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TMA-TNP Section Map and Slide Processing - Phase 1

Heidi S Feiler[1,2], Koei Chin[1,2]

[1]Oregon Health and Science University (OHSU) [Department of Biomedical Engineering and Knight Cancer Institute; [2]Portland, OR]

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Heidi Feiler
Oregon Health and Science University (OHSU)

ABSTRACT

Human Tumor Atlas Tissue MicroArrary TNP (TMA-TNP)

The Tissue MicroArray (TMA) TNP will extend the SARDANA-TNP characterization and analytics methodologies for evaluation and validation on a large array of breast tumor samples that provide a broad spectrum of disease state and subtype. A commercially available anonymized breast tumor TMA was purchased and sections distributed to participating HTAN Centers. Some deidentified basic clinical data will also be provided. The participating HTAN Centers will characterize the FFPE specimens (e.g. by imaging) and generate a spatially resolved cell type/state census using each Center's method of choice. Data will then be recorded in a common repository to enable joint analysis.

This TNP has two specific Aims focused on (i) Data Collection and (ii) Data Coordination and Analysis. Individual Centers can participate in one or both aims.

The custom TMA design for this project was generated by Dr. Koei Chin (OHSU) and sent to Pantomics for custom TMA FFPE block generation and sectioning. The TMA design and clinical sample descriptions can be found here: dx.doi.org/10.17504/protocols.io.bn2fmgbn

This protocol describes the procedure by which the OHSU OMS Atlas HTAN Center distributed TMA sections for TMA-TNP Phase 1 analysis.

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PROTOCOL CITATION

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KEYWORDS

biospecimen, FFPE, spatial mapping, TMA, OMS Atlas, HTAN, tissue microarray, breast cancer, spatial analysis, data integration

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MATERIALS TEXT

MATERIALS
Thermo Fisher Superfrost Plus slides, Ref # 6776214 were utilized.

Preparation

1 Verify the identity of the FFPE block to be cut against written request for sectioning. The FFPE block (TMA1) will be utilized for TMA-TNP Phase 1.

2 Each slide was labeled with a unique OHSU Slide ID corresponding to the FFPE section map (below).

A	B	C	D	E
Slide ID	**Section #**	**Description**	**Institution**	**Thickness (µm)**
OHSU_TMA1_000	0	QC H&E Pantomics	OHSU	4
OHSU_TMA1_001	1	cmIF (G3B Panel) Cyclic IF	OHSU	4
OHSU_TMA1_002	2	cmIF (G3A Panel) Cyclic IF	OHSU	4
OHSU_TMA1_003	3	H&E	OHSU	4
OHSU_TMA1_004	4	t-CycIF (Tumor Panel)	HMS	4
OHSU_TMA1_005	5	t-CycIF (Immune Panel)	HMS	4
OHSU_TMA1_006	6	mIHC (Discovery Panel) Multiplex IHC	OHSU	4
OHSU_TMA1_007	7	cmIF (G3A Panel) Cyclic IF	OHSU	4
OHSU_TMA1_008	8	cmIF (G3B Panel) Cyclic IF	OHSU	4
OHSU_TMA1_009	9	H&E	OHSU	4
OHSU_TMA1_010	10	t-CycIF (Tumor Panel)	HMS	4
OHSU_TMA1_011	11	t-CycIF (Immune Panel)	HMS	4
OHSU_TMA1_012	12	mIHC (Discovery Panel) Multiplex IHC	OHSU	4
OHSU_TMA1_013	13	cmIF (reserve) Cyclic IF	OHSU	4
OHSU_TMA1_014	14	cmIF (reserve) Cyclic IF	OHSU	4

Sectioning

3 Align block on microtome to minimize tissue loss.

4 Face into block at 4µm until full section of tissue is achieved.

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5 Cut adequate ribbon at 4µm to cover all serial sections.

6 Mount tissue sections onto slides to maintain serial order and orientation of sections. Thermo Fisher Superfrost Plus slides, Ref # 6776214 were utilized. For Phase 1, sections #0-14 were cut.

Slide Processing and Shipping

7 Slides are baked in a **45 °C** oven (~45-48C) for 2 hours and shipped on ice packs via FedEx to OHSU.

8 At OHSU, the slides were baked in an oven at **55 °C** **Overnight (12-16 hours)** , and then at **65 °C** for **00:30:00 (30-45 min)**

Note: Slides should be baked at **65 °C** *for at least 30 minutes.*

The slides are stored in a **4 °C** cold room until deparaffinization or shipping.

9 Slides were shipped on ice packs by express shipping to the institutions noted in step 2 above.

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