X-CLARITY™ Polymerization Initiator

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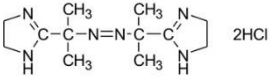

Storage

4°C

Product Description

Molecular formula	$C_{12}H_{22}N_6 \cdot 2HCl$
Molecular weight	323.33 g/mol
Appearance	Pale yellow powder
10-hr half-life	44°C (in water)

The X-CLARITY™ Polymerization Initiator is a thermal free radical initiator also known as VA-044. VA-044 is relatively stable at room temperature but undergoes rapid hemolytic decomposition when heated in aqueous solution, releasing cationic free radicals that initiate the polymerization of hydrogel monomers.

Directions for Use

Stock Preparation

1. Dissolve 2.5 g X-CLARITY™ Polymerization Initiator in 10 mL 1X PBS to make a 25% (w/v) stock solution.
2. Aliquot and store at -80°C for up to 6 months.
3. Thaw at 4°C or on ice before use.

Hydrogel Infusion

1. Prepare fresh hydrogel-initiator solution as needed.
   - 4% acrylamide (A4P0): Add one part 25% (w/v) X-CLARITY™ Polymerization Initiator to 100 parts X-CLARITY™ Hydrogel Solution. Mix thoroughly.
   - 1% acrylamide (A1P0): Make the 4% acrylamide solution above and dilute 1:4 in 1X PBS. Mix thoroughly.
2. Use enough mixture to fully submerge samples.
3. Incubate at 4°C for 24 hours.

Tissue-Hydrogel Hybridization

1. Initiate polymerization with the X-CLARITY™ Polymerization System. Run the system at 37°C for 3 hours at -90 kPa.
2. Shake samples gently on a shaker for 1 minute. If in a conical tube, invert the sample gently for 1 minute.

! *Bis*-acrylamide creates crosslinks between polyacrylamide chains, which hardens the hydrogel network and forms a rigid gel around tissue samples that must be removed prior to clearing. X-CLARITY™ Hydrogel Solution does not contain *bis*-acrylamide, which prevents a gel from forming around the sample. This is ideal for small or delicate tissues. A successfully polymerized *bis*-acrylamide-free hydrogel solution is sticky. The final shaking step is important to ensure a homogenous distribution of the solution throughout the sample.

Disclaimer

This product is for research use only.
Please consult the material safety data sheet for information regarding hazards and safe handling practices.

References

1. Lee, E et al. ACT-PRESTO: Rapid and consistent tissue clearing and labeling method for 3 dimensional (3D) imaging. *Sci Rep* 6, 18631 (2016).
2. Yang, B. et al. Single-cell phenotyping within transparent intact tissue through whole-body clearing. *Cell* 158, 945–958 (2014).
3. Chung, K. et al. Structural and molecular interrogation of intact biological systems. *Nature* 497, 332–337 (2013).

Additional information is available on our website at www.logosbio.com.

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