



lifecanvas technologies

Illuminating life like never before.

SHIELD: *Proprietary formula for exceptional protection of endogenous fluorescence, protein antigenicity, nucleic acids, & tissue architecture.*

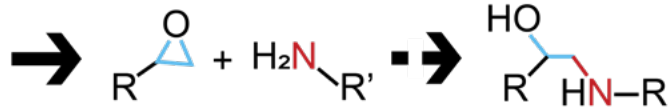
- **Versatile:** SHIELD synergizes with existing tissue processing approaches including SWITCH (*Cell*, 2015), MAP (*NBT*, 2016), SmartBatch+, SmartClear, and SmartLabel. SHIELD is compatible with all PFA-fixed tissues and multiplexing.
- **Easy & Reliable:** SHIELD provides superior tissue preservation without the variability of tissue embedding via hydrogel or paraffin.
- **Fast & Safe:** Our streamlined protocol preserves samples in 4-6 days with minimal steps, and non-toxic, easily disposable reagents.
- **Multi-round imaging & staining:** SHIELD Protects tissue during fluorescent protein imaging and antibody labeling across multiple rounds.



EFFECTIVE WORKFLOW FOR PFA-FIXED TISSUES



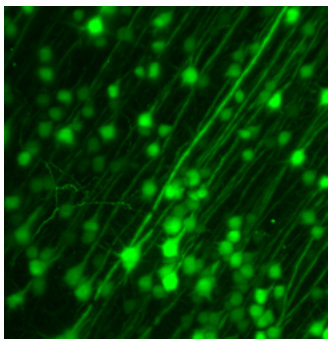
SHIELD postfixation



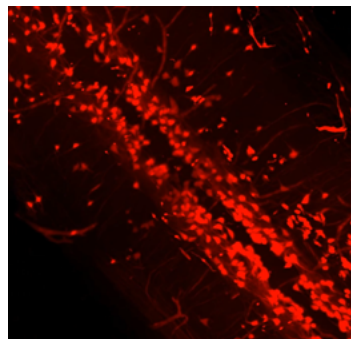
SHIELD epoxidation



Optical clearing and refractive index matching



GFP+ motor cortical neurons, imaged with SmartSPIM, courtesy of Prof. Byungkook Lim's lab, UCSD.



RFP+ spinal cord cells, imaged with SmartSPIM, courtesy of Prof. Helen Lai's lab, UT Southwestern.

TWO KIT SIZES

250 mL: Preserves 12 whole mouse brains or comparably sized samples.

- 250 mL SHIELD Epoxy
- 125 mL SHIELD Buffer
- 500 mL SHIELD ON

500 mL: Preserves 25 whole mouse brains or comparably sized samples.

- 500 mL SHIELD Epoxy
- 250 mL SHIELD Buffer
- 1000 mL SHIELD ON



Clear+ Tissue Clearing:

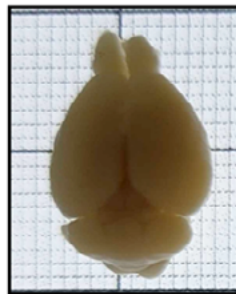
Advanced technique to delipidate and optically clear tissue with no change in sample morphology.

- **Preserves sample integrity:** Clear+-processed tissues retain mechanical strength, molecular stability, and native 3D structure.
- **Rapid & targeted:** Dramatically faster than CLARITY, Clear+ fully delipidates whole mouse brains in **one day** with electrophoretic (active) clearing or one week with passive clearing, and processes large samples like whole rat brains in ~4 days.
- **Compatible:** Clear+ is most effective with our *patented stochastic electrotransport technique*: active clearing via **SmartBatch+** or **SmartClear**. Clear+ also works with passive clearing.

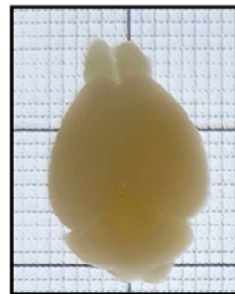
HIGH QUALITY LABELING

Our techniques optimally prepare samples for our rapid, active immunolabeling methods, which **minimize antibody use** and **maximize signal uniformity** compared to passive methods like iDISCO and CUBIC.

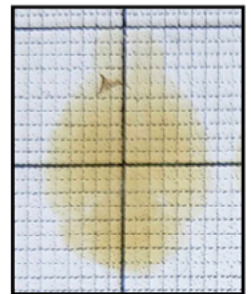
BEFORE DELIPIDATION



AFTER DELIPIDATION



AFTER DELIPIDATION + INDEX-MATCHING



EasyIndex:

Refractive Index-matching solution (RI=1.52) optimized for optical clearing of intact tissues & sections.



- **Complete tissue clearing:** Combined with delipidation, EasyIndex allows light to pass unhindered through tissue samples, rendering them transparent.
- **Ideal for light sheet imaging:** EasyIndex allows for sharp, informative images throughout the tissue volume.
- **Multiple tissue types:** EasyIndex works with a broad range of sample types, including immunolabeled tissues, and tissues labeled with aqueous clearing methods.

Header image sample courtesy of Prof. Jonathan Epp, University of Calgary.