

RapiClear® CS

CLARITY™ Specific mounting reagent (RI=1.45nD)

RapiClear® CS mounting solution

RapiClear® CS mounting gel

RapiClear® CS is an aqueous-based clearing reagent with the same refractive index as the CLARITY™ (Stanford university) hydrogel–tissue hybrid (1.45nD). Lipid-extracted hydrogel effectively becomes uniformly transparent after immersion in RapiClear® CS mounting solution. As a result, sample image quality can reach to cellular resolution even at the depth of several millimeters using confocal or light sheet illumination microscopy.

RapiClear® CS mounting solution (1.45nD) is a liquid and ready to use reagent. After SDS was completely washed out by incubating the hydrogel in PBS and PBST solution, hydrogel can be directly transferred into mounting solution for optical clearing.

RapiClear® CS mounting gel (1.45nD) is a jelly-like reagent with the melting temperature in approximate 75°C and gelling temperature below 30°C. It is designed for mounting hydrogel sample cleared with the RapiClear® CS solution. RapiClear® CS gel does not affect the clearing effect of mounting solution.

OPERATION

1. Hydrogel–tissue hybrid (sample) cleared with 8% SDS solution and then washed with 0.2% PBST and PBS thoroughly.
2. Transfer sample to a well plate or centrifuge tube with RapiClear® CS mounting solution 5~10 times of the sample volume. Sample will regain the original size within 24 hours.
3. Sample is then directly embedded to the RapiClear® CS gel. Preparation of embedded sample requires a container suitable for confocal observation. The simplest approach is to use iSpacer (SunJin Lab Co.).
 - 3-1 Place the mounting gel in hot-water bath or heating block (75°C) for 15 min.
 - 3-2 Once molten, the mounting gel is left to cool to 40°C in a water bath or on a heating plate. It is very important to ensure that the mounting gel is at 40°C before use.
 - 3-3 Users can aliquot mounting gel to 2~5 ml tubes for later use. Label and store at 4°C.
 - 3-4 Sample is introduced to the container. iSpacer with 24 x 40 mm coverslip is used as a container.

3-5 Place the molten mounting gel to the container. Avoid bubble formation during handling.

3-6 Place a coverslip and seal. Avoid bubble formation during handling.

3-7 Let the mounting gel polymerize at RT for 30 min to 1 hour.

4. Imaging.

Detailed CLARITY™ protocol is available online at <http://capture-clarity.org/>

REFERENCE

Ye, L.#, Allen, W.E.#, Thompson, K.R.#, Tian, Q., Hsueh, B., Ramakrishnan, C., Wang, A.C., Jennings, J.H., Adhikari, A., Halpern, C.H., Witten, I.B., Barth, A.L., Luo, L., McNab, J.A., Deisseroth, K.* (2016). Wiring and molecular features of prefrontal ensembles representing distinct experiences. *Cell* 165: 1-13. *corresponding authors, # equal contribution. doi: <http://dx.doi.org/10.1016/j.cell.2016.05.010>

STABILITY AND STORAGE

RapiClear® CS can be stored at -20°C ~RT. When stored at 4°C, the product is stable for at least 12 months.

WARNING AND PRECAUTIONS

Repeated exposure may cause skin dryness or cracking. Prevent skin contact is suggested.

TECHNICAL ASSISTANCE

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Manufacturer:

SunJin Lab Co., Taiwan, R.O.C.