Contribution ID: **89** Type: **Flash Talk**

pH-driven lateral organization of biomimetic cell membranes

Wednesday, 17 November 2021 16:05 (10 minutes)

Many studies have been devoted to investigation of phase separation and formation of lipid domains, which play crucial role in many biological processes. In the following study we measured the size and distribution of liquid-ordered (Lo)¬ phase domains in the wide range of buffer pH 1.7-9.0 and showed that there is a strong correlation between the size of the formed Lo phase domains and pH of the buffer hydrating the lipid bilayer. Although the increase of the buffer pH led to the formation of bigger and more round domains, the size of the vesicles that are building blocks for the assembly of the lipid membrane did not change, and the formation of different size of domains was confirmed to occur at the stage of membrane rearrangement on the solid support. We present that the use of different pH did not have an influence on the dynamics of lipids composing both ordered and disordered phase, presenting a constant diffusion coefficient over the whole tested pH range. These findings demonstrate that by using more acidic or basic pH during the formation of lipid membranes we can influence the size and shape of the formed domains without any external modification of the solid support or altering the membrane composition. Finally, we show that once formed the architecture of the lipid membrane is stable even upon replacement of the aqueous medium to the buffer of neutral pH, which makes this method of domains formation applicable in the studies involving binding of proteins or incorporation of other pH-sensitive molecules.

Primary author: Ms KROK, Emilia (Poznan University of Technology, Institute of Physics)

Presenter: Ms KROK, Emilia (Poznan University of Technology, Institute of Physics)

Session Classification: Day 1

Track Classification: Membranes