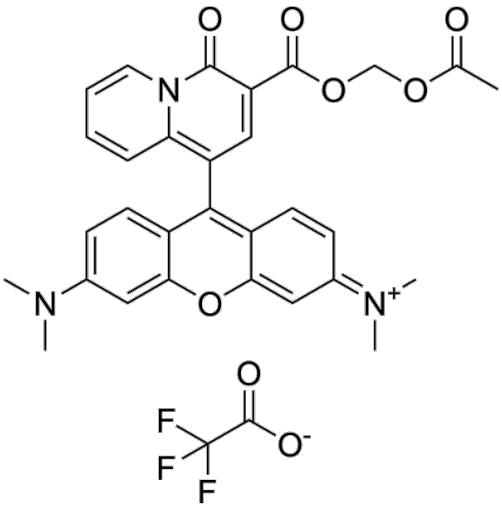
Product Data Sheet

Product Name: KMG-301AM TFA
Cat. No.: GC72967

Chemical Properties

Cas. No.	1372642-78-8		
Formula	$C_{32}H_{28}F_3N_3O_8$	M.Wt	639.58
Solubility		Storage	-20°C, protect from light, stored under nitrogen
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Structure



Background

KMG-301AM TFA is the acetoxy metl esterified form of KMG-301. KMG-301AM TFA successfully accumulates in mitochondria and then it is drolyzed to KMG-301. KMG-301 is an Mg2+-selective fluorescent probe functional in mitochondria in intact cells. Since the mitochondrial membrane is impermeable to KMG-301, it is not released upon depolarization of the mitochondrial membrane potential. KMG-301 can indicate changes in mitochondrial Mg2+ concentration and shows Mg2+ transport across the mitochondrial membrane in the early phases of a cellular model.

Caution: Product has not been fully validated for medical applications. For research use only.
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Experimental Protocols: This protocol only provides a guideline, and should be modified according to your specific needs[1]. 1. For optical imaging, 20 µM KMG-301AM TFA is applied to cells in Hanks' balanced salt solutions (HBSS) for 10 min on ice, so that drolysis of the acetoxymetl ester by esterase present in the cytosol will be avoided. HBSS contains (in mM): NaCl, 137; KCl, 5.4; CaCl2, 1.3; MgCl2, 0.5; MgSO4, 0.4; Na2HPO4, 0.3; KH2PO4, 0.4; NaHCO3, 4.2; D-glucose, 5.6; HEPES, 5 (pH adjusted to 7.4 with NaOH). 2. Then, the cells are washed twice with HBSS and incubated for 15 min at 37°C to allow for complete drolysis of the acetoxymetl ester form in mitochondria. 3. If you want the simultaneous use of KMG-104AM and KMG-301AM TFA, cells are incubated with 5 µM KMG-104AM in HBSS for 30 min at 37°C, and then stained with KMG-301AM TFA. 4. Isolated mitochondria are incubated with 20 µM KMG-301AM TFA in Mitochondria Imaging Buffer (MIB) for 20 min at 37°C. Then, mitochondria are washed twice with MIB and further incubated for 15 min at 37°C. MIB contains (in mM): KCl, 125; K2HPO4, 2; MgCl2, 1; HEPES, 5; EDTA, 0.02 (pH adjusted to 7.2 with KOH) or Mg2+-free MIB (without MgCl2)5. Fluorescence imaging experiments are performed using a confocal laser scanning microscope system. KMG-301 is excited at 559 nm from a laser diode, and the signal was observed at 600-700 nm. In the simultaneous measurement, KMG-104 and KMG-301 were excited at 488 nm from an Argon laser and 559 nm, respectively. Fluorescence was separated using a 560 nm dichroic mirror and observed at 500-545 nm and 600-700 nm, respectively.

References:

[1]. Shindo Y, et al. Newly developed Mg^{2+}-selective fluorescent probe enables visualization of Mg^{2+} dynamics in mitochondria. PLoS One. 2011;6(8):e23684.

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