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Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
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- Expressversand

SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 

Product Information

Coelenterazine Analogs

| Product | MW | Catalog No. | Size |
|---|-------|-------------|------------|
| Coelenterazine Sampler Kit (<i>native</i> , <i>cp</i> , <i>f</i> , <i>hcp</i> , <i>h</i> , <i>hcp</i> , <i>i</i> , <i>ip</i> and <i>n</i> analogs) | --- | 10123 | 25 ug each |
| Aquaphile™ Coelenterazine (<i>native</i>), lyophilized solid | 423.5 | 10126-50ug | 50 ug |
| | | 10126 | 5 x 100 ug |
| Aquaphile™ Coelenterazine <i>h</i> , lyophilized solid | 407.5 | 10127-50ug | 50 ug |
| | | 10127 | 5 x 100 ug |
| Coelenterazine (<i>native</i>) | 423.5 | 10110 | 50 ug |
| | | 10110-2 | 250 ug |
| | | 10110-1 | 1 mg |
| Coelenterazine <i>h</i> | 407.5 | 10111 | 50 ug |
| | | 10111-2 | 250 ug |
| | | 10111-1 | 1 mg |
| Coelenterazine <i>cp</i> | 415.5 | 10112 | 50 ug |
| | | 10112-2 | 250 ug |
| | | 10112-1 | 1 mg |
| Coelenterazine <i>hcp</i> | 399.5 | 10113 | 50 ug |
| | | 10113-2 | 250 ug |
| | | 10113-1 | 1 mg |
| Coelenterazine <i>f</i> | 425.5 | 10114 | 50 ug |
| | | 10114-2 | 250 ug |
| | | 10114-1 | 1 mg |
| Coelenterazine <i>n</i> | 457.5 | 10115 | 50 ug |
| | | 10115-2 | 250 ug |
| | | 10115-1 | 1 mg |
| Coelenterazine <i>ip</i> | 389.5 | 10116 | 50 ug |
| | | 10116-2 | 250 ug |
| | | 10116-1 | 1 mg |
| Coelenterazine <i>hcp</i> | 417.5 | 10117 | 50 ug |
| | | 10117-2 | 250 ug |
| | | 10117-1 | 1 mg |
| Coelenterazine <i>i</i> | 533.4 | 10121 | 50 ug |
| | | 10121-2 | 250 ug |
| | | 10121-1 | 1 mg |
| Coelenterazine <i>e</i> | 449.5 | 10124 | 50 ug |
| | | 10124-2 | 250 ug |
| Coelenterazine 400a (DeepBlueC™) | 391.5 | 10125 | 50 ug |
| | | 10125-2 | 250 ug |
| | | 10125-1 | 1 mg |
| Methyl Coelenterazine | 331.4 | 10122 | 50 ug |
| | | 10122-1 | 1 mg |

Storage and Handling

Store solids at -20°C or -70°C, protected from light, under nitrogen or argon for long-term storage. Product is stable for at least 3 years from date of receipt when stored as recommended.

For non-Aquaphile™ coelenterazines use methanol or ethanol according to the table below to prepare stock solutions (> 1 mg/mL). For Aquaphile™ coelenterazines use water or PBS. Do not use DMSO (dimethylsulfoxide), as coelenterazine analogs may be unstable in this solvent. Keep calcium-free when stored in solution and avoid using glass containers. Solutions of coelenterazine analogs are susceptible to oxidation by air. For best results, protect stock solutions from light and store at <-70°C under nitrogen or argon. Stock solutions can be further diluted with buffer to the appropriate working concentration. We recommend preparing fresh working solutions just before use to avoid precipitation and decomposition of coelenterazine analogs.

Molecular Information

| Analog | Abs/Em ^[a] (nm) | Color and Form | Solubility |
|------------------------------|-------------------------------|----------------|------------------------------|
| Aquaphile™ (<i>native</i>) | 429/466 | Yellow solid | water or PBS buffer |
| Aquaphile™ <i>h</i> | 437/466 | Yellow solid | water or PBS buffer |
| <i>native</i> | 429/466 | Yellow solid | MeOH or EtOH |
| <i>h</i> | 437/466 | Yellow solid | MeOH or EtOH |
| <i>cp</i> | 430/442 | Yellow solid | MeOH or EtOH |
| <i>hcp</i> | 430/444 | Yellow solid | MeOH or EtOH |
| <i>f</i> | 437/473 | Yellow solid | MeOH |
| <i>n</i> | 431/467 | Yellow solid | MeOH |
| <i>ip</i> | 430/441 | Yellow solid | MeOH |
| <i>hcp</i> | 430/452 | Yellow solid | MeOH |
| <i>i</i> | 440/476 | Yellow solid | MeOH or EtOH |
| <i>e</i> | ---/405, 465 | Brown solid | MeOH or EtOH |
| 400a (DeepBlueC™) | ---/400 ^[b] | Pink solid | 1 mM (~0.4 mg/ml) in EtOH |
| <i>methyl</i> | ---/--- | Yellow solid | MeOH or EtOH |

^[a] Emission with apoaequorin; see Table 2 for luminescent properties with *Renilla* luciferase.

^[b] Emission with *Renilla* luciferase for Coelenterazine 400a (DeepBlueC™).

Product Description

Coelenterazine and its analogs are luminescent enzyme substrates for apoaequorin and *Renilla* luciferase. Apoaequorin is used as a calcium indicator whereas *Renilla* luciferase is commonly used as a reporter of transcription regulation. Coelenterazine binds to apoaequorin to form aequorin which emits light upon binding to calcium. Aequorin can be used to measure a broad concentration range of calcium from ~0.1 uM to >100 uM. *Renilla* luciferase has been widely used as a reporter protein and as a bioluminescence donor in bioluminescence resonance energy transfer (BRET) to study protein-protein interactions. Other uses of coelenterazine include chemiluminescent detection of superoxide anion and peroxynitrite in cells or tissues.

Biotium offers high purity native coelenterazine and a number of coelenterazine analogs with different properties in terms of emission wavelength, cell membrane permeability and quantum efficiency. Table 1 and Table 2 on page 2 summarize the luminescent properties of coelenterazine derivatives with apoaequorin and *Renilla* luciferase, respectively.

Aquaphile™ coelenterazines are water soluble formulations that can be readily dissolved in water or buffer for *in vivo* use. Aquaphile™ formulations are available for coelenterazine *native* (catalog no. 10126) and coelenterazine *h* (catalog no. 10127).

Coelenterazine 400a (DeepBlueC™) is a *Renilla* luciferase substrate with an emission peak centered at 400 nm. This substrate is most ideal for BRET studies because it has minimal interference with the emission of the GFP acceptor. BRET studies are typically performed in Dulbecco's Phosphate Buffered Saline (DPBS) with calcium and magnesium supplemented with Aprotinin (2 ug/mL), using a final concentration of 50 uM substrate.

Methyl coelenterazine (2-methyl analog) has been reported to be a potent antioxidant against reactive oxygen species (ROS) such as singlet oxygen and superoxide anion. The coelenterazine derivative is membrane-permeant, nontoxic and highly reactive toward ROS. As oxidative stress is believed to be a mediator of apoptosis, 2-methyl coelenterazine may be a useful tool for apoptosis studies.

The Coelenterazine Sampler Kit (catalog no. 10123) contains 25 ug each of nine coelenterazine analogs (*native*, *cp*, *f*, *fc*, *h*, *hcp*, *i*, *ip* and *n*).

References

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- 2) *Meth. Enzymol.* 172, 164(1989).
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- 7) *Free Radic. Biol. Med.* 28, 1232(2000).
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- 9) *Immunol. Today* 15, 7(1994).
- 10) *Anal. Biochem.* 206, 273(1992).
- 11) *Biochem. Biophys. Res. Commun.* 233, 349(1997).
- 12) *Mol Imaging*, 3 (1), 43(2004).
- 13) *Biochem. Pharmacol.* 60, 471(2000).
- 14) *Biochem. J.* 261, 913(1989).
- 15) *Cell Calcium*, 12, 635(1991).

Table 1. Luminescent Properties of Coelenterazine Analogs with Apoaequorin*

| Coelenterazine analog | Emission maximum (nm) | Relative Luminescence capacity | Relative intensity | Half-rise time (s) |
|-----------------------|-----------------------|--------------------------------|--------------------|--------------------|
| native | 466 | 1.00 | 1.00 | 0.4-0.8 |
| <i>cp</i> | 442 | 0.95 | 15 | 0.15-0.3 |
| <i>e</i> | 405, 465 | 0.5 | 4 | 0.15-0.3 |
| <i>f</i> | 473 | 0.8 | 18 | 0.4-0.8 |
| <i>fc</i> | 452 | 0.57 | 135 | 0.4-0.8 |
| <i>h</i> | 466 | 0.82 | 10 | 0.4-0.8 |
| <i>hcp</i> | 444 | 0.67 | 190 | 0.15-0.3 |
| <i>i</i> | 476 | 0.70 | 0.03 | 8 |
| <i>ip</i> | 441 | 0.54 | 47 | 1 |
| <i>n</i> | 467 | 0.26 | 0.01 | 5 |

*All data from *Biochem. J.* 261, 913(1989).

Table 2. Luminescent Properties of Coelenterazine Analogs with *Renilla* Luciferase**

| Coelenterazine analog | Emission maximum (nm) | Total light (%) | Initial intensity (%) |
|-----------------------|-----------------------|-----------------|-----------------------|
| native | 475 | 100 | 100 |
| <i>cp</i> | 470 | 23 | 16 |
| <i>e</i> | 418, 475 | 137 | 750 |
| <i>f</i> | 473 | 28 | 58 |
| <i>h</i> | 475 | 41 | 57 |
| <i>n</i> | 475 | 47 | 68 |

** All data from *Biochem. Biophys. Res. Commun.* 233, 349(1997).

Related Products

| Catalog number | Product |
|----------------|---|
| 41024-4L | Water, Ultrapure Molecular Biology Grade |
| 22020 | 10X Phosphate-Buffered Saline (PBS) |
| 30028-L | Steady-Luc™ Firefly HTS Assay Kit (Lyophilized) |
| 30075 | Firefly Luciferase Assay Kit (Lyophilized) |
| 30085 | Firefly Luciferase Assay Kit 2.0 |
| 30082 | <i>Renilla</i> Luciferase Assay Kit 2.0 |
| 30081 | Firefly & <i>Renilla</i> Luciferase Single Tube Assay Kit |
| 10100 | D-Luciferin, Free Acid |
| 10101 | D-Luciferin, Potassium Salt |
| 10102 | D-Luciferin, Sodium Salt |

Please visit our website at www.biotium.com for information on our life science research products, including our flash-type Firefly and *Renilla* luciferase kits, D-luciferin formulations, fluorescent CF® dye antibody conjugates and reactive dyes, apoptosis reagents, fluorescent probes, and kits for cell biology research.

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