

Antibiofilm activity of a broad-range recombinant endolysin LysECD7: *in vitro* and *in vivo* study

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Table S1. Minimal inhibitory concentration (MIC) of different antibiotics against *Klebsiella pneumoniae* strain TS 141-14

Antibacterials	Group	MIC, mg/L	Interpretation
Beta-lactam antibiotics			
Ampicillin	Penicillins	>256	R
Cefotaxime	Cephalosporins III Generation	>256	R
Ceftazidime	Cephalosporins III Generation	>256	R
Meropenem	Carbapenems	>256	R
Aminoglycosides			
Gentamicin	Aminoglycosides	128	R
Amikacin	Aminoglycosides	4	S
Others			
Ciprofloxacin	Fluoroquinolones	>256	R
Tetracycline	Tetracyclines	>256	R
Chloramphenicol		>256	R

Note: R – resistant; S – sensitive

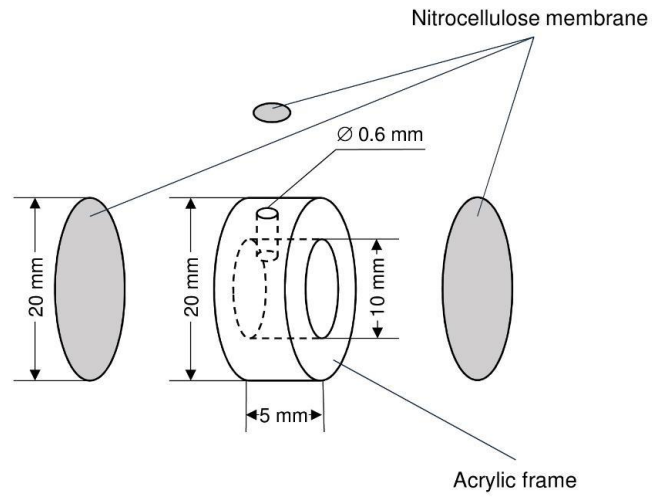


Figure S1. Schematic structure of the diffusion camera

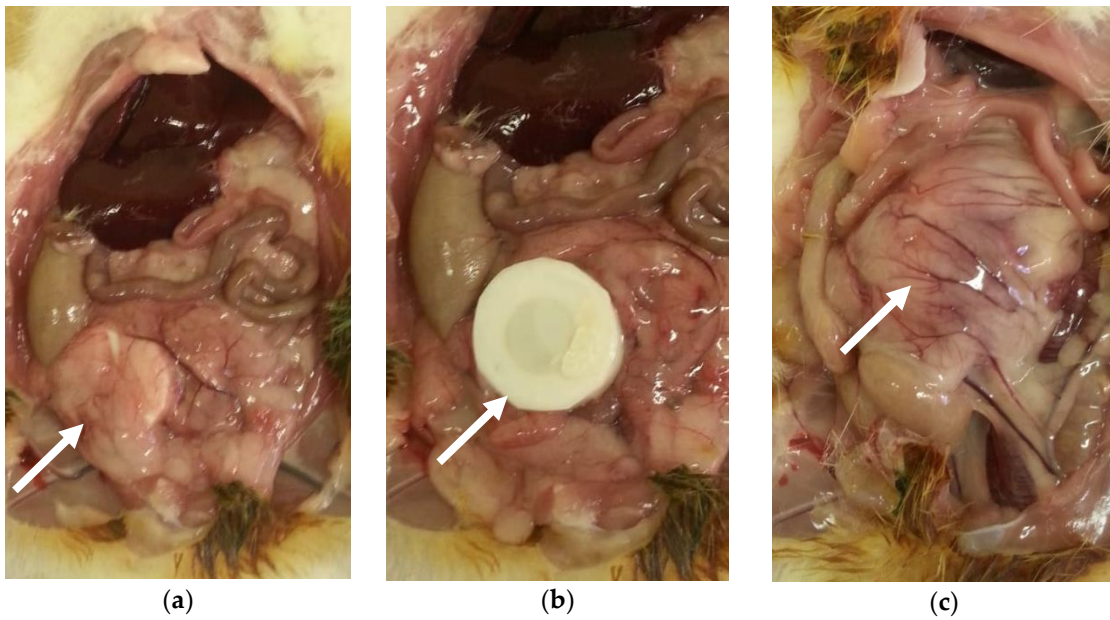


Figure S2. Intraoperative view of the diffusion chambers in the abdominal cavity on the 2nd day of treatment with: (a) LysECD7. (b) amikacin. (c) Tris-HCl buffer.

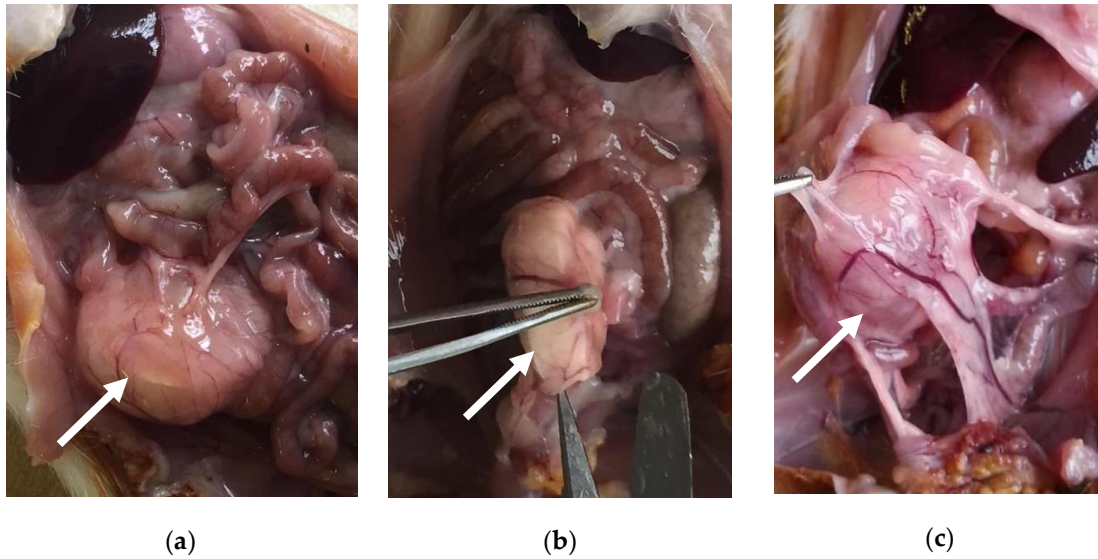


Figure S3. Intraoperative view of the diffusion chambers in the abdominal cavity on the 5th day of treatment with: (a) LysECD7. (b) amikacin. (c) Tris-HCl buffer.

Table S2. Count of culturable bacteria in the formed biofilms in diffusion chambers *in vivo* during the therapy

Day of application	CFU/mL								
	LysECD7			Amikacin			Control		
2	0	3	0	0	0	1.80	$1.63 \cdot 10^2$	$1.17 \cdot 10^2$	$9.80 \cdot 10^1$
5	$7.00 \cdot 10^1$	$1.80 \cdot 10^1$	$2.10 \cdot 10^1$	0	5	2.3	$1.11 \cdot 10^3$	$1.12 \cdot 10^3$	$1.12 \cdot 10^3$
8	$1.00 \cdot 10^2$	$3.00 \cdot 10^1$	$4.40 \cdot 10^1$	$2.00 \cdot 10^1$	$1.70 \cdot 10^1$	$7.20 \cdot 10^{2*}$	$8.63 \cdot 10^2$	$1.12 \cdot 10^3$	$1.01 \cdot 10^3$

* Failure of diffusion chamber integrity

Table S3. Dynamics of the biofilms density in diffusion chambers *in vivo* during the therapy

Day of application	OD ₅₉₅								
	LysECD7			Amikacin			Control		
2	0.234	0.240	0.229	0.234	0.215	0.236	0.232	0.226	0.245
5	0.179	0.184	0.159	0.282	0.252	0.271	0.223	0.274	0.282
8	0.275	0.268	0.327	0.355	0.285	0.346*	0.414	0.408	0.423

* Failure of diffusion chamber integrity

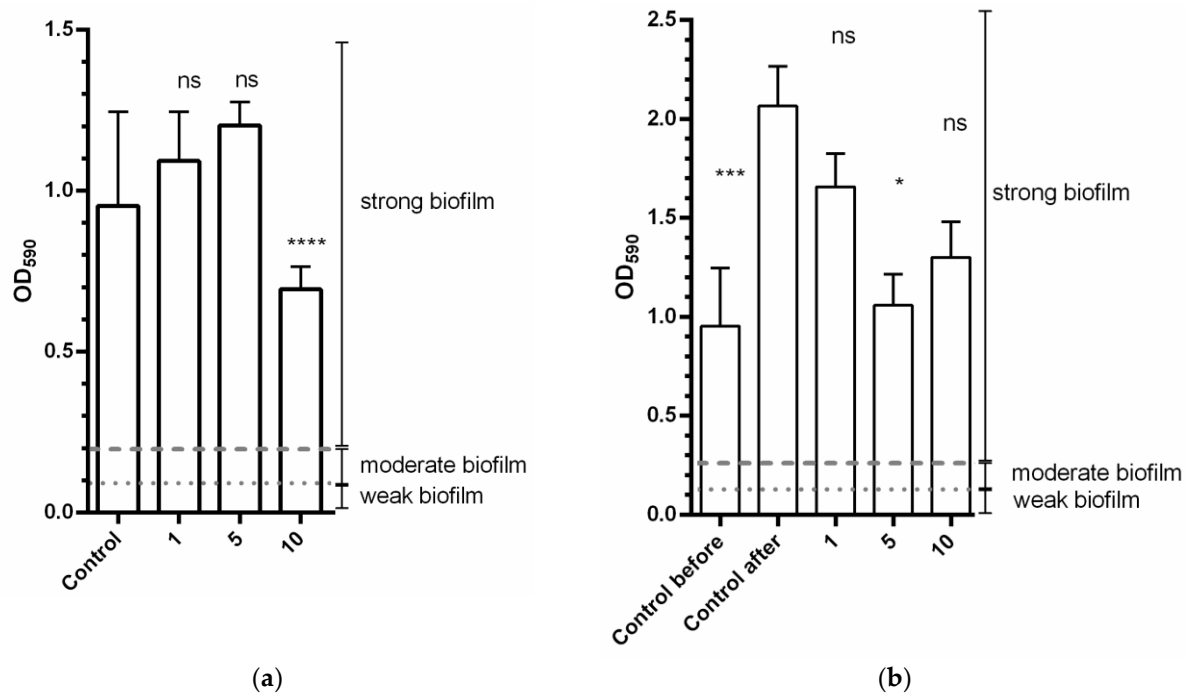


Figure S4. Antibacterial activity of amikacin (AMK) against: **(a)** forming biofilm of *K. pneumoniae* Ts 141-14 measured after 24 h of culture incubation: Control - untreated BF after 24 h of culture incubation; 1 - forming BF treated with 1 $\mu\text{g/mL}$ AMK; 5 - forming BF treated with 5 $\mu\text{g/mL}$ AMK; 10 - forming BF treated with 10 $\mu\text{g/mL}$ AMK; **(b)** mature BF measured after 43 h of culture incubation of *K. pneumoniae* strain Ts 141-14. Control before - untreated BF after 24 h of culture incubation; Control after - untreated BF after 43 h of culture incubation; 1 - mature BF treated with 1 $\mu\text{g/mL}$ AMK; 5 - mature BF treated with 5 $\mu\text{g/mL}$ AMK; 10 - mature BF treated with 10 $\mu\text{g/mL}$ AMK.