

## Supplementary materials

For article “Changes of ultrastructure of *Candida albicans* treated with cationic peptides”,  
by Grigor’eva, A. et al.

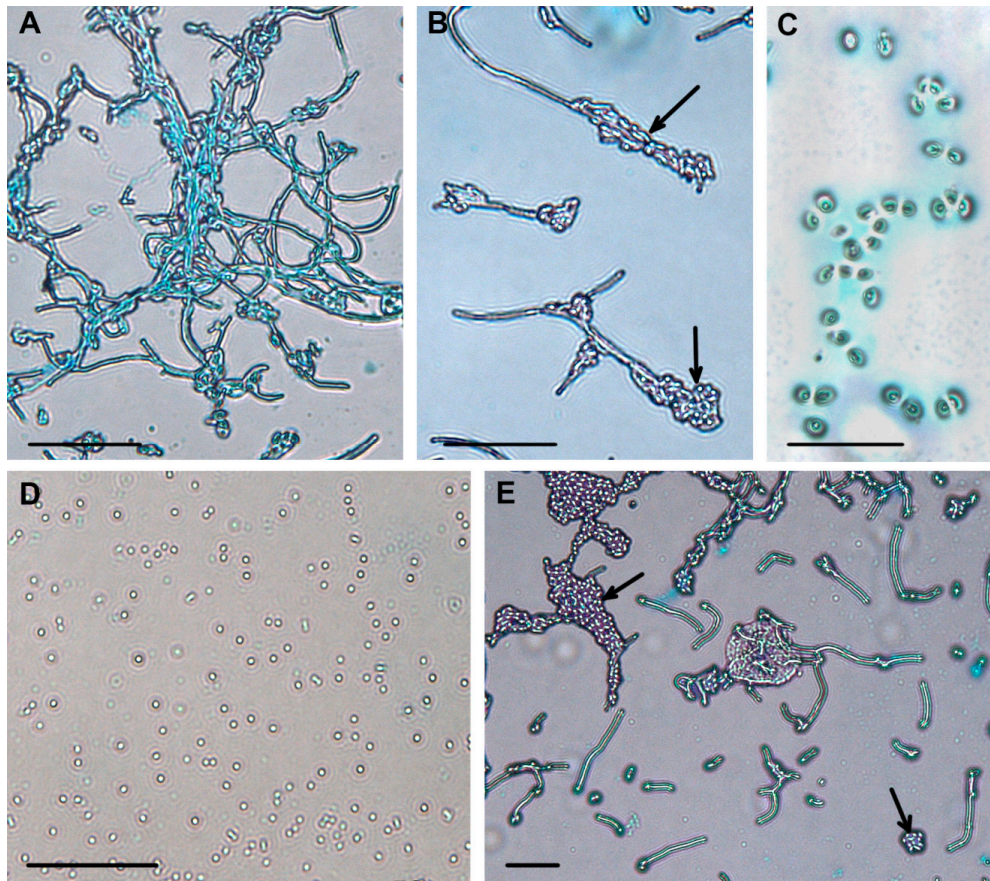
Table S1. Minimum inhibitory and fungicidal concentrations of drugs for species of the genus *Candida*

Species and strains	Preparation	MIC* ( $\mu$ M)	MFC** ( $\mu$ M)
<i>C. albicans</i> , strain CEMTC***- 34	R9F2	10	>10
	(KFF)3K	20	20
	Chlorhexidine	12.5	25
<i>C. albicans</i> , strain ATCC 10231	R9F2	10	>10
	(KFF)3K	20	20
	Chlorhexidine	12.5	25
<i>C. albicans</i> , strain 1550	R9F2	10	10
	(KFF)3K	10	20
	Chlorhexidine	12.5	12.5
<i>C. parapsilosis</i> , strain CEMTC 2529	R9F2	10	>10
	(KFF)3K	20	>20
	Chlorhexidine	25	50
<i>C. glabrata</i> , strain CEMTC 2563	R9F2	>10	>10
	(KFF)3K	>20	>20
	Chlorhexidine	12.5	12.5
<i>C. tropicalis</i> , strain CEMTC 2385	R9F2	10	>10
	(KFF)3K	10	>20
	Chlorhexidine	25	50
<i>C. guilliermondii</i> , strain CEMTC 1246	R9F2	10	10
	(KFF)3K	5	10
	Chlorhexidine	6.3	12.5

\*Minimum inhibitory concentration – the lowest concentration of the antibiotic that inhibits in vitro visible growth of the culture

\*\* The minimum fungicidal concentration is the lowest concentration of an antibiotic that causes the death of 99.9% of the initial number of culture cells in vitro.

\*\*\* Collection of Extremophile Microorganisms and Type Cultures of ICBFM SB RAS.



**Figure S1.** Hyphae of intact *C. albicans* culture (A). Clusters of spherical *C. albicans* cells (are shown by arrows) after incubation with 2.5  $\mu$ M (KFF)3K peptide (B). Spherical cells of *C. albicans* after incubation with 5  $\mu$ M (KFF)3K peptide (C) and R9F2 peptide (D). Clusters of spherical *C. albicans* cells (are shown by arrows) after incubation with 2.5  $\mu$ M chlorhexidine (E). Light microscopy, smears. Azure-II stain. Scale bars correspond to 50  $\mu$ m.

**Table S2.** Influence of R9F2 and (KFF)3K peptides on size and shape of *C. albicans* cells

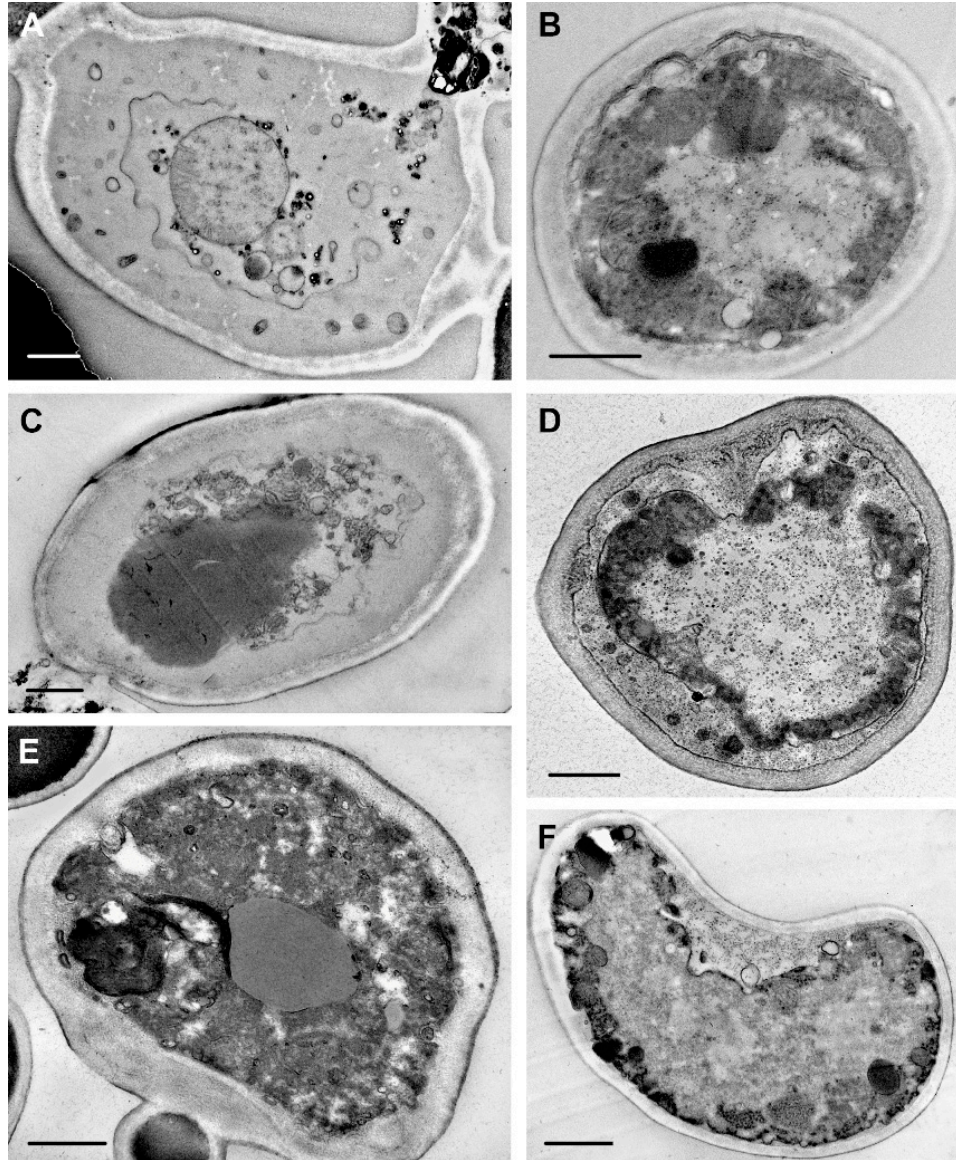
Incubation time	Peptide	Length, mean $\pm$ SE	Width, mean $\pm$ SE	Morphologic index (Length\width), mean $\pm$ SE
30 min – 24 h	<b>Intact cells</b>	<b>3.9<math>\pm</math>0.10</b>	<b>3.4<math>\pm</math>0.09</b>	<b>1.12<math>\pm</math>0.02</b>
30 min	<b>R9F2</b>	<b>4.5<math>\pm</math>0.21**</b>	<b>3.5<math>\pm</math>0.15</b>	<b>1.27<math>\pm</math>0.05**</b>
30 min	(KFF)3K	4.7 $\pm$ 0.16***	3.6 $\pm$ 0.07	1.32 $\pm$ 0.04***
45 min	<b>R9F2</b>	<b>4.8<math>\pm</math>0.23***</b>	<b>3.7<math>\pm</math>0.09</b>	<b>1.32<math>\pm</math>0.06***</b>
45 min	(KFF)3K	4.2 $\pm$ 0.14*^	3.5 $\pm$ 0.08	1.24 $\pm$ 0.05*
75 min	<b>R9F2</b>	<b>4.7<math>\pm</math>0.16***</b>	<b>3.5<math>\pm</math>0.11</b>	<b>1.36<math>\pm</math>0.05***</b>
75 min	(KFF)3K	4.3 $\pm$ 0.15*	3.3 $\pm$ 0.16	1.36 $\pm$ 0.06***
105 min	<b>R9F2</b>	<b>4.5<math>\pm</math>0.12***</b>	<b>3.7<math>\pm</math>0.09</b>	<b>1.23<math>\pm</math>0.04*</b>
105 min	(KFF)3K	4.4 $\pm$ 0.13***	3.2 $\pm$ 0.15***^	1.37 $\pm$ 0.05*
2 h	<b>R9F2</b>	<b>5.0<math>\pm</math>0.21***</b>	<b>3.7<math>\pm</math>0.14**</b>	<b>1.37<math>\pm</math>0.05***</b>
2 h	(KFF)3K	4.8 $\pm$ 0.25***	3.9 $\pm$ 0.15*	1.23 $\pm$ 0.04**^
4 h	<b>R9F2</b>	<b>5.1<math>\pm</math>0.15***</b>	<b>4.2<math>\pm</math>0.11***</b>	<b>1.2<math>\pm</math>0.04***</b>
4 h	(KFF)3K	5.2 $\pm$ 0.18***	3.8 $\pm$ 0.09**^	1.4 $\pm$ 0.05***

The size of intact cells and cells incubated with R9F2 and (KFF)3K peptides, were measured on semithin sections. Each value represents a mean of measurements of 50-60 individual cells.

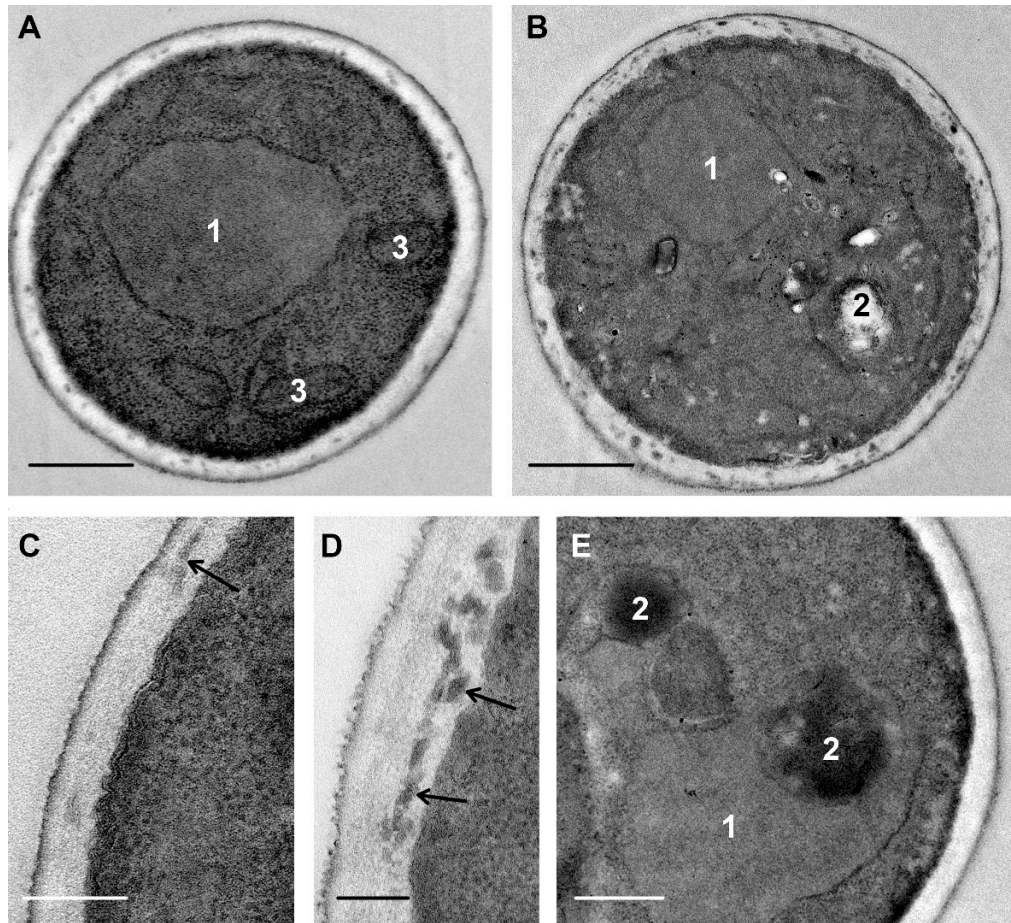
The following marks designate significance of differences (t-test):

\*\*\* -  $P < 0.001$ , \*\* -  $P < 0.01$ , \* -  $P < 0.05$  the peptides from **intact cells**;

^^ -  $P < 0.01$ , ^ -  $P < 0.05$  (KFF)3K peptide from **R9F2 peptide**.



**Figure S2.** Variable morphology of *C. albicans* destroyed cells after 6 h of incubation with peptides (KF)3K (A, C, E) and R9F2 (B, D, F). A, B – without contrasting. Scale bars correspond to 2  $\mu\text{m}$ .



**Figure S3.** Ultrastructure of *C. albicans* cells treated with chlorhexidine for 45 min (A) and 75 min (D-E). Less (A) and more pronounced (B) cell damage. Early (C) and late alterations (D) of the cell wall structure. E – Part of a cell showing vacuole. 1 – nucleus; 2 – vacuole; 3 – mitochondria. Arrows show electron dense material inside cell wall. Scale bars correspond to 1  $\mu\text{m}$  (A, B), 200 nm (C, D) and 500 nm (E).