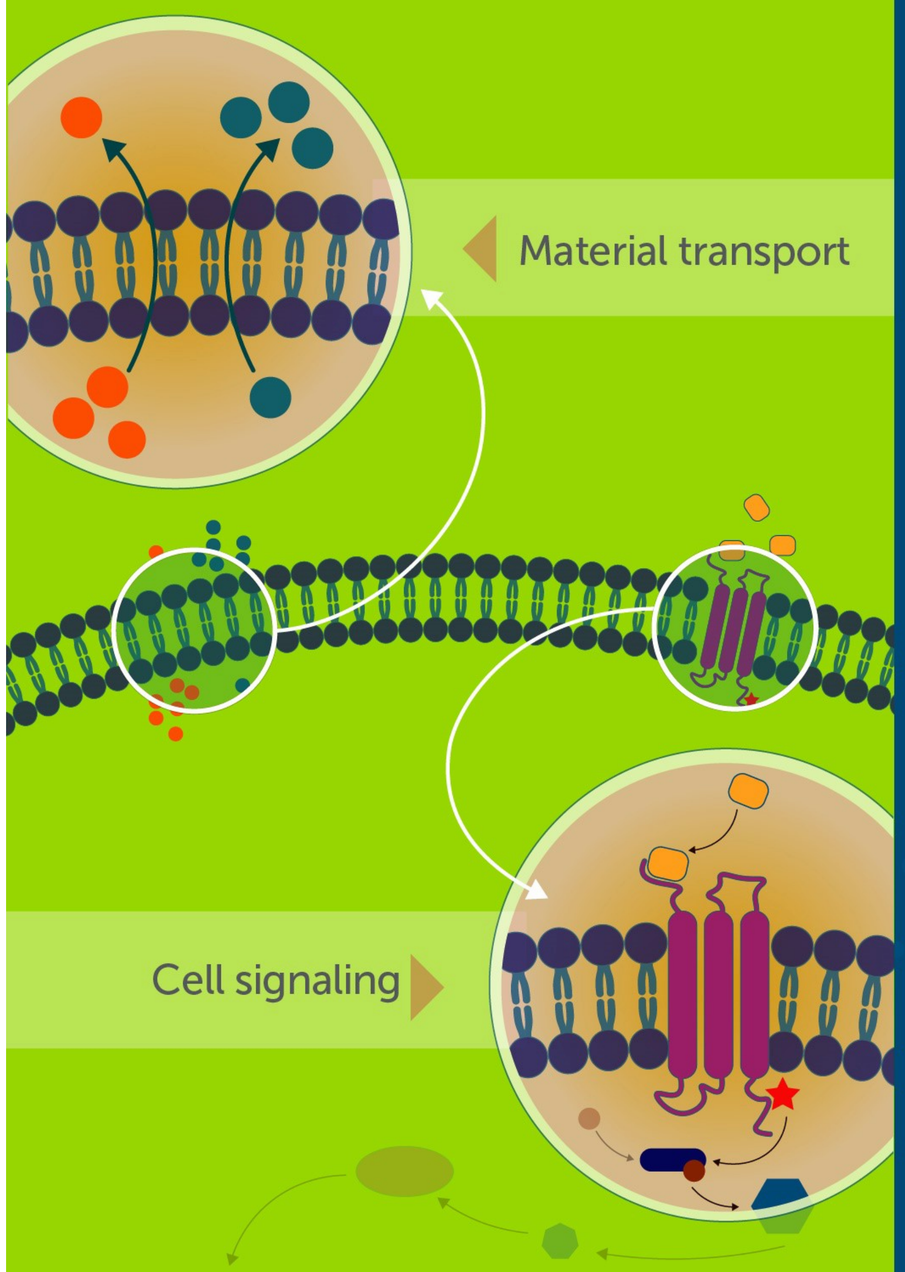
Analyzing Protein-Membrane Interaction Forces at Sub-Piconewton Levels

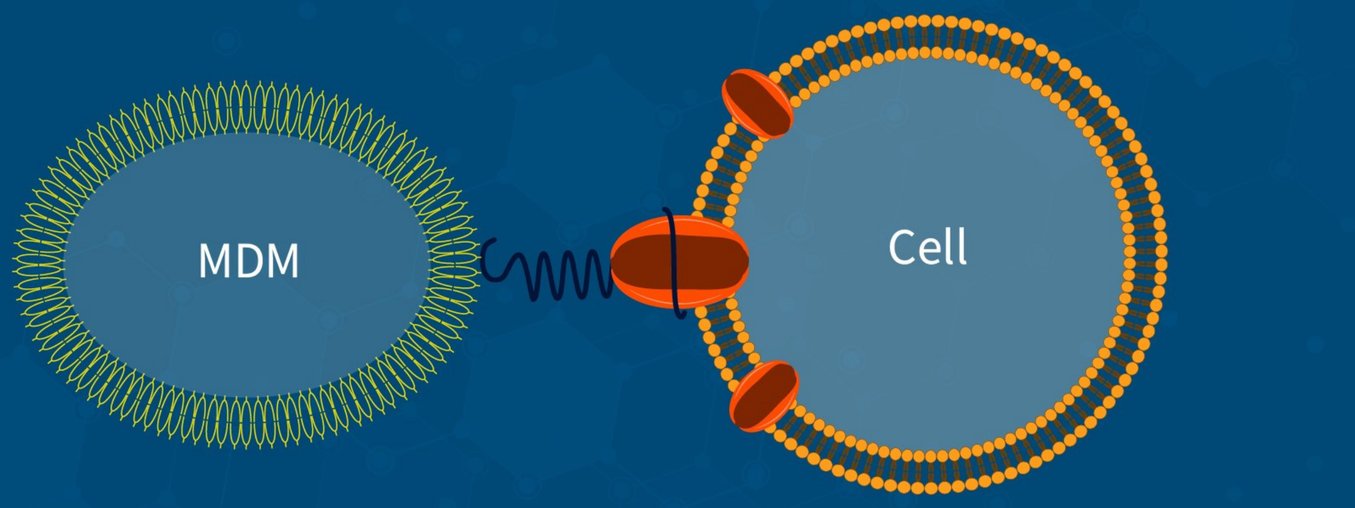
Chemical Science

Membrane-protein interactions on the cell membrane govern various biological events



However, most methods analyzing the interaction forces either require an artificial biological environment or are not sensitive enough

A highly sensitive technique involving a molecular dynamometer (MDM) engaged in a ***tug-of-war*** with cell membrane target proteins is designed for measuring protein-membrane interactions on living cells



- Measures interacting forces at the sub-piconewton level
- Transduces fluorescent signal to mechanical signal
- Can be extended to other biological molecules on plasma membrane surface by changing the corresponding recognition components

This convenient and highly-sensitive tool can be effectively used for mechanics-related research on biological systems

Tug-of-war: molecular dynamometers against living cells for analyzing sub-piconewton interaction of a specific protein with the cell membrane
Ju et al. (2021) | Chemical Science | DOI: 10.1039/d1sc03059k

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