

Measuring the Motions of Membrane Transport Proteins.

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Membrane transport proteins are enzymes that use the energy of ATP to pump ions or small organic molecules across cell membranes. Disordered transporter function is associated with human diseases including heart failure and cancer. This presentation will focus on the conformational changes that pumps undergo as they transport cargo across the membrane. Fluorescence resonance energy transfer (FRET) and other spectroscopic methods are used to measure the dynamic motions of a calcium pump (SERCA) and a multidrug resistance protein (MRP1). The results provide insight into basic transport mechanisms and may provide new opportunities for drug discovery.