APR 16, 2020

🌐 Lightsheet Tissue Intake - Photodocumentation and Tracking

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Optical Clearing of Tissue

Human BioMolecular Atlas Program (HuBMAP) Method Development Co

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ABSTRACT

In order to track tissue position and orientation each sample is photographed when received for lightsheet microscopy (Figure 1, A). Large samples ($>1 \text{ cm}^3$), such as the spleen in Figure 1, are cut into 2 mm sections (Figure 1, B) to facilitate tissue clearing, staining, and three-dimensional imaging. These tissues are batch processed and withdrawn from the lipid clearing pipeline as needed (Figure 1, C); at this time a novel identifier is assigned to the sample.

GUIDELINES

Photodocumentation, in our pipeline, occurs following tissue-hydrogel polymerization and multiple washes in PBS. This serves to remove trace fixatives for safer handling.

MATERIALS

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- ✂ 50 ml conical tubes Contributed by users
- ✂ Forceps (tweezers), 12.5cm, Blunt End Bio Basic Inc. Catalog #FC003.SIZE.1
- ✂ Razor blades Fisher Scientific Catalog #12-640
- ✂ Hexagonal Polystyrene Weighing Dishes Thermo Fisher Catalog #02202103

SAFETY WARNINGS

- ⚠ Wash tissues of any fixatives, or other dangerous chemicals, prior to manipulating for photodocumentation.

OPEN ACCESS

DOI:
dx.doi.org/10.17504/protocols.io.bef6jbre

Protocol Citation: Seth Currlin, Marda Jorgensen 2020. Lightsheet Tissue Intake - Photodocumentation and Tracking. **protocols.io** <https://dx.doi.org/10.17504/protocols.io.bef6jbre>

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Protocol status: Working
 We use this protocol and it's working

Created: Mar 31, 2020

Last Modified: Apr 16, 2020

PROTOCOL integer ID:
 35038

Keywords: lightsheet microscopy, tissue processing, tissue tracking

- 1 Photograph whole tissue; capture from various angles if possible. A dissection ruler or grid should accompany each photograph.
- 2 Using a razor blade and forceps slice the tissue into sections approximately 2 mm wide. Try to slice in a continuous motion, while applying a gentle downward force.

- 3** Set aside tissue section and repeat Step 2 as needed. Maintain or keep track of slice order and orientation.
- 4** Photograph the sequential 2 mm slices, again using a dissection ruler or grid.
- 5** Retain all slices within one container for subsequent processing (lipid removal).