

Supporting Information

Sensor system for analysis of biofilm sensitivity to ampicillin

Olga I. Guliy^{a,*}, Stella S. Evstigneeva^a, Alexander A. Shirokov^a, Victor D. Bunin^b

^a*Institute of Biochemistry and Physiology of Plants and Microorganisms – Subdivision of the Federal State Budgetary Research Institution Saratov Federal Scientific Centre of the Russian Academy of Sciences (IBPPM RAS), Saratov 410049, Russia*

^b*EloSystems GbR, Berlin, 13407, Germany*

Table of contents

Figure S1 The main scheme of the sensor measurement before and after antibiotic treatment

Figure S2 Changes in the electro-optical signal in cell orientation (S₁) and disorientation (S₂)

Figure S3 Polarization of boundaries between cell structures under the effect of an electric field

Figure S4 Changes in the viability of *P. putida* TSh-18 biofilms after treatment with various ampicillin concentrations

Table S1 Coefficient values for the polynomial function for calculating the average cell size on the basis of S_{relax} on the selected time scale **T**

*Corresponding author. Institute of Biochemistry and Physiology of Plants and Microorganisms – Subdivision of the Federal State Budgetary Research Institution Saratov Federal Scientific Centre of the Russian Academy of Sciences (IBPPM RAS), Saratov 410049, Russia. E-mail address: guliy_olga@mail.ru (O.I. Guliy).

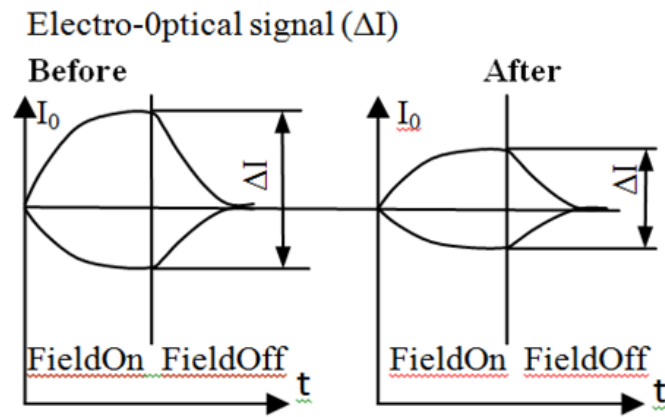


Figure S1 The main scheme of the sensor measurement before and after antibiotic treatment

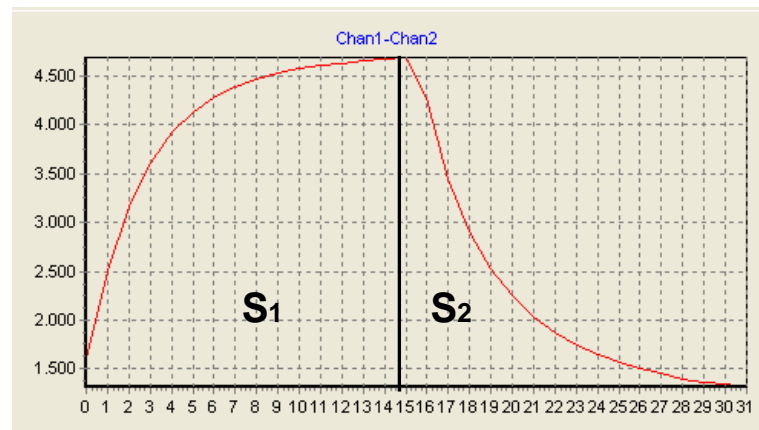


Figure S2 Changes in the electro-optical signal in cell orientation (S_1) and disorientation (S_2)

Table S1 Coefficient values for the polynomial function for calculating the average cell size on the basis of S_{relax} on the selected time scale T

Y = A+B*X^C (KWD = S_{relax})				
Cell size, μm = A+B*(S_{relax})^C				
Time		A	B	C
T4	2.0s	0.8	103	-3.2
T5	3.0 s	0.8	105	-2.8
T6	4.0 s	0.8	106	-2.52
T7	6.0 s	0.8	112	-2.26
T8	9.0 s	0.8	124	-2.05
T9	12.0 s	0.8	148	-1.91
T10	18.0 s	0.8	166	-1.81

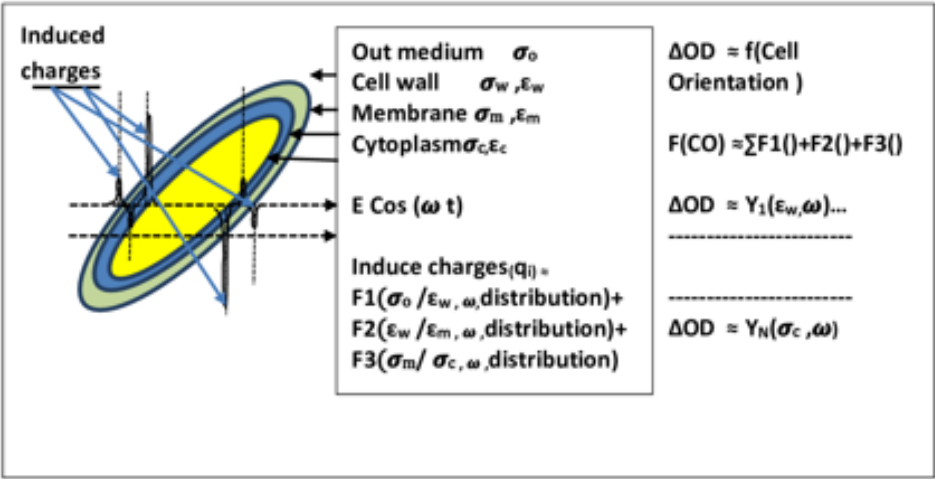


Figure S3 Polarization of boundaries between cell structures under the effect of an electric field

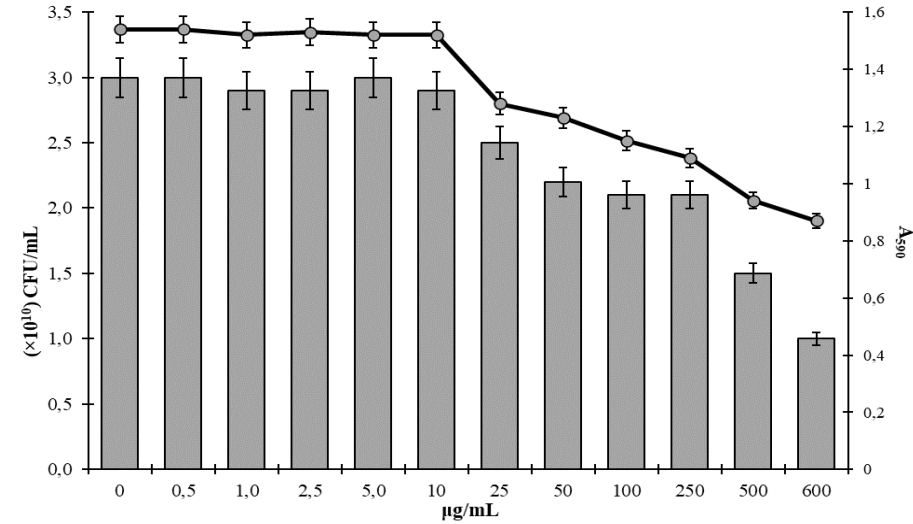


Figure S4 Changes in the viability of *P. putida* TSh-18 biofilms after treatment with various ampicillin concentrations