

Product Information

Thiazole Green (SYBR® Green I), 10,000X in DMSO

Product	Cat. No.	Unit size
Thiazole Green (SYBR® Green I), 10,000X in DMSO	40086-0.5mL	500 uL
	40086-1mL	1 mL

Storage and Handling

Store at -20°C, protected from light. Product is stable for at least 12 months from date of receipt when stored as recommended.

Molecular Information: C₃₂H₃₇ClN₄S

CAS number: 163795-75-3

Molecular Weight: 545

Color and Form: Orange liquid

Absorption/Emission: 498/522 nm with dsDNA

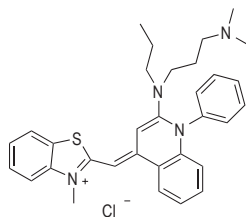


Figure 1. N',N'-dimethyl-N-[4-[(E)-(3-methyl-1,3-benzothiazol-2-ylidene)methyl]-1-phenylquinolin-1-ium-2-yl]-N-propylpropane-1,3-diamine

Product Description

Thiazole Green, also known as SYBR® Green I, is a widely used nucleic acid stain for detecting double-stranded DNA (dsDNA). It is commonly used in qPCR despite its well-documented inhibitory effect on DNA polymerization in PCR. EvaGreen® Dye and EvaGreen® Plus Dye are Biotium's superior alternatives to Thiazole Green in PCR. They offer less PCR inhibition and a more robust signal-to-noise for qPCR and high-resolution DNA melt curve analysis.

Thiazole Green is also a classic nucleic acid gel stain. It can detect ssDNA and RNA in denaturing agarose/formaldehyde and polyacrylamide/urea gels. While it is one of the most sensitive gel stains available, it is also known to be potentially hazardous to laboratory workers and the environment. GelRed® and GelGreen® (see Related Products) are highly sensitive gel stains designed by Biotium to be a nontoxic and nonmutagenic alternative to Thiazole Green and other hazardous gel stains.

Thiazole Green may be used as a membrane-permeant dye to stain all cells in live cultures as well. However, Thiazole Green is also cytotoxic and not suitable for long-term cell staining. Biotium offers NucSpot® Live and Hoechst stains, which are nontoxic and more suitable alternatives for long-term live cell staining (see Related Products).

qPCR Protocol

The following is an example protocol for qPCR using Biotium's Cheetah™ HotStart Taq (see Related Products) and Thiazole Green. Reaction conditions may require optimization for different applications.

- Set up PCR reaction using the following final concentrations of reaction components:
 - 1X polymerase buffer
 - 2.5 mM MgCl₂
 - 0.1-1 uM each of primers
 - 0.2 mM each of dNTPs
 - 0.02-0.1 unit/uL Cheetah™ HotStart Taq DNA Polymerase
 - 1X Thiazole Green (SYBR® Green I)
 - Optional ROX Reference Dye (if required by your instrument)
 - dH₂O to required final reaction volume
- Perform real-time PCR on a qPCR instrument and acquire the fluorescence signal at the annealing or extension step with the SYBR® Green or FAM channel.

Gel Staining Protocol

- Place the gel in a plastic staining container and add enough Thiazole Green staining solution to cover the gel. Perform staining at room temperature and protect the gel from light during staining by covering it with aluminum foil or placing it in a dark room.

Note: There is no need to wash the urea or formaldehyde out of gels prior to staining.
- Agitate the gel gently at room temperature. The optimal staining time is typically 10-40 minutes for polyacrylamide gels and 20-40 minutes for agarose gels. Staining time may vary depending on the thickness of the gel and the percentage of agarose or polyacrylamide. No destaining is required.
- The staining solution may be reused three to four times if stored at 2-8°C in the dark.

Selective Staining of Dead Cells

- Dilute Thiazole Green to a final concentration of 200-500 nM in complete cell culture medium or buffer of your choice. Optimal concentration will vary depending on the application and detection method.

Note: For optimal results, we recommend a titration range between 50 nM to 1 uM for different applications.
- Incubate cells with the dye solution for 15 minutes or longer at room temperature or 37°C.
- Analyze cells by microscopy or flow cytometry in the FITC channel (498/522 nm).

Related Products

Cat. No.	Product
31077	EvaGreen® Plus Dye, 20X in Water
31000	EvaGreen® Dye, 20X in water
41001	GelRed® Nucleic Acid Gel Stain, 3X in Water
41003	GelRed® Nucleic Acid Gel Stain, 10,000X in Water
41002	GelRed® Nucleic Acid Gel Stain, 10,000X in DMO
41005	GelGreen® Nucleic Acid Gel Stain, 10,000X in Water
41004	GelGreen® Nucleic Acid Gel Stain, 10,000X in DMSO
40042	Ethidium Bromide, 10 mg/mL in H ₂ O
40085	NucSpot® Far-Red dead cell stain for flow cytometry
40083.. 41040	NucSpot® Nuclear Stains
40044- 40047	Hoechst
29050	Cheetah™ HotStart Taq DNA Polymerase, 500 U
40091	Oxazole Blue (PO-PRO™-1), 1 mM in DMSO
40093	Oxazole Blue Homodimer (POPO™-1), 1 mM in DMSO
40089	Oxazole Yellow (YO-PRO®-1), 1 mM in DMSO
40090	Oxazole Yellow Homodimer (YOYO®-1), 1 mM in DMSO
40094	Oxazole Gold (SYBR® Gold), 10,000X in DMSO
40077	Thiazole Orange, 10 mM in DMSO
40088	TO Iodide (TO-PRO®-1), 1 mM in DMSO
40079	Thiazole Orange Homodimer (TOTO®-1), 1 mM in DMSO
40105	Oxazole Red (YO-PRO®-3), 1 mM in DMSO
40106	Oxazole Red Homodimer (YOYO®-3), 1 mM in DMSO
40087	Thiazole Red (TO-PRO®-3), 1 mM in DMSO
40080	Thiazole Red Homodimer (TOTO®-3), 1mM in DMSO
40060	RedDot™1 Far-Red Nuclear Stain for live cells
40061	RedDot™2 Far-Red Nuclear Stain for dead or fixed cells
23001... 23020	EverBrite™ Mounting Medium
23008, 23009	Drop-n-Stain EverBrite™ Mounting Medium
23003... 23021	EverBrite™ Hardset Mounting Medium
23017... 23022	EverBrite TrueBlack® Hardset Mounting Medium
40037	7-AAD, 1 mg
40084	7-AAD, 1 mg/mL solution
40014	Ethidium Homodimer I, 2 mM in DMSO
40051	Ethidium Homodimer III, 1 mM in DMSO
40048	Propidium Iodide, 50 ug/mL in Buffer

Please visit our website at www.biotium.com for information on our life science research products, including GelRed® and GelGreen® nucleic acid gel stains, organelle stains, Live-or-Dye™ Fixable Viability Staining Kits, and other viability dyes.

SYBR is a registered trademarks of Thermo Fisher Scientific. SYBR, TOTO, TO-PRO, YO-PRO, and YOYO are registered trademarks of Thermo Fisher Scientific. PO-PRO and POPO are trademarks of Thermo Fisher Scientific.

Materials from Biotium are sold for research use only, and are not intended for food, drug, household, or cosmetic use.