

Supplementary Materials

Table S1. Clinical pathological characteristics of patients whose ureteral catheters bacterial communities have been analysed in the present study.

Patient	U1	U2	U3	U4	U5	U6
Sex	M	M	M	M	M	M
Age (years)	77	78	76	74	76	72
Tumor stage¹	pT3bN0M0	pT3aN0M0	pT2bN0M0	pT3bN0M0	pT3aN0M0	pT2bN0M0
Smoking history	No	Yes	Yes	No	No	Yes
Previous antibiotics history	Cephalosporins	Cephalosporins	Cephalosporins	Cephalosporins	Cephalosporins	Cephalosporins
Diabetes mellitus	Yes	No	No	Yes	No	No
Insulin dependence	Yes	No	No	No	No	No
Thyroid disease	No	No	No	Yes	No	No
Cardiovascular disease	Yes	Yes	Yes	No	No	No
Constipation	Yes	Yes	No	No	No	No
Recurrent UTI	Yes	Yes	No	No	No	No
UTI-associated with fever	No	Yes	No	No	No	No
Prostatic tumor at surgery	Yes	No	No	Yes	No	No

¹TNB stage system in accordance with European Association of Urology clinical guidelines.

Table S2. Pairwise comparisons using Fisher's exact test based on FDR method. Statistical significance threshold ≤ 0.05 . Raw data Fisher's test on all 6 extracts (three layers) with peptide alone or in combination with fosfomycin or ceftriaxone.

Comparisons	PATIENT U1			PATIENT U2			PATIENT U3			PATIENT U4			PATIENT U5			PATIENT U6		
	A:B	A:C	B:C	A:B	A:C	B:C	A:B	A:C	B:C	A:B	A:C	B:C	A:B	A:C	B:C	A:B	A:C	B:C
Layers: untreated.biofilm	1	0.18851 8	0.19392 1	1	1	1	0.20378 4	0.07152	0.77209	1	1	1	0.32513	0.43126	1	0.62384 2	0.15509 5	0.67794 3
Layers: r(P)ApoBl ^{Ala}	1	1	0.74767 2	1	0.70692 3	1	0.11531 9	0.10747 7	1	1	1	1	0.67563 4	0.40971 9	0.71316 7	0.62647 6	0.09103 6	0.40769 4
Layers: fosfomycin	0.34786 1396	0.43513 9	1	1	0.76277 9	0.80180 6	1	0.62957 6	0.7295	1	1	1	0.66417 9	0.09992 4	0.44891 1	0.62384 2	0.11531 5	0.44781 4
Layers: ceftriaxone	1	0.65910 7	0.74767 2	1	0.45867 5	0.46272 7	1	0.43684 1	0.23746 4	1	0.68058 4	1	1	0.43126 7	0.71316 7	1	0.67794 3	0.41604 8
Layers: r(P)ApoBl ^{Ala} .F	1	0.75287 9	1	1	0.76719 8	1	1	1	1	1	1	0.53342 7	1	0.44891 1	0.71316 7	0.33876 8	0.04117 6	0.40769 4
Layers: r(P)ApoBl ^{Ala} .C	1	0.72276 8	1	0.19877 9	0.01005 9	0.23395 7	0.68448 5	0.62957 6	0.19433 5	1	0.49112 3	0.85314 4	1	0.71316 7	0.45514 1	0.60303 7	1	0.40769 4

A:B Down vs Middle, A:C Down vs Upper, B:C Middle vs Upper layers

r(P)ApoBl^{Ala}.F and r(P)ApoBl^{Ala}.C means combination of antimicrobial peptide and antibiotic fosfomycin or ceftriaxone (1:20 ratio), respectively.

Table S3. Pairwise comparisons using Fisher's exact test based on FDR method. Statistical significance threshold ≤ 0.05 . Raw data Fisher's test on all 3 extract (three layers) with peptide alone or in combination with ciprofloxacin, gentamicin, tetracycline.

Comparisons	PATIENT U1			PATIENT U3			PATIENT U5		
	A:B	A:C	B:C	A:B	A:C	B:C	A:B	A:C	B:C
Layers:untreated.biofilm	0.713481281	1	0.41010959	0.699587897	0.41413788	0.720987	1	0.38524797	0.40604265
Layers:r.P.ApoBL.Ala.	1	0.73455403	1	0.699587897	0.6995879	1	1	1	0.73573222
Layers:ciprofloxacin	1	0.39505294	0.48774828	1	0.6995879	0.71833928	1	1	0.73573222
Layers:gentamicin.	1	0.72586413	0.75993775	1	0.19289257	0.22633812	1	0.72821295	0.22081779
Layers:tetracycline.	0.679343627	0.43322187	1	1	0.7023648	0.43707902	0.349281474	0.06150715	0.43367195
Layers:r.P.ApoBL.Ala.C	1	1	1	1	0.41413788	0.41413788	1	0.72598718	0.7388349
Layers:r.P.ApoBL.Ala.G	1	1	1	0.463509659	1	0.1896386	1	0.17100825	0.06119944
Layers:r.P.ApoBL.Ala.T	0.725864126	0.40417759	0.75035288	1	0.6995879	0.71476204	0.60889869	1	0.73573222

A:B Down vs Middle, A:C Down vs Upper, B:C Middle vs Upper layers

r(P)ApoBL^{Ala}.C and r(P)ApoBL^{Ala}.G and r(P)ApoBL^{Ala}.T means combination of antimicrobial peptide and antibiotic ciprofloxacin or gentamicin or tetracyclin (1:20 ratio), respectively

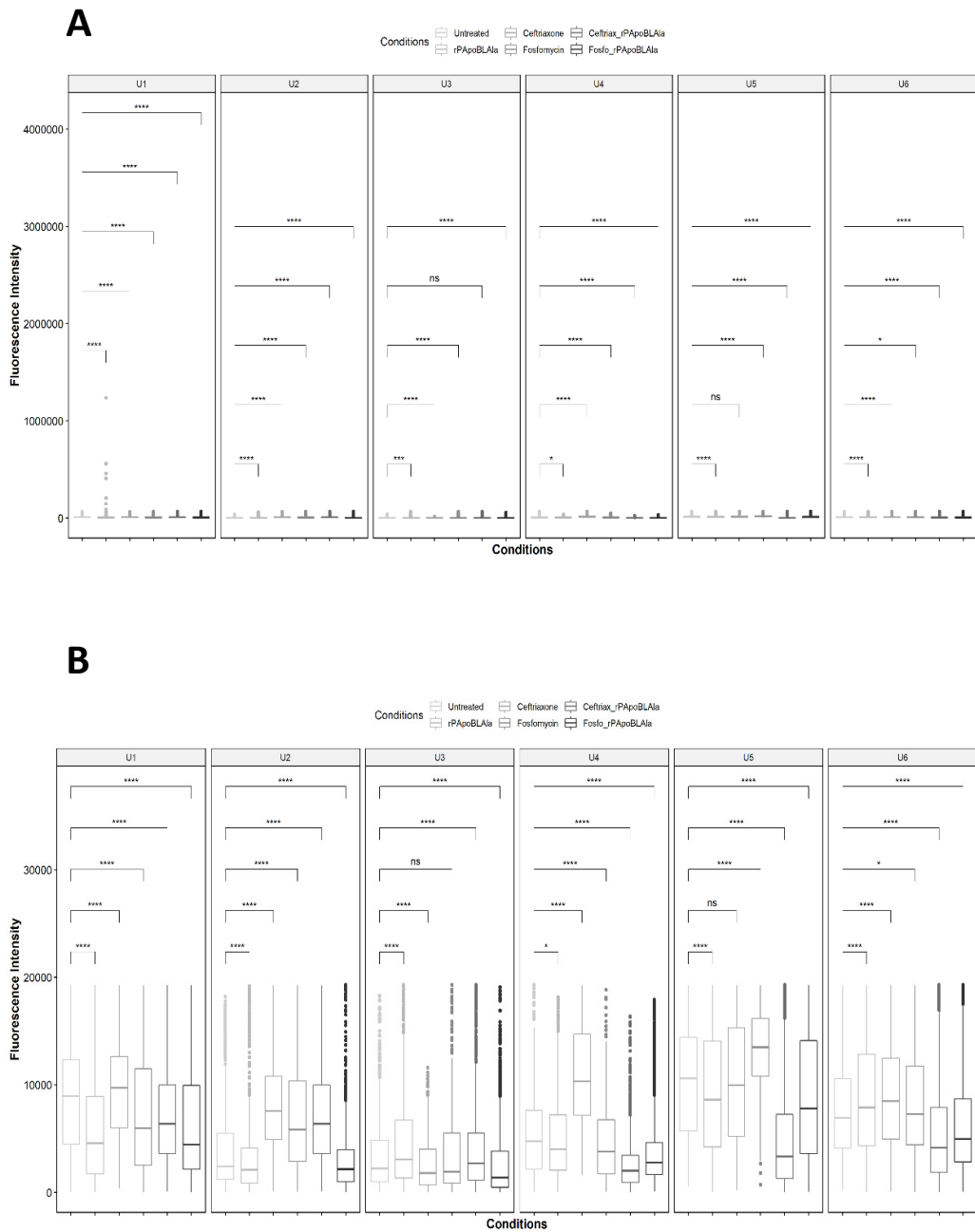


Figure S1: CLSM data before (raw) and after outlier removal for U1, U2, U3, U4, U5, U6 extracts, respectively. A) Raw data refer to the following experimental conditions from the left to the right side: untreated, r(P)ApoBL^{Ala}, ceftriaxone, fosfomycin, ceftriaxone plus r(P)ApoBL^{Ala}, fosfomycin plus r(P)ApoBL^{Ala}. B) Pairwise comparisons using the “Untreated” biofilm as reference group, Wilcoxon test. Statistically significant difference levels * p<0.05, ** p<0.01, ***p<0.001, ****p<0.0001, n.s. not significant.

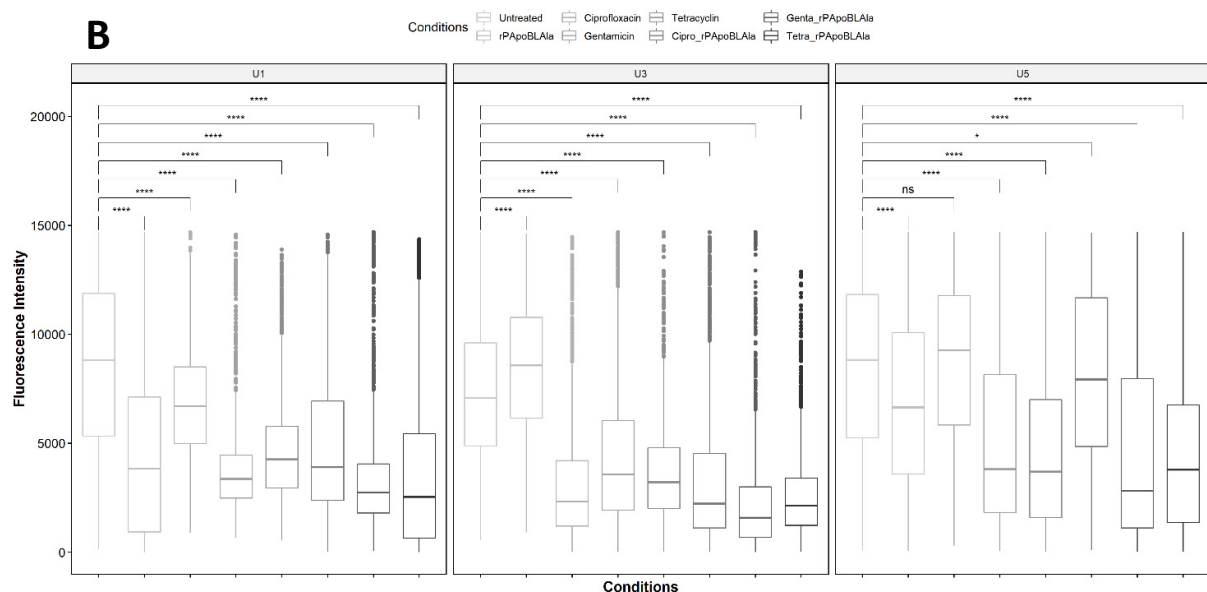
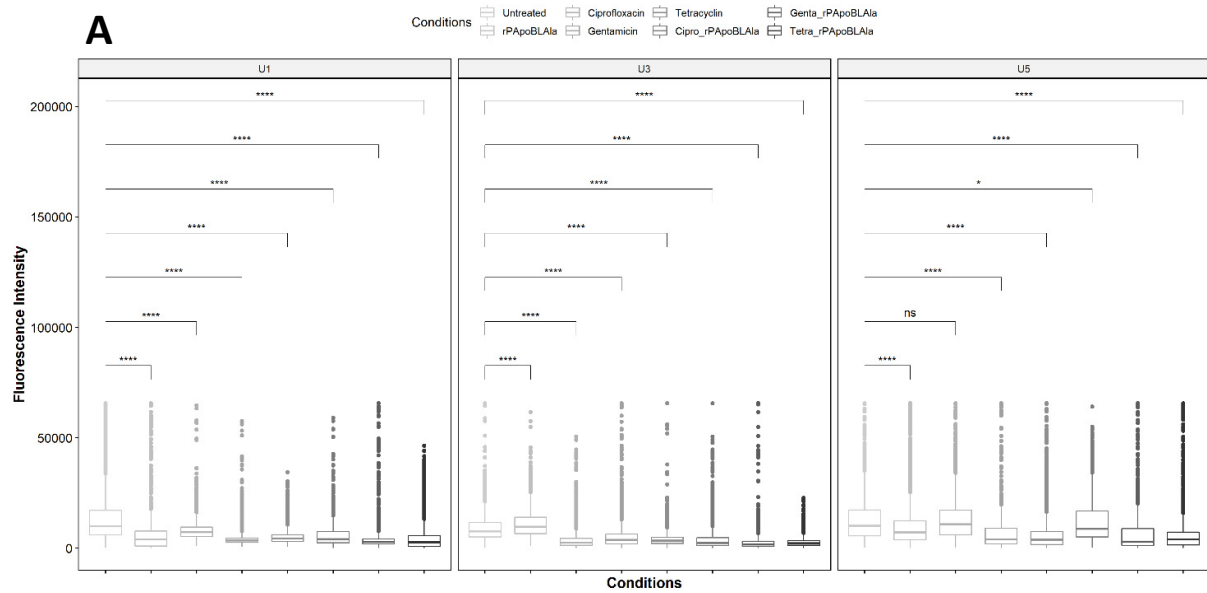


Figure S2: CLSM data before (raw) and after outlier removal for U1, U3, U5 extracts, respectively. A) Raw data for each biofilm experimental condition of growth from left to the right side are as follow: untreated, r(P)ApoBLA1a, ciprofloxacin, gentamycin, tetracycline, ciprofloxacin_r(P)ApoBLA1a, gentamycin_r(P)ApoBLA1a , tetracycline_r(P)ApoBLA1a. **B)** Pairwise comparisons using the “untreated” biofilm as reference group, Wilcoxon test. Statistically significant difference levels * p<0.05, ** p<0.01, ***p<0.001, ****p<0.0001, n.s. not significant.

Table S4. Biofilm thickness data and means pairwise comparison of U1, U4 and U5 catheter extracts upon incubation with r(P)ApoBLAla, ceftriaxone and fosfomycin (Anova and Tukey HSD post hoc test).

Incubation variable	Ceftriaxone	Fosfomycin	r(P)ApoBL Ala	Ceftriaxone:r(P)ApoBL ^{Ala}	Fosfomycin:r(P)ApoBL ^{Ala}
Untreated	ns	ns	ns	0.01638	ns
Ceftriaxone		ns	ns	ns	ns
Fosfomycin	ns		ns	ns	ns
r(P)ApoBL Ala	0.033484	ns		0.005676	ns
Ceftriaxone:r(P)ApoBL ^{Ala}	ns	ns	ns		ns
Fosfomycin:r(P)ApoBL ^{Ala}	ns	ns	ns	ns	

ns: not significant (p adjusted <0.05).

Table S5. Biofilm thickness data and means pairwise comparison of U1, U3 and U5 catheter extracts upon incubation with r(P)ApoBLAla, gentamicin, ciprofloxacin and tetracycline (Anova and Tukey HSD post hoc test).

Incubation variable	Ciprofloxacin	Gentamicin	Tetracycline	r(P)ApoBL Ala	Ciprofloxacin:r(P)ApoBL ^{Ala}	Gentamicin:r(P)ApoBL ^{Ala}	Tetracycline:r(P)ApoBL ^{Ala}
Untreated	ns	1.8038E-05	2.2433E-02	2.2433E-02	8.9938E-04	7.4429E-06	7.4429E-06
Ciprofloxacin		7.6266E-03	ns	ns	ns	2.5949E-03	2.5949E-03
Gentamicin	7.6266E-03		2.2433E-02	2.2433E-02	ns	ns	ns
Tetracycline	ns	2.2433E-02		ns	ns	ns	7.6266E-03
r(P)ApoBL Ala	ns	2.2433E-02	ns		ns	7.6266E-03	7.6266E-03
Ciprofloxacin:r(P)ApoBL ^{Ala}	ns	ns	ns	ns		ns	ns
Gentamicin:r(P)ApoBL ^{Ala}	2.5949E-03	ns	ns	7.6266E-03	ns		ns
Tetracycline:r(P)ApoBL ^{Ala}	2.5949E-03	ns	7.6266E-03	7.6266E-03	ns	ns	

ns: not significant (p adjusted <0.05).