

Abstract Submitted
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Microporous device for local electric recordings on lipid bilayers THERESA KAUFELD, CHRISTOPHER BATTLE, Drittes Physikalisches Institut, Georg August Universitaet Goettingen, CONRAD WEICHBRODT, CLAUDIA STEINEM, Fakultae fuer Chemie, Georg August Universitaet Goettingen, CHRISTOPH SCHMIDT, Drittes Physikalisches Institut, Georg August Universitaet Goettingen — Many methods for artificial membrane formation are available. We focus on the reconstitution of lipid bilayers on porous substrates combining the stability of solid supports and the accessibility of both sides of the bilayer of the classical BLM which is necessary for low noise electric experiments. Most commercially available porous substrates however are not suitable for electric experiments or a combination of several measuring techniques. Therefore, we designed a microporous substrate, which meets several demands: We wanted to have the possibility to perform multiple experiments in one, so we chose to divide the device into several individually addressable arrays of pores with separate electrolyte compartments and integrated electronic connections. Also, to perform electrical and fluorescence experiments at the same time, we designed a PDMS sample chamber so that the substrate is accessible to a microscope objective. By having separated electrolyte compartments, we are also able to exchange solutions or introduce chemicals throughout the experiment. Bilayer formation can be probed by impedance spectroscopy and fluorescence microscopy. The function of inserted ion channels can be measured by current recordings.

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