

## Origin of $1/f^\alpha$ noise in membrane channel currents

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The transport characteristics of nanofabricated synthetic pores of similar dimensions to those of biological channels is reported. By comparison of the ion current through single synthetic and biological channels we show that the  $1/f^\alpha$  noise indeed originates from the channel's opening-closing process. Strong evidence has been provided that the latter is related to the underlying motions of channel wall constituents.