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**Effect of micro-stirring on enzymatic reaction kinetics inside a biomimetic container** IREP GOZEN, VIVA HOROWITZ, ZACHARY CHAMBERS, VINOTHAN MANOHARAN, Harvard University — The intracellular environment is dynamic, influenced by the motion of active machinery such as cytoskeleton filaments and molecular motors. To understand whether and how such activity affects the rates of diffusion-limited reactions, we construct a model system consisting of a phospholipid vesicle encapsulating a small number of micro- or nanoparticles, the active motion of which can be induced by chemical or magnetic cues. We aim to determine a relation between active motion of particles and rates of enzymatic reactions in the confined volume. Our findings might illuminate how active motion influences cytoplasmic reaction dynamics, or may have played a role in protocell genetics.

Irep Gozen  
Harvard University

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