									
NP466	RRRFRFRFR FRRR	500	500	7.8	15.6	15.6	15.6	125	125	7.8	62.5	62.5	31.25	62.5	62.5	15.6	62.5	62.5	7.8	62.5	62.5	7.8									
NP467	RRRFRFPFR FRRR	500	500	125	125	125	62.5	125	125	62.5	250	250	125	62.5	62.5	62.5	250	250	31.25	125	125	31.25									
NP468	RRFRRFFFR RFRR	500	500	125	62.5	62.5	62.5	250	250	31.25	125	125	125	62.5	62.5	31.25	250	250	31.25	125	125	31.25									
NP469	RRRRFFFRR RR							250	250	125																					
NP470	RRRRFRFR RRR							500	500	250																					
NP471	RRRRFPFRR RR							500	500	500																					
NP472	RRFRRRFR RFR							500	500	250																					
NP473	RRFRRRFR RFG							500	500	250																					
NP474	RRFGRRFR RFG							500	500	500																					
NP475	RRFRRFRR RFG							500	500	125																					
NP476	RRFRRFRR RFR							125	31.25	31.25																					
NP490	FRRRRFFFR FRRR	62.5	62.5	31.25	125	62.5	31.25	31.25	31.25	31.25																					
NP491	RRRRRFFFR RRRF	250	125	62.5	250	125	62.5	250	125	125																					
NP492	FFFFRRRRR FRRR	500	500	250	250	125	31.25	500	250	125																					
NP493	RRRRFFFFF RRRR	125	125	15.625	31.25	31.25	15.625	15.6	15.6	15.6																					
NP494	FRRRRFFFR RRRF	250	250	125	250	125	62.5	>500	250	125																					
NP495	RRRYRYYY RYRRR	>500	500	250	250	125	31.25	500	500	250																					
NP496	RRRARAAA RARRR	>500	>500	>500	>500	>500	>500	>500	>500	>500																					
NP497	RRRFRRRR RFFFF	15.625	7.8	7.8	31.25	7.8125	7.8125	62.5	62.5	15.6																					
NP498	RRRFFFFFF FRRR	>500	>500	500	>500	>500	>500	>500	>500	>500																					
NP432C	RRRFRFFFR FRRR-Cysteamine	62.5	62.5	31.25	62.5	62.5	62.5	125	125	7.8	15.6	15.6	15.6	31.25	31.25	15.6	15.6	15.6	7.8	15.6	15.6	7.8	250	250	250	15.6	15.6	7.8	31.25	31.25	7.8
NM001	Cysteamine	250	250	250	250	250	250	250	250	250	250	250	250	250	250	125	250	250	250	250	250	250	500	500	250	>250	>250	250	>250	>250	250

Figure 1b

NP	Sequence	B. cepacia NCTC10743			B. cepacia NCTC10744			A. baumanii NCTC12156			A. calcoaceticus NCTC7422			E. coli NCTC9434			E. coli NCTC1093			E. coli NCTC9001		
		MIC100	MIC90	MIC50	MIC100	MIC90	MIC50	MIC100	MIC90	MIC50	MIC100	MIC90	MIC50	MIC100	MIC90	MIC50	MIC100	MIC90	MIC50	MIC100	MIC90	MIC50
NP432	RRRFRFFFFRFRRR	>250	>250	250	>250	>250	>250	31.25	31.25	15.6	31.25	31.25	15.6	31.25	31.25	3.9	15.6	7.8	2	31.25	31.25	15.6
NP438	HHHFRFFFFRFRRR																					
NP445	KKFPWRLRLRYGRR																					
NP465	RRRRRFFFFRFRRR																					
NP466	RRRFRFRFRFRRRR																					
NP467	RRRFRFPFRFRRRR																					
NP468	RRFRRFFFFRRFRR																					
NP469	RRRRFFFFRRRR																					
NP470	RRRRFRFRRRR																					
NP471	RRRRFPFRRRR																					
NP472	RRFRRRFRRFR																					
NP473	RRFRRRFRRFG																					
NP474	RRFGRRFRRFG																					
NP475	RRFRRFRRRFG																					
NP476	RRFRRFRRRFR																					
NP490	FRRRRFFFFRFRRR																					
NP491	RRRRRFFFFRRRRF																					
NP492	FFFFRRRRRFRRR																					
NP493	RRRRFFFFFRRRR																					
NP494	FRRRRFFFFRRRRF																					
NP495	RRRYRYYYRYRRR																					
NP496	RRRARAAARARRR																					
NP497	RRRFRRRRRFFFF																					
NP498	RRRFFFFFFFRRR																					
NP432C	RRRFRFFFRFRRR-Cysteamine	>250	>250	125	>250	>250	>250	31.25	31.25	15.6	31.25	31.25	15.6									
NM001	Cysteamine	>250	>250	125	>250	250	125	>250	>250	250	>250	125	125	250	250	15.6	500	250	7.8	250	250	62.5

Figure 1c

		K. pneumoniae NCTC8849			K. pneumoniae NCTC5056			K. pneumoniae NCTC9633			K. pneumoniae PLD83			Stn. maltophilia NCTC10257			Stn. maltophilia NCTC10498			A. xylosoxidans NCTC10807			A. xylosoxidans NCTC10808		
NP	Sequence	MIC100	MIC90	MIC50	MIC100	MIC90	MIC50	MIC100	MIC90	MIC50	MIC100	MIC90	MIC50	MIC100	MIC90	MIC50	MIC100	MIC90	MIC50	MIC100	MIC90	MIC50	MIC100	MIC90	MIC50
NP432	RRRFRFFFRFRRR	62.5	62.5	7.8	125	125	62.5	125	125	15.6	62.5	62.5	15.6	15.6	15.6	7.8	15.6	15.6	7.8	>250	>250	250	>250	>250	>250
NP438	HHHFRFFFRFRRR																								
NP445	KKFPWRLRLRYGRR																								
NP465	RRRRRFFFRFRRR																								
NP466	RRRFRFRFRFRRR																								
NP467	RRRFRFPFRFRRR																								
NP468	RRFRRFFFRRFRR																								
NP469	RRRRFFFRRRR																								
NP470	RRRRFRFRRRR																								
NP471	RRRRFPFRRRR																								
NP472	RRFRRRFRRFR																								
NP473	RRFRRRFRRFG																								
NP474	RRFGRRFRRFG																								
NP475	RRFRRFRRRFG																								
NP476	RRFRRFRRRFR																								
NP490	FRRRRFFFRFRRR																								
NP491	RRRRRFFFRRRRF																								
NP492	FFFFRRRRRFRRR																								
NP493	RRRRFFFFFRRRR																								
NP494	FRRRRFFFRRRRF																								
NP495	RRRYRYYYRYRRR																								
NP496	RRRARAAARARRR																								
NP497	RRRFRRRRRFFFF																								
NP498	RRRFFFFFFFRRR																								
NP432C	RRRFRFFFRFRRR-Cysteamine																								
NM001	Cysteamine	250	250	31.25	1000	1000	125	250	250	125	**256**	256	256	**256**	256	128	**512**	512	256	**512**	512	128	**512**	256	<128

Figure 2

		MIC (mg/ml) vs Gram +	MIC (mg/ml) vs Gram -
NP432	RRRFRFFFRFRRR	7.8 - 62.5	15.6 - 62.5
NP438	HHHFRFFFRFRRR	>500	>500
NP465	RRRRRFFFRFRRR	7.8 - 125	31.25 - 250
NP466	RRRFRFRFRFRRR	7.8 - 125	15.6 - 500
NP467	RRRFRFPFRFRRR	7.8 - 125	62.5 - 500
NP468	RRFRRFFFRRFRR	15.6 - 125	62.5 - 500
NP469	RRRRFFFRRRR	15.6 - 500	250
NP470	RRRRFRFRRRR	125 - 500	500
NP471	RRRRFPFRRRR	62.5 - >500	500
NP472	RRFRRRFRRFR	31.25 - 500	500
NP473	RRFRRRFRRFG	125 - 500	500
NP474	RRFGRRFRRFG	125 - 500	500
NP475	RRFRRFRRRFG	125 - 500	500
NP476	RRFRRFRRRFR	62.5 - 500	125
NP432C	RRRFRFFFRFRRR-cysteamine	15.6 - 62.5	15.6 - 125

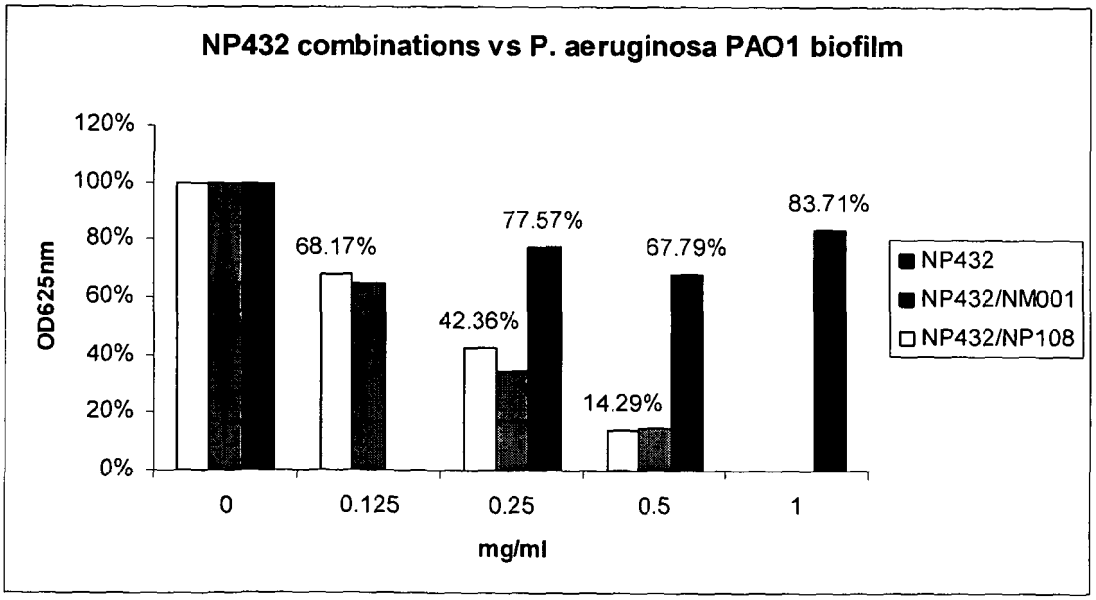


Figure 3: MIC of NP432, NP432 and NM001 and NP432 and NP108 at varying concentrations against P.aeruginosa PA01 biofilm

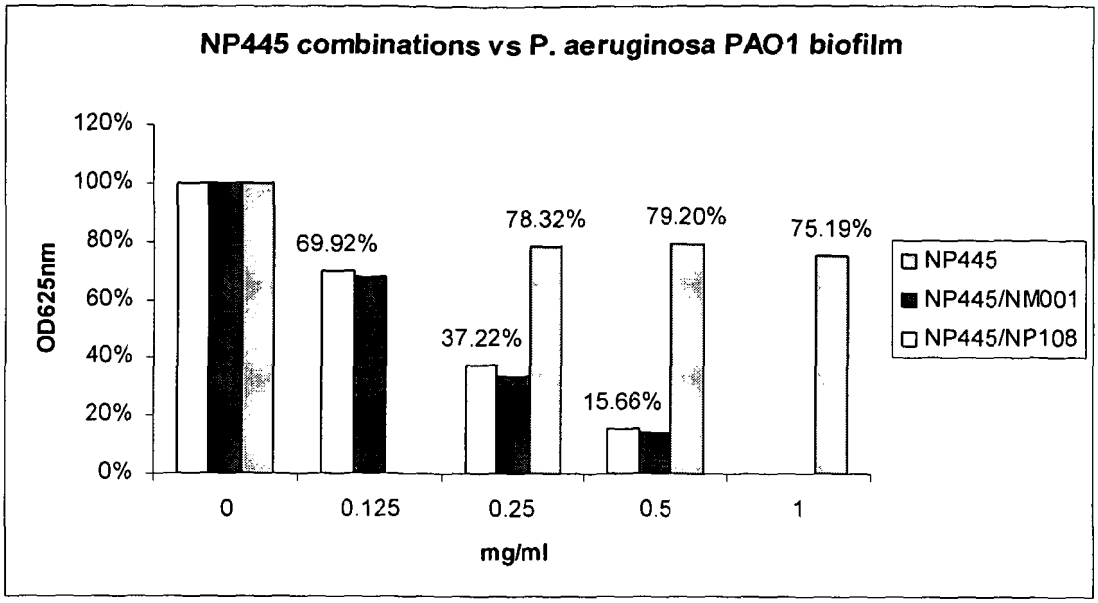


Figure 4: MIC of NP445, NP445 and NM001 and NP445 and NP108 at varying concentrations against P.aeruginosa biofilm

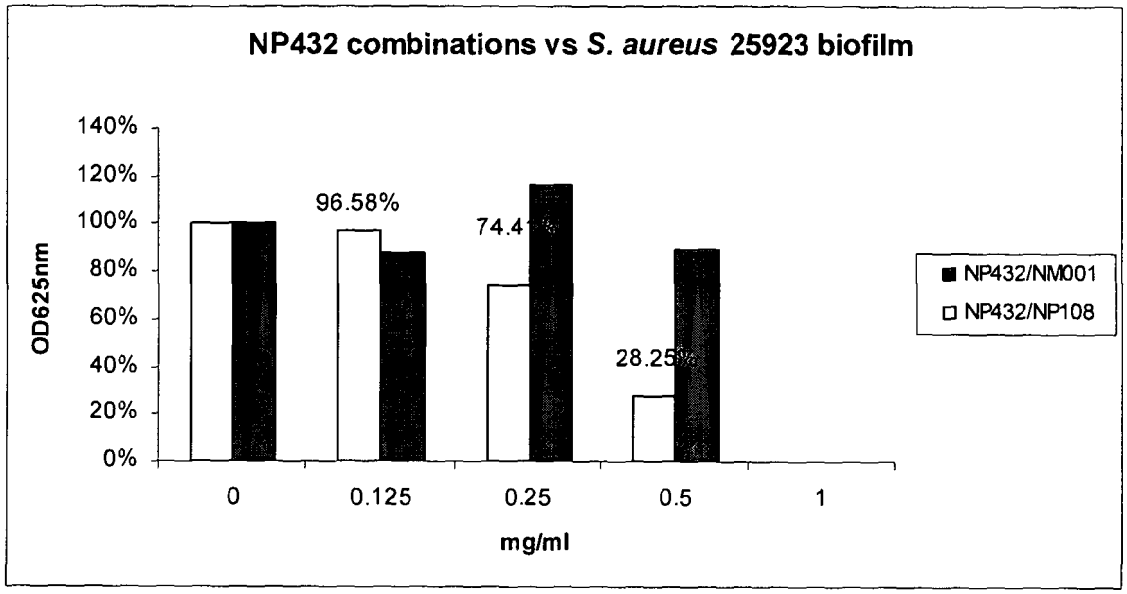

NP432 combinations vs S. aureus 25923 biofilm
140%
120%
100%
80%
60%
40%
20%
0%
OD625nm
96.58%
74.4
28.25
0
0.125
0.25
0.5
1
mg/ml
NP432/NM001
NP432/NP108

Figure 5

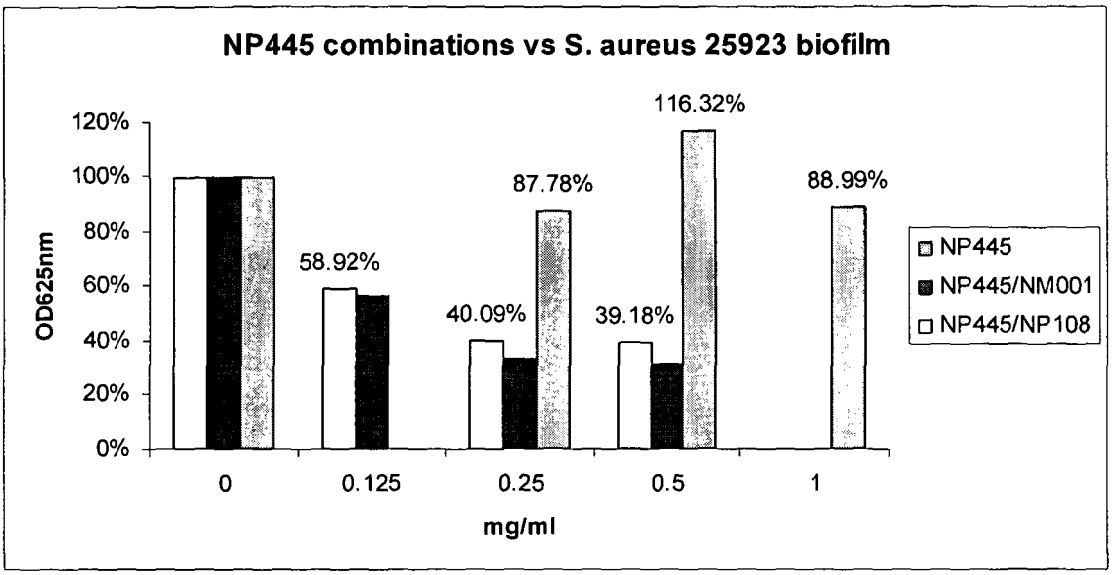


Figure 6: MIC of NP445, NP445 and NM001 and NP445 and NP108 at varying concentrations against S. *aureus* biofilm

Legend
toxic effects
activity < 100 µg/ml
activity at 100-500 µg/ml
most promising NPs

NP	Sequence	A549 cytotoxicity	Haematotoxicity at 1 mg/ml	Exp#1-2 MIC (µg/ml) at pH 7 S. epidermidis ATCC12228	S. aureus ATCC25923	S. aureus DSMZ11729	P. aeruginosa DSMZ1128	P. aeruginosa DSMZ1299	P. aeruginosa ATCCBAA-47
NP432	RRRFRFFFRFRRR		10.0%	<7.8	31.25	62.5	62.5	15.6	15.6
NP438	HHHFRFFFRFRRR	>5 mg/ml		<7.8	>500	>500	>500	500	>500
NP445	KKFPWRLRLRYGRR	1 mg/ml	0.0%	<7.8	500	500	62.5	31.25	31.25
NP449	KKPRRKPRRPKRKK-cyst	>5 mg/ml	1.0%	31.25	250	125	250	125	250

Figure 7

Exp#1-2 MBC (µg/ml) following MIC at pH 7						Exp#3 MIC (µg/ml) pH5.5		Exp#4 MIC (µg/ml) pH5.5, 320 mM NaCl		Exp#3 MBC (µg/ml) at pH5.5		Exp#4 MBC (µg/ml) pH5.5, 320 mM NaCl	
S. epidermidis ATCC12228	S. aureus ATCC25923	S. aureus DSMZ11729	P. aeruginosa DSMZ1128	P. aeruginosa DSMZ1299	P. aeruginosa ATCCBAA-47	S. aureus 11729	P. aeruginosa ATCCBAA-47	S. aureus 11729	P. aeruginosa ATCCBAA-47	S. aureus 11729	P. aeruginosa ATCCBAA-47	S. aureus 11729	P. aeruginosa ATCCBAA-47
16	250	500	250 (2)	32 (2)	250	>500	125	>500	125	>500	**125**	>500	>500
125	>500	>500	>500	>500	>500	>500	**125**	>500	**62.5**	>500	>500	>500	>500
62.5	>500	>500	250	125	250	>500	>500	>500	>500	>500	>500	>500	>500
125	>500	250	500 (2)	250 (2)	>500	>500	>500	>500	>500	>500	>500	>500	>500

Figure 7a

WO 2011/121289 PCT/GB2011/000480

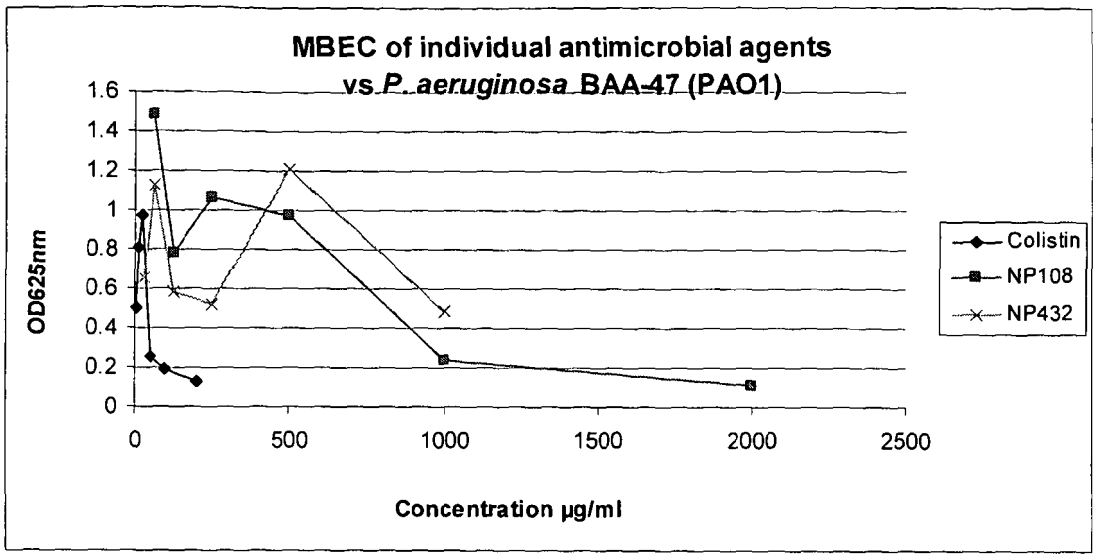


Figure 8

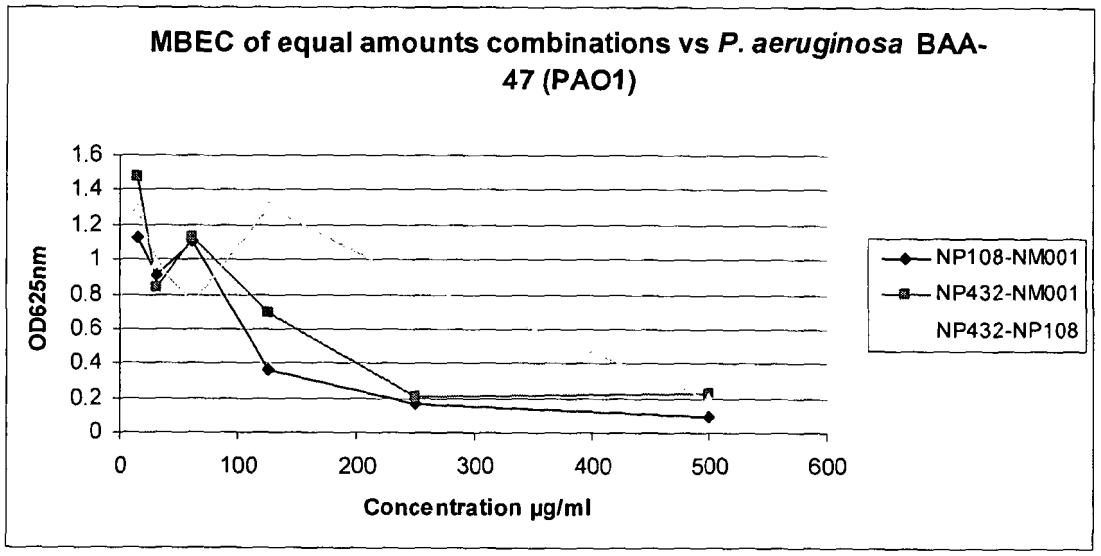


Figure 9

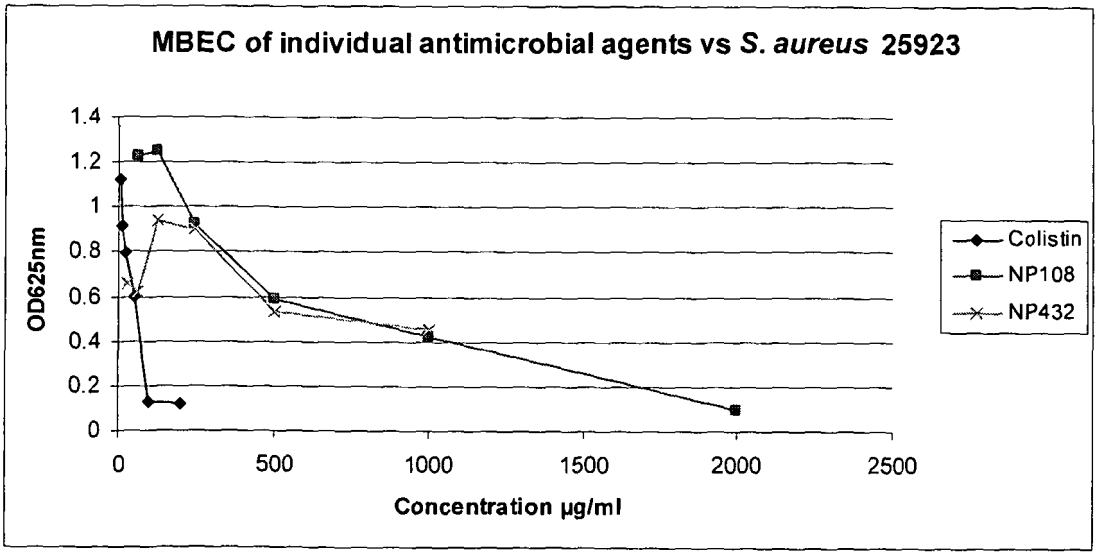


Figure 10

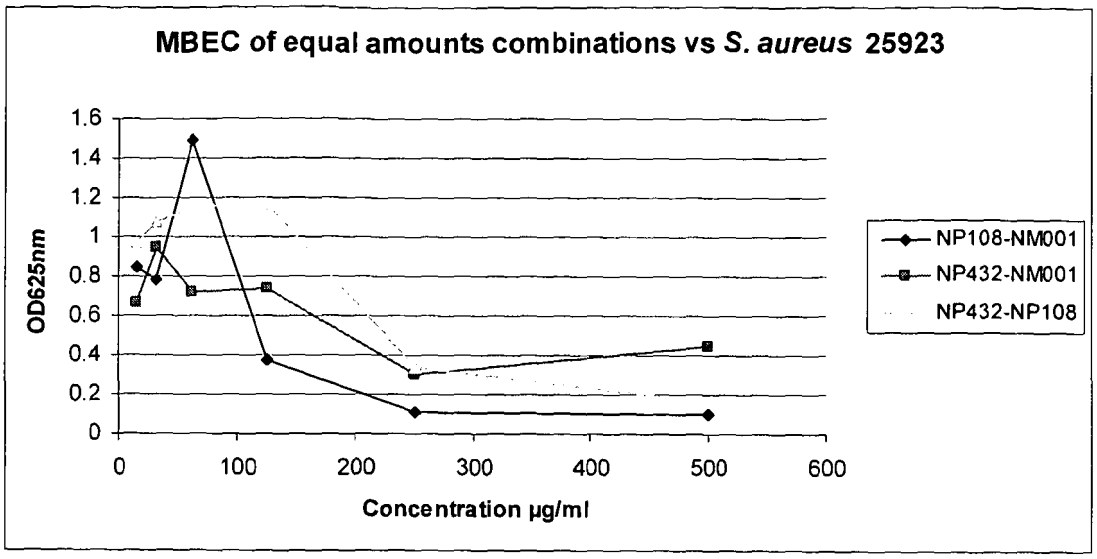

MBEC of equal amounts combinations vs S. aureus 25923
OD625nm
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0
100
200
300
400
500
600
Concentration µg/ml
NP108-NM001
NP432-NM001
NP432-NP108

Figure 11