

## **Nanopores as components for artificial cells**

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Encapsulation of biochemical reactions networks within cell-sized compartments is one of the steps required for the creation of artificial cell-mimicking systems. Compartmentalization itself is regarded to be beneficial for the performance of (some) biochemical reactions as it avoids, e.g., diffusive loss of reactants, and it can reduce crosstalk between competing biochemical processes. However, in order to keep the metabolism of such an artificial cell running, it has to be kept out of equilibrium for an extended period of time – it has to be able to exchange molecules and energy with the exterior, take up nutrients and dispose of waste. Nanopores or membrane channels are therefore essential components of any such artificial cell. This talk will be specifically concerned with applications of natural pore formers and also artificial DNA-based membrane channels in the context of compartmentalized cell-free gene expression reactions and circuits.