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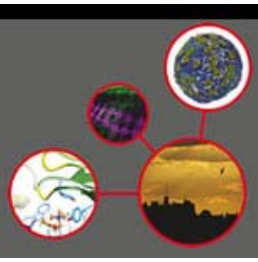

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Simplifying artificial bilayer experiments:

Single-molecule experiments on micro-cavity arrays

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Artificial lipid bilayers represent the gold standard for the investigation of membrane spanning species like purified ion channels or membrane-active species in general like toxins. However, the convenient and reproducible preparation of these model bilayers as well as the delicate successive handling for data acquisition still remain an obstacle for the trouble-free introduction of this technique.

We here present Nanion's Orbit systems that are explicitly designed to meet the special requirements of experiments on artificial bilayers. Use of Ionera's MECA (*micro electrode cavity array*) chip technology combined with state of the art low noise amplifiers (Elements S.R.L.) enables the fully parallel low-noise recording of four or even 16 separate lipid bilayers at bandwidths up to 100 kHz. The systems have already been validated with targets as diverse as ligand and voltage gated ion channels, porins and origami DNA constructs, antimicrobial peptides or membrane active toxins.

The optional temperature control for the Orbit mini furthermore allows for experiments on temperature sensitive species such as TRP channels or for experiments at physiological temperatures whereas the fully automated bilayer generation on the Orbit e16 further improves the system's usability.