

Title	Ras and Its Signals Diffuse through the Cell on Randomly Moving Nanoparticles
Authors	Barak Rotblat, Ofer Yizhar, Roni Haklai, et al.
Publication	<i>Cancer Res</i> 2006;66:1974-1981.
Details	<i>Total Internal reflection fluorescence</i>
Abstract	Spatiotemporal modulation of Ras signaling from different intracellular compartments requires mechanisms allowing Ras and its signals to navigate across cells. Here, we describe one mechanism by which clusters of palmitoylated H-Ras and N-Ras isoforms but not nonpalmitoylated K-Ras diffuse through the cytoplasm, independently of ATP, on fast, randomly moving, small cytosolic nanoparticles ("rasosomes"). Rasosomes forced to diffuse out of live cells and trapped by Ras antibody beads appear as round structures of 80- to 100-nm diameter. Association of H-Ras with rasosomes requires Ras palmitoylation and the hypervariable sequence (hvr) upstream of the palmitoylated cysteines. H-Ras hvr mutants that fail to interact with rasosomes are biologically inactive. Epidermal growth factor stimulation rapidly increases active H-Ras-GTP and phosphorylated extracellular signal-regulated kinase (ERK) on rasosomes. Similarly, rasosomes carrying H-Ras(G12V) but not H-Ras are loaded with active ERK. Thus, the rasosome represents a hitherto unknown particle that enables Ras signal information to spread rapidly across cells. (<i>Cancer Res</i> 2006; 66(4): 1974-81)
Laser Quantum Product	Ciel 473nm and ventus 532nm laser
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