APR 15, 2021

🌐 HuBMAP - STANFORD RTI Multiplex Ion Beam Imaging (MIBI) MODALITY OVERVIEW

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OPEN ACCESS

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

Protocol Citation: Marc Bosse, Ferda Filiz, Noah Greenwald, Christine Camacho, Alex Kong, Adam Kagel, Sean Bendall, Mike Angelo 2021. HuBMAP - STANFORD RTI Multiplex Ion Beam Imaging (MIBI) MODALITY OVERVIEW.

protocols.io
<https://dx.doi.org/10.17504/protocols.io.btnfnmbn>

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

Created: Mar 25, 2021

Last Modified: Apr 10, 2023

PROTOCOL integer ID:
48551

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ABSTRACT

We aim to provide high resolution, high dimensional images of human placenta in early pregnancy by using our multiplexed ion beam imaging methodology for building an atlas of human organs.

Keywords: HuBMAP, RTI, multiplex, imaging, MIBI, antibody, mibiscopes, lyophilization, RTI-Stanford/MIBI, Stanford

Sample collection and preparation

- 1 Formalin fixation and paraffin embedding of specimens
dx.doi.org/10.17504/protocols.io.bqp6mvre
- 2 Sectioning of FFPE specimens <https://dx.doi.org/10.17504/protocols.io.bfz4jp8w>

MIBI slide specifications is detailed in MIBI staining dx.doi.org/10.17504/protocols.io.bt9tnr6n

Antibody panel validation for MIBI

- 3 Immunohistochemistry validation of antibodies for MIBI staining

IHC staining dx.doi.org/10.17504/protocols.io.bf6ajrae
MIBI and IHC solutions dx.doi.org/10.17504/protocols.io.bhmej43e
- 4 Antibody preparation for MIBI

Metal-antibody labelling dx.doi.org/10.17504/protocols.io.bhyej7te
Antibody lyophilization dx.doi.org/10.17504/protocols.io.bhmgj43w
Lyophilized antibody reconstitution dx.doi.org/10.17504/protocols.io.bjd6ki9e
- 5 MIBI antibody panel titration

MIBI staining dx.doi.org/10.17504/protocols.io.bt9tnr6n
MIBI and IHC solutions dx.doi.org/10.17504/protocols.io.bhmej43e

MIBI data acquisition

- 6 MIBI staining dx.doi.org/10.17504/protocols.io.bt9tnr6n
Instrument Quality Control
 Performed according to the manufacturer (IonPath) specifications
Field of view selection
 Performed according to the manufacturer (IonPath) specifications

MIBI data analysis

7 MIBI data extraction

Image processing Ionpath instrument internal document

8 MIBI image segmentation

Greenwald et al. <https://www.biorxiv.org/content/10.1101/2021.03.01.431313v2>

9 Cell type identification

TBD

10 High dimensional data analysis

TBD