

Entropy facilitated active transport

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We show how active transport of ions can be interpreted as an entropy facilitated process. In this interpretation, a particular change in the pore geometry through which substrates are transported gives rise to a driving force. This chemical energy provided by the chemical reaction is then used to create a protein geometry favorable for the uphill transport of ions. Attempts to estimate the energy available by this change in several proteins shows that an entropic contribution from the pore geometry is significant. We discuss how this effect can be used to understand how energy transduction in active transport can take place over a relatively long distance.

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