

Differences in the Analogues of Coelenterazine

Introduction

The three analogues of coelenterazine are Coelenterazine, Coelenterazine h, and Coelenterazine 400a. Even though all of these can work for the same experiments some can give better results than others.

Additional Information

[Coelenterazine \(GoldBio Catalog # CZ\):](#)

Coelenterazine, more commonly referred to as “Native Coelenterazine” has many uses. It is the substrate for Renilla luciferases (Rluc) and Gaussia luciferase (Gluc), has an emission between 460-470 nm, and is used in the detection of calcium ions in living cells, gene reporter assays, BRET (bioluminescence resonance energy transfer) studies, ELISA, and superoxide anion detection in cells.

Coelenterazine h (Not currently available):

Coelenterazine h has limitations when used with Renilla or Gaussia luciferases. This analog works better with Calcium activated photoproteins, however this is only true for in vitro studies. Coelenterazine h has also been reported to have a 10 to 20 fold higher luminescent intensity of that of native Coelenterazine making it a useful tool for measuring small changes in Calcium ion concentrations and has an emission of 460-470 nm.

[Coelenterazine 400a \(GoldBio Catalog # C-320\):](#)

Coelenterazine 400a is the preferred Rluc substrate for BRET studies. This coelenterazine derivative generates an emission between 390 nm and 400 nm which has minimal interference with the emission of the GFP acceptor.

References

Thomson, C. M., Herring, P. J. & Campbell, A. K. (1998). The widespread occurrence and tissue distribution of the imidazolopyrazine luciferins. *Journal of bioluminescence and chemiluminescence* 12.2: 87-91.