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Multimodal imaging pipeline for molecular and cellular characterization of Liver tissue - HuBMAP TTD-Columbia/PSU

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

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ABSTRACT

We have developed a workflow to assess the spatial organization of liver tissue with regard to its cellular and metabolic heterogeneity at tissue and single cell level resolution - by performing multimodal imaging on consecutive tissue sections using H&E staining, DESI, (H₂O)_n-GCIB-SIMS, C60-SIMS, and RNAscope.

This document provides the collection of protocols within the multimodal imaging workflow implemented by Columbia University/Pennsylvania State University Transformative Technology Development Center as a part of Human Biomolecular Atlas Program (HuBMAP, NIH).

- 1 Acquire human tissue blocks.
dx.doi.org/10.17504/protocols.io.rm7vzy5wrlx1/v1
- 2 Prepare tissue sections for multimodal imaging on appropriate substrates.
dx.doi.org/10.17504/protocols.io.e6nvwmjzlmk/v1
- 3 H&E staining is performed using standard protocol.

- 4 DESI-IMS is performed as described here.
dx.doi.org/10.17504/protocols.io.ewov1nze7gr2/v1
- 5 (H₂O)_n-GCIB-SIMS-IMS is performed as described here.
dx.doi.org/10.17504/protocols.io.81wgbyynovpk/v1
- 6 C60-SIMS for multiplexed antibody staining is performed as described here.
dx.doi.org/10.17504/protocols.io.b5qmq5u6
- 7 RNAScope imaging is performed as described here.
dx.doi.org/10.17504/protocols.io.kqdg3p3e7l25/v1