Morphological changes induced by the action of antimicrobial peptides on supported lipid bilayers

Ahmad Arouri[†] \perp , Volker Kiessling[‡], Lukas Tamm[‡], Margitta Dathe[§], Alfred Blume^{†*}

[†]Martin-Luther-University Halle-Wittenberg, Institute of Chemistry, Halle, Germany. [‡]University of Virginia, Department of Molecular Physiology and Biological Physics, Charlottesville, VA.

[§]Institute of Molecular Pharmacology, Robert-Rossle-Strasse 10, D-13125 Berlin, Germany.

 \perp Current address: University of Southern Denmark, MEMPHYS-Center for Biomembrane Physics, Odense, Denmark.

Supporting Information

S1: Legend for FRAP curves S2: Movie legends

Figure S1.

Fluorescence recovery after photobleaching (FRAP) experiments on supported lipid bilayers (SLB) of (A) POPG, (B) POPG/POPC, and (C) POPG/POPE. The bilayers were prepared using Langmuir Blodgett/Langmuir Schaefer (LB/LS) technique from monolayers labeled with 0.75 mol% NBD-DPPE. Experiments were performed at room temperature. The average % fluorescence recovery and lateral diffusion coefficient are as following: POPG ($100 \pm 21\%$; $0.5 \pm 0.2 \ \mu\text{m}^2 \text{ s}^{-1}$), POPG/POPC ($87 \pm 17\%$; $0.8 \pm 0.3 \ \mu\text{m}^2 \text{ s}^{-1}$), POPG/POPE ($67 \pm 13\%$; $0.5 \pm 0.1 \ \mu\text{m}^2 \text{ s}^{-1}$).

Movies 1A and 1B

Time dependent imaging of POPG SLB labelled with 0.75% NBD-DPPE after the addition of 1µM C-RW.

Movie 2

Time dependent imaging of POPG/POPC 1:1 SLB labelled with 0.75% Rh-DPPE after the addition of 4μ M C-RW.

Movie 3

Time dependent imaging of POPG/POPE 1:1 SLB labelled with 0.75% Rh-DPPE after the addition of 4μ M C-RW.

Movie 4

Time dependent imaging of POPG/POPC 1:1 SLB labelled with 0.75% Rh-DPPE after the addition of $4\mu M$ KLA1.

Movie 5

Time dependent imaging of POPG/POPE 1:1 SLB labelled with 0.75% Rh-DPPE after the addition of $4\mu M$ KLA1.