

X-CLARITY™ Hydrogel Solution Kit

C1310X

Storage

4°C in the dark

- ✓ C13103 X-CLARITY™ Hydrogel Solution

4°C

- ✓ C13104 X-CLARITY™ Polymerization Initiator

Product Description

C13103 X-CLARITY™ Hydrogel Solution
C13104 X-CLARITY™ Polymerization Initiator

The X-CLARITY™ Hydrogel Solution Kit is a pre-tested hydrogel solution for uniform and consistent tissue-hydrogel hybridization.

X-CLARITY™ Hydrogel Solution is an acrylamide-based solution used to create polyacrylamide, a chemically inert and electrically neutral gel matrix. The X-CLARITY™ Hydrogel Solution contains no *bis*-acrylamide or paraformaldehyde. 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

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.



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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).

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