-SulfoBiotics- GYY4137 Technical Manual

Technical Manual (Japanese version) is available at http://www.dojindo.co.jp/manual/sb06.pdf

General Information

It has been recognized that hydrogen sulfide (H_2S) has an important role as a physicological active substance for vasodilation, cytoprotection, modulation of insulin secretion. Although H_2S is considered as a gaseous molecule such as NO and CO, about 80% of the total sulfide exists as hydrogen sulfide anion (HS^-) under physiological condition. In addition, H_2S easily converts to various biochemical molecules such as persulfides and polysulfides, which react with sulfhydryl moieties in a living body. Therefore, the precise action mechanism of H_2S has not been cleared.

Sodium sulfide (Na_2S) and sodium hydrogen sulfide (NaHS) have been widely used as a H_2S donor. Only instantaneously release of H_2S from Na_2S and NaHS, however, is available in aqueous solution, and threse reagents give a transient stimulation of H_2S .

GYY4137 is a slow-releasing hydrogen sulfide donor developed by P. K. Moore *et al.*[1]. Since GYY4137 is water-soluble and continuously releases H_2S by hydrolysis in a neutral aqueous solution, it is reported that GYY4137 shows distinct cellular effects such as anti-hypertensive, anti-atherosclerotic, and anti-tumor activities [2-5].

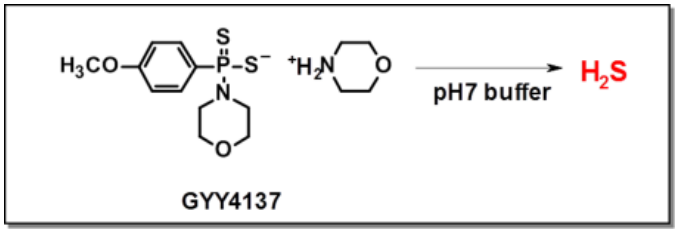

Fig. 1 H_2S release of GYY4137 by hydrolysis

Contents

-SulfoBiotics- GYY4137 10 mg x 1

Storage Condition

Store at 0-5 °C

Precaution

This reagent releases a toxic hydrogen sulfide gas in a neutral aqueous solution.
Refer to the material safety data sheet before using the reagent.

General Protocol

1) Dissolve 3.8 mg of GYY4137 with 0.5 ml of ddH_2O to prepare 20 mmol/l GYY4137 Stock Solution.
*Store the stock solution at -20 °C and use within two months. Aliquot the solution for longer storage.

2) Dilute the 20 mmol/l GYY4137 Stock Solution to an appropriate concentration depending on your experiment.
*H_2S release is initiated by addition of the stock solution to neutral buffers or culture medium.

Experimental Example

- H_2S release profile of GYY4137 in PBS -

1) Ten microliter (10 µl) of 20 mmol/l GYY4137 Stock Solution was added to 2 ml of PBS to prepare 100 µmol/l GYY4137 (PBS) solution. Then, the solution was incubated at room temperature with sealing.
2) The yielded hydrogen sulfide anion was quantified at each time by methylene blue method.

H_2S release from GYY4137 in PBS was slow and sustained.

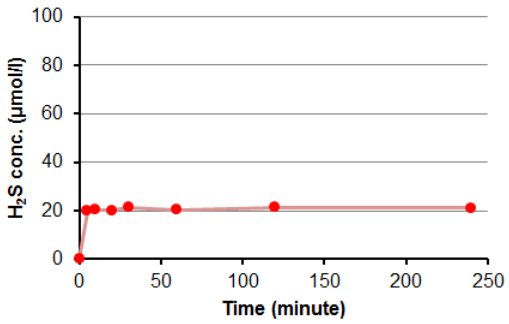

Fig. 2 H_2S release profile of 100 µmol/l GYY4137 in PBS

Reference

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5) Z. Liu, Y. Han, L. Li, G. Meng, X. Li, M. Shirhan, M. T. Peh, L. Xie, S. Zhou, X. Wang, Q. Chen, W. Dai, C-H. Tan, S. Pan, P. K. Moore and Y. Ji, "The hydrogen sulfide donor, GYY4137, exhibits anti-atherosclerotic activity in high fat fed apolipoprotein E-/- mice", *Br. J. Pharmacology,* **2013**, *169*, 1795.

If you need more information, please contact Dojindo technical service.

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