

 <p>MaineHealth CANCER CARE NETWORK SUPPORTED BY THE HAROLD ALFOND® FOUNDATION</p>	Biomarker Pathways Guidelines	
	Original Date: 5/30/2018	Review Date: 6/20/2018
	Precision Medicine Work Group	

Non-Small Cell Lung Cancer Biomarker Pathway			
Consensus Molecular Panel, 2018	EGFR ALK ROS1	KRAS MET RET	HER2 BRAF PD-L1
Clinical scenario	Initial diagnosis on biopsy material		
Assay ordering process	Reflexive order initiated by pathology		
Methodology	<ul style="list-style-type: none"> - Current send-out to Neogenomics <ul style="list-style-type: none"> o Transition to Foundation One CDx - In-house NGS validation in process 		

Colon Cancer Biomarker Pathway	
Consensus Molecular Panel, 2018	BRAF and extended RAS (KRAS / NRAS)
Clinical scenario	Late stage (III/IV)
Assay ordering process	Reflexive order initiated by pathology
Methodology	<ul style="list-style-type: none"> - In-house KRAS/BRAF - Send-out NRAS - Complete in-house NGS validation in process

GYN/ONC Biomarker Pathway		
Consensus Molecular Panel, 2018	Somatic BRCA1/BRCA2 mutation	Homologous Recombinant DNA Repair (HRD) phenotype
Clinical scenario	Serous carcinomas eligible for PARP inhibitor	
Assay ordering process	Clinician generated	
Methodology	<ul style="list-style-type: none"> - Send-out to Myriad 	

CNS Tumor Biomarker Pathway		
Consensus Molecular Panel, 2018	IDH1 mutation status 1p/19q rearrangement	MGMT promoter methylation status
Clinical scenario	<ul style="list-style-type: none"> - Grade III and IV astrocytoma / GBM - Initial diagnosis on biopsy / resection material 	
Assay ordering process	Reflexive order initiated by pathology	
Methodology	<ul style="list-style-type: none"> - IDH1-R132 immunohistochemistry send-out to Mayo <ul style="list-style-type: none"> o In-house assay validation in process - MGMT hypermethylation assay send-out to Mayo - 1p/19q analysis sent out to Mayo 	

Melanoma Biomarker Pathway		
Consensus Molecular Panel, 2018	BRAF mutation	KIT mutation
Clinical scenario	Recurrent / metastatic melanoma	
Assay ordering process	Clinician generated – transitioning to pathologist’s reflexive order based on updates to NCCN guidelines	
Methodology	<ul style="list-style-type: none"> - In-house BRAF mutation analysis - KIT mutation assay send-out to Mayo <ul style="list-style-type: none"> o In-house assay validation in process 	

Thyroid Cancer Biomarker Pathway			
Consensus Molecular Panel, 2018	BRAF mutation analysis	? Sequencing of atypical FNAs (Afirma vs. Thyroseq)	
Clinical scenario	<ul style="list-style-type: none"> - Initial diagnosis of papillary carcinoma on thyroidectomy - Thyroseq panel on subset of initial thyroid FNA 		
Assay ordering process	<ul style="list-style-type: none"> - BRAF reflexive order initiated by pathology - Sequencing of atypical FNAs ordered by clinician. Transitioning to reflexive order by pathologist on FNAs with uncertain histology 		
Methodology	<ul style="list-style-type: none"> - In-house BRAF mutation analysis - Afirma / Thyroseq send-out 		

Molecular Universal Lynch Screening				
Consensus Molecular Panel, 2018	MMR IHC	Microsatellite Instability (MSI)	BRAF mutation analysis when appropriate	MLH1 methylation analysis when appropriate
Clinical scenario	<ul style="list-style-type: none"> - Initial colon cancer diagnosis on biopsy or resection specimen - Initial endometrial cancer diagnosis on hysterectomy - Initial diagnosis of ovarian endometrial and clear cell carcinoma oophorectomy 			
Assay ordering process	Reflexive order initiated by pathology			
Methodology	<ul style="list-style-type: none"> - In-house MMR IHC and BRAF mutation analysis - MSI and MLH1 methylation analysis send-outs to Mayo 			

Checkpoint Inhibitor Biomarker Pathways

Lung tumors	PD-L1 (22C3) IHC Tumor Proportion Score (TPS) report format
Gastric / GEJ tumors	PD-L1 (22C3) IHC Combined Proportion Score (CPS) report format
Colon	MMR / MSI
Endometrial	MMR; MSI when appropriate
Other	MMR/MSI