

Tissue Optical Clearing Reagent

Whole-brain/ body imaging with single-cell resolution

CUBIC



CUBIC Trial Kit Summary

Dr. Hiroki R. Ueda *et al.* developed a simple, efficient, and scalable brain / body clearing method and imaging / computational analysis pipeline, CUBIC (clear, unobstructed brain/body imaging cocktails and computational analysis). CUBIC offers a fluorescent-preserving, high-performance and device-free tissue clearing method based on hydrophilic Solutions (Sca/eCUBIC Solutions).

It enables reproducible whole-organ and whole-body clearing and rapid 3D imaging with LSFM. CUBIC also provides processing and analysis of 3D images for extracting biological information.

Therefore, CUBIC presents a platform of whole-organ/body imaging with single-cell resolution and image informatics, which enables a wide range of users to perform experiments targeting cellular and organ layers with multiple samples.

Benefits of CUBIC

- Easy-to-use
- High transparency
- No special equipment required
- Applicable for many organs
- Follow up 2D H&E
- Compatible with IF, FP and other fluorescent labels

CUBIC Applications

**Typically, 7:3 mixture of Mounting Solution 1 and 2 (RI ~1.49) can be used.

	Fixation	Wash	Preprocessing	Delipidation		Wash	Permeabilization	Clearing	Imaging
	Perfusion fixation + post fixation 4%PFA/PBS(-)	PBS	50 % Sca/e CUBIC-1 Solution	Sca/e CUBIC-1 Solution	Sca/e CUBIC-1 Solution	PBS	50 % Sca/e CUBIC-2 Solution	Sca/e CUBIC-2 Solution	Mounting**
Processing temperature	4 °C	RT	RT	37 °C	37 °C	RT - 37 °C	RT	RT - 37 °C	RT
Processing time	1 day	1 day	1 day	2 days	6 - 8 days*	1 day	1 day	2 days	

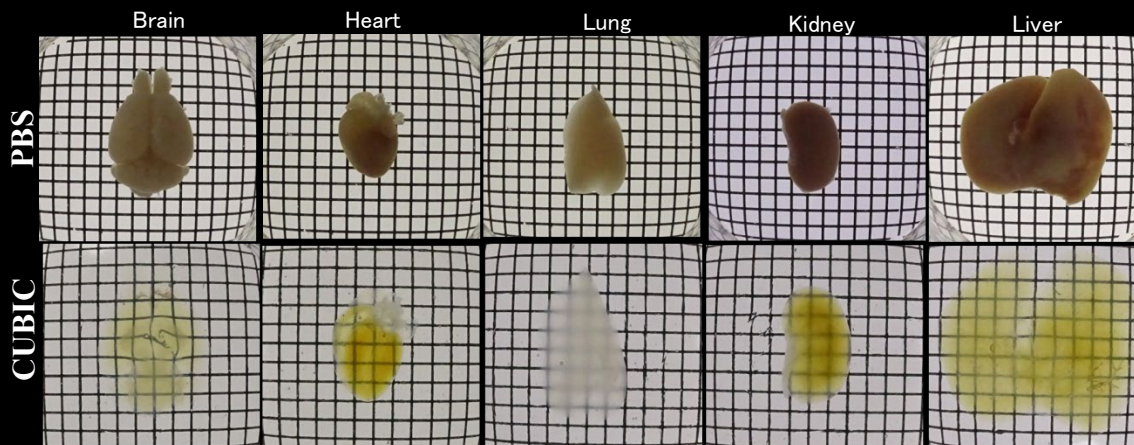


Figure 1. Transmittance images of mouse whole organs before and after clearing with Sca/eCUBIC Solutions.

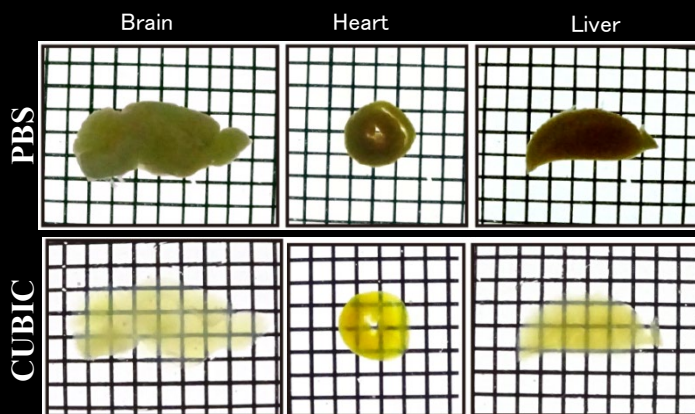


Figure 2. Transmittance images of mouse 2 mm slices before and after clearing with Sca/eCUBIC Solutions.

CUBIC Application for fluorescent protein expression

	Fixation	Wash	Preprocessing	Delipidation			Wash	Fluorescent labels	Wash	Permeabilization
	Perfusion fixation + post fixation 4%PFA/PBS(-)	PBS	50 % Sca/e CUBIC-1 Solution	Sca/e CUBIC-1 Solution	Sca/e CUBIC-1 Solution		PI(5 µg / mL)	PB(10 mM)	50 % Sca/e CUBIC-2 Solution	
Processing temperature	4 °C	RT	RT	37 °C	37 °C	RT - 37 °C	RT	RT	RT	
Processing time	1 day	1 day	1 day	2 days	6 - 8 days*	1 day	2 days	> 1 day	1 day	
	Clearing	Imaging								
	Sca/e CUBIC-2 Solution	Mounting:**								
	RT - 37 °C	RT								
	2 days									

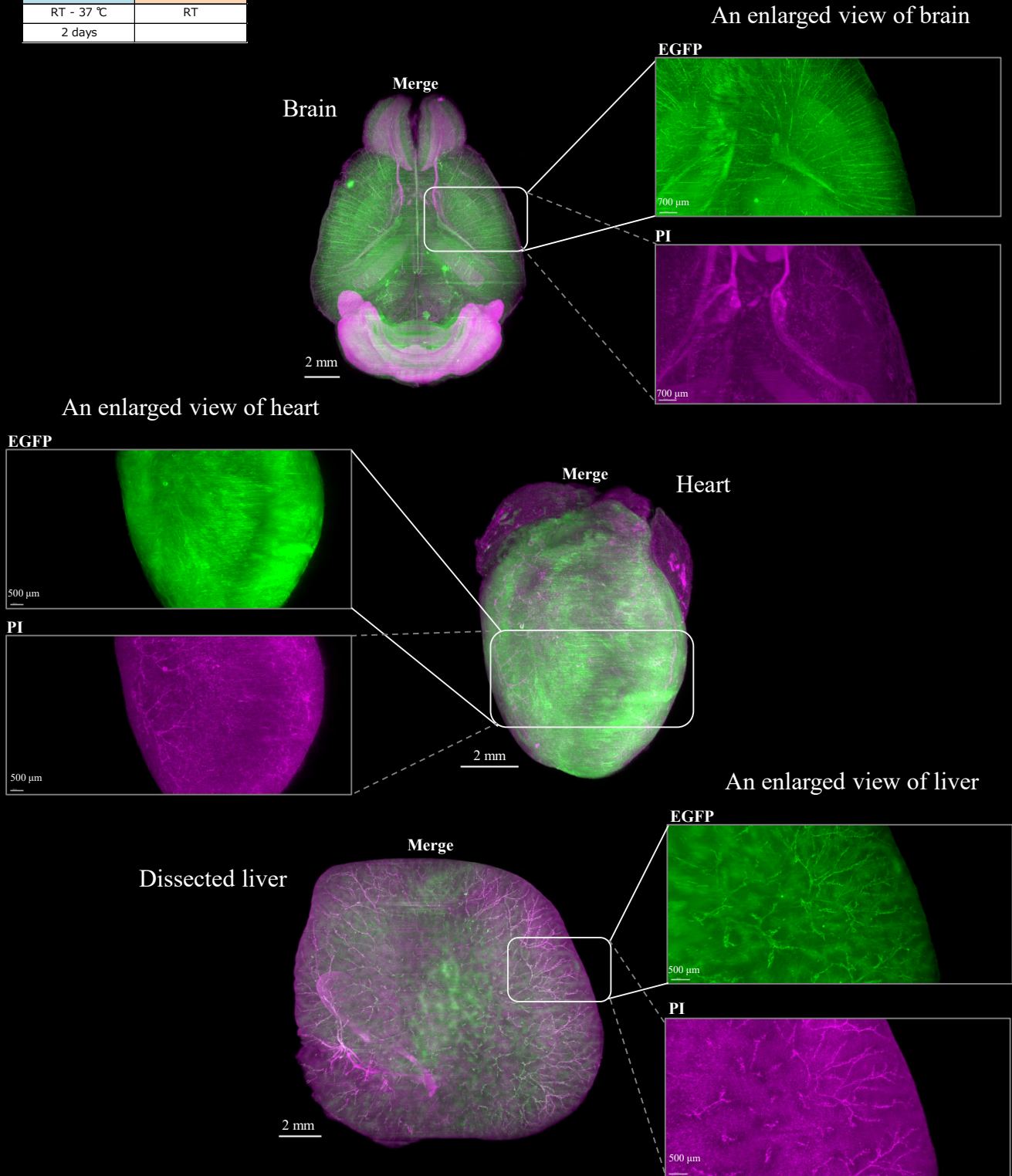


Figure 3. LSFM imaging of CAG-EGFP Tg Mouse (8 w Male) whole brain, whole heart and dissected liver.

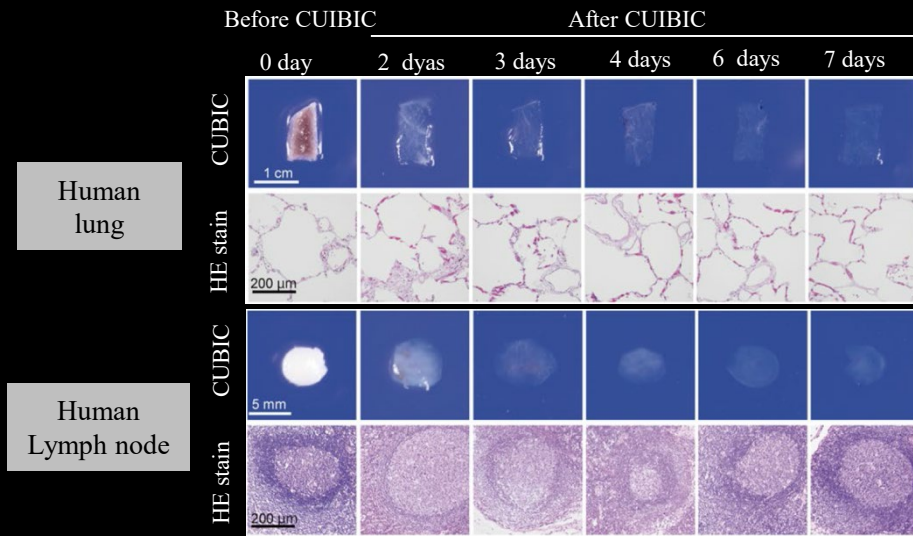


Figure 4. Tissue clearing of various human organs with CUBIC
Tissue clearing and 3D imaging of deparaffinized samples with CUBIC

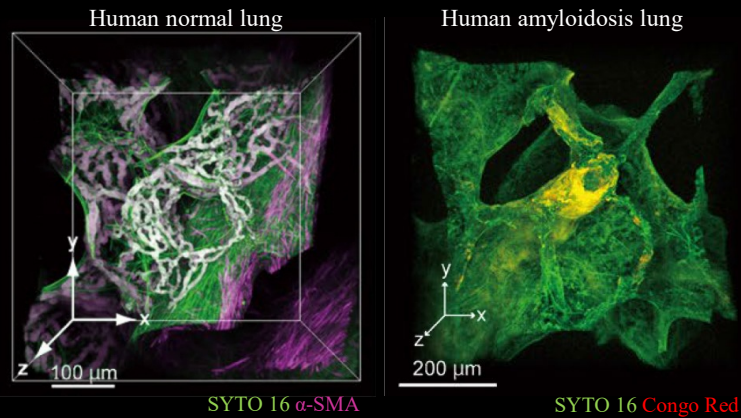


Figure 5. Tissue clearing and 3D imaging of pathological specimens with CUBIC.

【References】

- 1) E. A. Susaki.et al. : *Cell* ,157(3),726 (2014).
- 2) K. Tainaka.et al. : *Cell* ,159(4),911 (2014).
- 3) E. A. Susaki.et al. : *Nature Protocols* ,10,1709 (2015).
- 4) S. Nojima.et al. : *Scientific Reports* ,7,9269 (2017).

Product name	Wako cat. No.	Package Size	Storage	Grade
CUBIC Trial Kit	290-80801	1kit	Keep at RT	Tissue Optical Clearing Reagent

- Listed products are intended for laboratory research use only, and not to be used for drug, food or human use.
- This brochure may contain products that cannot be exported to your country due to regulations.
- Bulk quote requests for some products are welcome. Please contact us.

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