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Segregation of molecules in self-spreading lipid bilayer at ultra-small metal nano-gaps arrayed on solid surface KEI MURAKOSHI, HIDEKI NABIKA, MASAHIRO OOWADA, Hokkaido University — Diffusion of target molecules incorporated in the self-spreading lipid bilayer was controlled by the introduction of periodic array of metallic architecture on solid surface. Retardation of the progress of target molecules became significant when the size of gap between small metal architectures was less than a few hundred nm. The self-spreading dynamics of the lipid bilayer depending on the size of the small gap were analyzed semi-quantitatively. Estimated change in the driving force of the spreading layer suggests that highly localized compression of the spreading layer causes selective segregation of molecules. Surface-modified metal nano-architectures were also used to tune the selectivity of the molecules.

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