abcam

Product datasheet

Membrane fluidity kit ab189819

26 References 3 Images

Overview

Product name Membrane fluidity kit

Detection method Fluorescent

Product overview Membrane fluidity or "membrane viscosity" for short range lateral diffusion has best been measured using lipid analog probes that, when interacting, exhibit changes in their spectral properties. One of the best systems for use in such studies are the lipophilic pyrene probes that undergo excimer formation upon spatial interaction. When excimers form, the emission spectrum of the pyrene probe shifts dramatically to the red (longer wavelength). By measuring the ratio of monomer (EM max. 372 nm) to excimer (EM 470 nm) fluorescence, a quantitative monitoring of the membrane fluidity can be attained. These measurements can provide kinetic information, as well as *in vivo* monitoring of cellular function by both flow cytometry and microscopic analysis.

Exitation wavelength (nm): 350

Emission wavelength (nm): 450

Notes The dynamic properties of the cell membrane and cytoplasmic microtubules and microfilaments, as well as the dynamic movement of lipids in micelles and vesicles is of importance in such diverse areas as activation of polymorphonuclear leukocytes and chemotaxis, activation of membrane enzyme systems and the specific assembly or mobilization of microtubules and microfilaments, enhancement of the affinity of chemoattractant receptors, as well as being associated with a variety of pathological syndromes related to membrane fluidity.

It has been recognized that the rotational mobility of fluorescent or magnetic resonant probes is different from that observed in lateral diffusion.

Kit size: 100 tests in a 50 µL reaction volume.

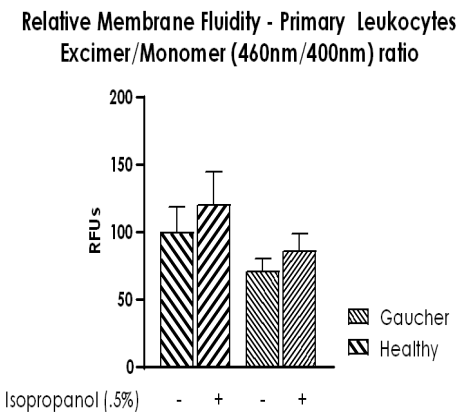
Platform Flow cytometer, Fluorescence microscope

Properties

Components	100 tests
Fluorescent Lipid Reagent	1 x 2ml
Perfusion Buffer	1 x 25ml

Components	100 tests
Pluronic F-127	1 x 50mg
Reference Standard	1 x 2ml

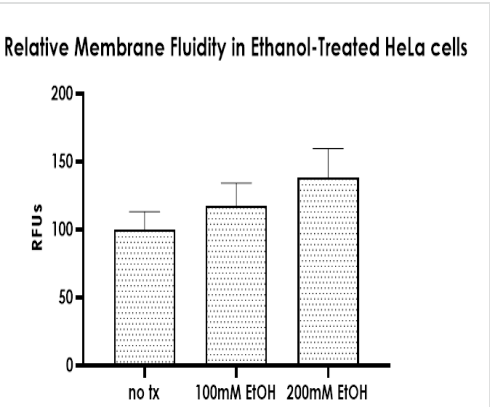
Images



Membrane Fluidity Kit

Isopropanol treatment increases membrane fluidity in primary leukocytes

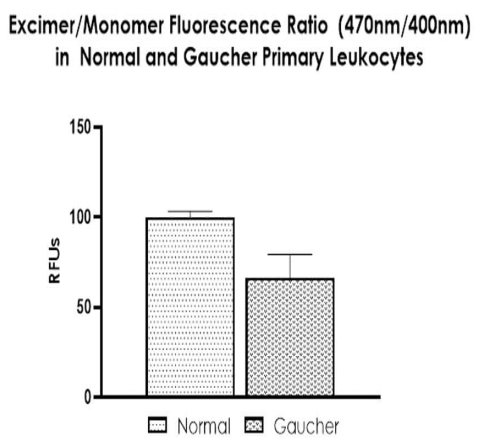
Primary leukocytes were treated with .5% isopropanol for 1 hour, followed by 1 hour incubation with 5 µM PDA and 0.08% pluronic F-127. PDA fluorescence was measured by exciting at 350 nM and taking emission values at 400nM (monomer) and 460nM (excimer). Relative membrane fluidity is a ratio of excimer to monomer fluorescence.



Membrane Fluidity Kit

Ethanol treatment increases membrane fluidity in HeLa cells

HeLa cells were treated with 100mM or 200 mM Ethanol for 48 hours, followed by 1 hour incubation with 2 µM PDA and 0.08% pluronic F-127. PDA fluorescence was monitored by exciting at 350 nM and taking emission values at 400nM (monomer) and 470nM (excimer). Relative membrane fluidity is a ratio of excimer to monomer fluorescence. Aliphatic alcohols such as EtOH are known to increase membrane fluidity.



Membrane Fluidity Kit

Gaucher Disease leukocytes exhibit decreased membrane fluidity relative to healthy controls

Immortalized leukocytes were incubated for 1 hour incubation with 2 µM PDA and 0.08% pluronic F-127. PDA fluorescence was measured by exciting at 350nM and taking emission values at 400nM (monomer) and 470nM (excimer). Relative membrane fluidity is a ratio of excimer to monomer fluorescence. Previous studies have demonstrated that cells isolated from Gaucher Disease patients exhibit decreased membrane fluidity.

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