FUJIFILM
Value from Innovation

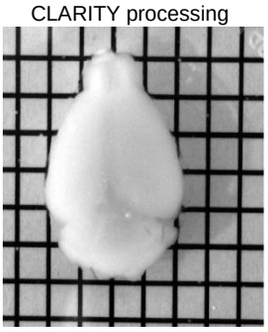
Wako

VA-044

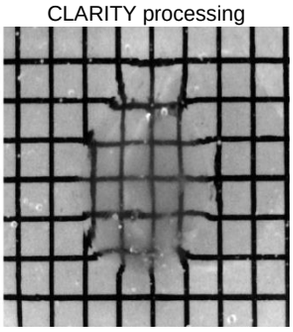
For Transparent Tissue Imaging

CLARITY is the technique developed in the Deisseroth lab at Stanford University.
Chung, K. *et al*., Nature, 497(7449):332-337 (2013).
This protocol transforms intact tissues including whole organs into an optically transparent hydrogel-hybridized form, ready for molecular phenotyping and high resolution 3-D imaging. FUJIFILM Wako's VA-044 is used to initiate hydrogel polymerization.
Note: Data was provided by FUJIFILM Wako Pure Chemical Corporation

Mouse Brain BEFORE CLARITY processing

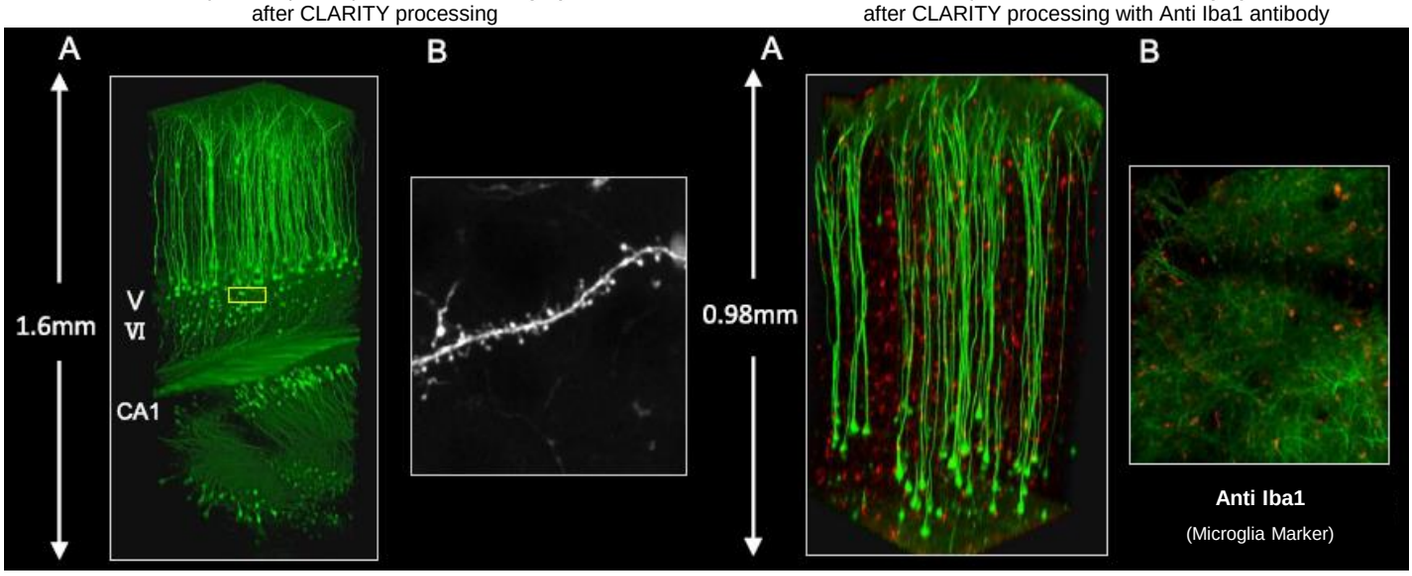


Mouse Brain AFTER CLARITY processing



Thy1-YFP (H Line) Mouse Brain Imaging after CLARITY processing

Thy1-YFP Mouse Brain Imaging after CLARITY processing with Anti Iba1 antibody



A. 3D imaging of Cerebral Cortex to Hippocampus
B. Imaging of cone cells dendrite of Cerebral Cortex Layer V

Photographing condition : 2Photon
Olympus FV1000 upright microscope with 25times liquid immersion objective lens

A. 3D imaging of Microglia Cell in Cerebral Cortex
B. Imaging of surface of Cortex Layer I

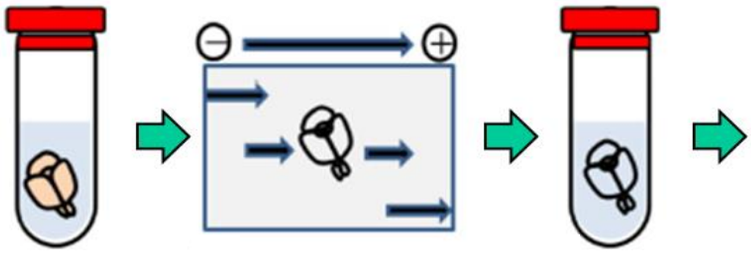
Photographing condition : 1Photon
Olympus FV1000 upright microscope with 25times liquid immersion objective lens

VA-044 for Transparent Tissue Imaging

Catalog No.	Product Name	Grade	Storage	Unit
LB-VA044-50GS	VA-044 2,2'-Azobis[2-(2-imidazolin-2-yl)propane]dihydrochloride	For Cellbiology	Keep at RT	50 g
LB-VA044-500GS				500 g
019-19741	Anti Iba1, Rabbit	Immunocytochemistry	-20C	50 µg (100 µL)
631-26271	Electrophoresis Chamber for Lipid Extraction (Nihon Eido)	-	-	1 machine

**The product is intended for laboratory research use only and not to be used for drug, food or human use.

CLARITY Protocol



Hydrogel Monomer Infusion under 4ºC (days 1-3)

Hydrogel-tissue hybridization under 37ºC (day 3)

Electrophoretic tissue cleaning around 37ºC (days 2-5)

2 days for Glycerol immersion fluorescent protein

Immunostaining with antibody (days 2-5)

2 days for Glycerol immersion for Observation with 2 photon microscope

[Hydrogel Monomer Solution Components]

- VA-044 ---------- 1 gram
- 40% Acrylamide ---------- 40 mL
- 2% BisAcrylamide ---------- 10 mL
- 10 x PBS ---------- 40 mL
- 16% Paraformaldehyde --- 100 mL
- Saponin ---------- 200 mg
- Water ---------- 210 mL

[Electrophoresis Buffer]

- Boric Acid ---------- 123.66 gram
- SDS ---------- 400 gram
- NaOH ---------- Adjust to pH 8.5
- Water ---------- Dilute to 10 L

[Electrophoresis Chamber for Lipid Extraction]

[Circulation Pump]

Catalog No.	CLARITY Reagents	Grade	Storage	Unit
017-08012	Acrylamide	For Electrophoresis	Keep at RT	25 g
019-08011				100 g
011-08015				500 g
138-06032	N,N'-Methylenebis (acrylamide)	For Electrophoresis	Keep 2-10ºC	25 g
130-06031				100 g
163-25265	10 x PBS(-)	For Cell Culture	Below 25ºC	500 mL
160-16061	Paraformaldehyde	For Tissue Fixation	Keep at RT	100 g
162-16065				500 g
163-25983	16w/v% Paraformaldehyde Solution , Methanol free	For Electron Microscopy	Keep at RT	10 mL x 10A
193-18651	Saponin, from Soybeans	Wako 1st Grade	Keep 2-10ºC	1 g
199-18653				5 g
029-02191	Boric Acid	JIS Special Grade	Keep at RT	100 g
021-02195				500 g
190-13982	Sodium Dodecyl Sulfate	For Molecular Biology	Keep at RT	25 g
192-13981				100 g
194-13985				500 g

References for CLARITY– from brain to the whole body

Kadoki, M. *et al*., Cell, 171(2):398-413.e21 (2017)
Ku, T. *et al*, Nature Biotechnology, 34(9):973-981 (2016)
Ye. L. *et al*, Cell, 165(7):1776-1788 (2016)
Yang, B. *et al*, Cell, 158(4):945-958 (2014)

FUJIFILM Wako Laboratory Chemicals site
https://labchem-wako.fujifilm.com

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