

ATP-modulated ionic transport through synthetic nanochannels

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Abstract

Here, we demonstrate an anion controlled molecular gate based on synthetic ion channels modified with polyethyleneimine. For single conical nanochannels, addition of ATP leads to significant decrease in the rectified ion flux, representing the closure of the ionic gate. Complementary experiments performed with nanoporous membranes show that the flux of charged dye (NDS^{2-}) through a cylindrical nanochannel array diminishes by the co-addition of ATP in the analyte solution.

